Improving the Transition

Reducing Social and Psychological Morbidity During Adolescence

A report from the Prime Minister's Chief Science Advisor

May 2011

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Letter to the Prime Minister

The Prime Minister
Rt Hon. John Key
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Wellington 6160

9 May 2011

Dear Prime Minister

Improving the transition: reducing social and psychological morbidity during adolescence

In October 2009 you requested me to provide a report focused on how we may improve the outcomes for young people in their transition from childhood to adulthood. Your request arose from the concern that young New Zealanders have relatively high morbidity relative to other developed countries. That report is attached.

I established a Taskforce co-chaired by myself and Professor Harlene Hayne ONZM FRSNZ, an eminent academic from the University of Otago with expertise in developmental psychology. Professor Hayne and myself invited a number of distinguished academics and clinical practitioners from a variety of relevant disciplines to join the Taskforce, and as the work has progressed we have co-opted additional members as gaps were identified in our skill set. These people are named in the Appendix to this report.

As we agreed, the purpose of the Taskforce was to review the peer-reviewed scientific literature, both international and domestic, so as to understand the issues and to identify ways in which we could do better for young people. The exercise has been a major task and has involved enormous dedication from the Taskforce members, who have served without recompense and put in extensive individual effort to review the literature and debate its implications. Despite the broad range of backgrounds and disciplines on the Taskforce, the conclusions were reached with strong consensus and the Synthesis Report is endorsed by all members of the group. I acknowledge all their contributions, and particularly those of Professor Hayne and of Dr Alan Beedle from my Office, who have committed an enormous effort to this project.

An interim report was provided to you in June 2010 and since then the committee has worked intensively to complete the final report. The Synthesis Report has been subject to external review by international experts to ensure that there have not been any significant

omissions or exaggerations and that the balance of interpretation of the literature is based on evidence rather than opinion.

The report consists of the Synthesis Report followed by 22 substantive chapters written by named members of the Taskforce and their associates. They were requested to rigorously review the evidence base and their contributions are extensively referenced. We are not aware of a comparable comprehensive review, although we have made extensive use of more limited analyses available within the scientific literature.

In research relating to human development and behaviour, the importance of experimental design, population selection and methodology is often underappreciated. Considerable expertise is needed to interpret the extensive literature. It is also easy to insert bias into the reading of the literature, and the Taskforce has been very aware of not falling into this trap. We are fortunate that we have a number of outstanding researchers in the areas of human development in New Zealand, many of whom were on the Taskforce.

The science of human development is complex – we have had to consider biological, cultural, social and behavioural domains. Even so, a comprehensive understanding of the factors that put an individual young person at risk is not possible. However, this does not mean that we lack a strong evidence base of what would reduce risk across our population of young people – indeed, there is substantive documented evidence to suggest that we can do much better for them.

On the other hand it is clear that an evidential approach is not being systematically used in deciding what programmes to offer and which to maintain. Too many programmes appear to have been started on the basis of advocacy rather than evidence or have characteristics which cannot scale. As a result opportunities are being lost and funds are being wasted on programmes that will not achieve their objectives. This reflects a general lack of critical decision-making in developing, applying and monitoring programmes in the social domains. Just because an intervention appears promising in the short term, or is promoted by anecdote, does not mean that it is effective over the long term.
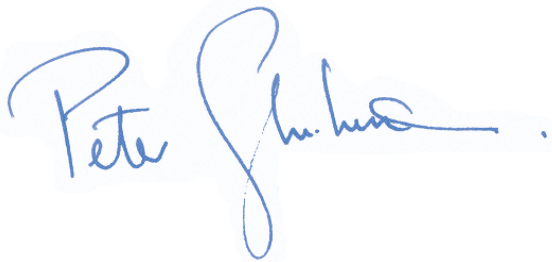
It is also important to note that social, socioeconomic and cultural factors mean that there is marked heterogeneity in the risks facing young people across New Zealand. There is a need to distinguish programmes that are appropriate for all young people from those that should be targeted at individuals or families who are particularly at risk. Economic modelling in other countries has demonstrated the long term benefits of targeted programmes for high-risk families provided that those programmes meet certain criteria. It is also clear that programmes initiated early in life to reduce later risk are generally more effective – and more cost-effective – than attempts at remediation.

As the report makes clear, to improve outcomes for New Zealand's young people will require sustained effort over multiple electoral cycles. It will require many agencies to consider their priorities and approaches. It will require greater integration of actions across ministries. The report also identifies knowledge gaps where research is needed.

While many of the concerns discussed by the Taskforce are not unique to New Zealand, I believe that this country, because of its small size, excellent social science research base, committed professional workforce and a community determined to address the issue, is uniquely placed to lead the world in developing a more integrated and effective approach to 'improving the transition'.

In accord with the role of my Office, the report reaches a number of general conclusions to inform policy formation but does not attempt a list of specific action points. This approach reflects my brief that the role of scientific advice is to elucidate the evidence, recognising that policy formation must involve other considerations which were not part of our remit.

I thank you for the opportunity to address this critical matter and to demonstrate the value of an evidence-based approach to complex issues.

Sir Peter Gluckman KNZM FRSNZ FMedSci FRS

Chief Science Advisor

Synthesis Report

A Consensus Statement from the Taskforce

Executive summary

- Adolescents in New Zealand relative to those in other developed countries have a high rate of social morbidity. While most adolescents are resilient to the complexities of the social milieu in which they live, at least 20% of young New Zealanders will exhibit behaviours and emotions or have experiences that lead to long-term consequences affecting the rest of their lives.

- An extensive and unbiased review of the relevant scientific literature has been undertaken by a multidisciplinary panel of experts. The key points are summarised in this introductory Synthesis Report, and the main part of the report contains the detailed and domain-specific reviews.

- One dominant message comes through – that application of the international and domestic evidence base to policy formation and programme development in this area will lead to better outcomes for our young people. However, to do so will require a prolonged effort over several electoral cycles and cannot be held hostage to adversarial politics. Our research suggests that many programmes have been introduced, albeit with good intent, that are unlikely to succeed as they are not supported by the evidence base, whereas other approaches likely to be effective have not been implemented. A key challenge is to ensure that all programmes are appropriately monitored to ensure that they are effective and cost effective within the New Zealand context, allowing better use of scarce public resources to support our young people.

- Adolescence is now a prolonged period in the human life course. Its length is influenced by the declining age of puberty as child health has improved and by the rising age at which young people are accepted as adults. This has both societal and biological elements, the latter reflecting recent findings that brain maturation is not complete until well into the third decade of life and that the last functions to mature are those of impulse control and judgement. It is therefore inevitable that adolescence is a period of risk-taking and impulsivity. For many children these are basically healthy and transient behaviours, but for too many there are long-term negative consequences. The key issue is what can be done to change the nature of, and reduce the impact of, these behaviours.

- The evidence shows that the risk of impulsive and antisocial behaviour is greatly increased by experiences earlier in life. It is now clear that early childhood is the critical period in which executive functions such as the fundamentals of self-control are established. Children who do not adequately develop these executive functions in early life are more likely to make poor decisions during adolescence, given the inevitable exposures to risk in the teenage years. It is very clear from our review of the literature that more can be done to improve socialisation and executive function development

by reorientation of early childhood programmes. Further, while all children will benefit from these programmes, the evidence is compelling that targeting intensive but costly interventions towards the higher-risk sections of the community has a high rate of social and economic return. Hence the critical importance of adopting a life-course approach to prevention.

- Remediation in adolescence is not likely to be as effective as prevention. Although there are some remediation programmes that are partially effective, others clearly are not. Public and voluntary investment in programmes directed towards at-risk adolescents needs to be re-orientated towards those interventions that can be shown by high quality research to have real impact within the New Zealand context.

- The adolescent brain is clearly more sensitive to both alcohol and cannabis, with long-lasting adverse consequences for far too many. Stronger measures are needed to restrict access of young people to these drugs.

- One cannot overestimate the changed nature of the social environment in which young people find themselves compared with that of previous generations. The nature of peer pressure and role models has been radically altered by exposure to electronically connected social networks and to very different media content. Young people have far greater freedom, engendered by more ready access to funds. While the exact impact of these changes is difficult to ascertain, it is clear that they have radically affected the social pressures that influence adolescent behaviour. This creates challenges for parents and society in establishing boundaries and acceptable behaviours.

- A significant proportion of young people suffer from depression and other mental health disorders, yet the range of services available to them is inadequate. Given New Zealand's high rate of adolescent suicide and psychological morbidity we suggest that priority be given to addressing this capacity gap and to raising public awareness of the particularities of adolescent depression.

- In general, most of the risky and impulsive behaviours of adolescence reflect incomplete maturation of self-control and judgement. Accordingly, punitive approaches are less likely to be effective than well-established and validated approaches that attempt to remedy these deficits. There is an inherent conflict between the practical focus on using chronological age to determine rights and obligations and the highly individualistic processes of maturation.

- The young people of New Zealand reflect the changing ethnic mix of our population. While the issues and their solutions are generic across all of our population, programmes must be developed and delivered in culturally appropriate ways to the very different communities that now make up young New Zealand. Targeted investments in the 'long tail' of educational underachievement and social disengagement will be needed. It is clear that while adolescent morbidity is observed across the whole of our communities, it is disproportionately found within sectors where there is intergenerational disadvantage.

- Social investment in New Zealand should take more account of the growing evidence that prevention and intervention strategies applied early in life are more effective in altering outcomes and reap more economic returns over the life course than do strategies applied later. This will require long-term commitment to appropriate policies and programmes.

- The report identifies a number of knowledge gaps that should be addressed.

1. Introduction

In October 2009, the Prime Minister requested that the Office of the Chief Science Advisor review the scientific understandings related to the high rate of social morbidity associated with being an adolescent in New Zealand.

The Chief Science Advisor invited a number of leading academics and health practitioners from a variety of disciplines, with expertise in domains of relevance extending from endocrine biology to educational science, to form a Taskforce co-chaired by Professor Harlene Hayne ONZM FRSNZ, an academic with expertise in developmental psychology. The Taskforce has met on a number of occasions over the past 18 months.

In June 2010, the Taskforce released an interim report indicating the direction of its work and pointing to its areas of focus.[1] Since that time, it has greatly extended its analysis and formulated its conclusions as a Synthesis Report followed by a series of detailed, domain-specific and referenced chapters. As the work progressed, a number of additional people were co-opted to assist with particular points of focus and to contribute particular components of the literature review. This Synthesis Report has been subject to external peer review by international experts. Although the detailed chapters were peer reviewed from within the Taskforce itself, final responsibility for the content of those chapters remains with their authors. All those involved are listed in the Appendix.

The members of the Taskforce represent diverse academic and professional disciplines and the level of discussion has been highly robust; in the end, however, this report reflects the consensus of the Taskforce. The exclusive focus on the scientific literature has allowed the advice to be free of political or other bias. This is essential – while small and important gains are likely to be evident early if efforts are made in response to this report, it will take much longer to embed the significant population-level changes we think are necessary to have a real and lasting impact on adolescents and their families. Given this timeframe, a non-political approach is essential. Young people cannot be held hostage to the vagaries of adversarial politics.

From the outset the Taskforce restricted itself to a consideration of the peer-reviewed scientific literature to avoid the risk of bias found in the 'grey' literature or arising from anecdote or unsubstantiated claims. It has extensively reviewed the published literature, both domestic and international, and has evaluated the reliability of the conclusions suggested by the published data, the impact of the factors identified, and the evidence to support particular interventions. Unfortunately, a common feature of many interventions that have been designed with the intent of producing better outcomes for children, adolescents and their families, or to satisfy community demands, is that they are based on minimal evidence of effectiveness and have often been derived from dogma rather than from a scientific basis. Further, many interventions may appear to work at the pilot stage but then fail when they are implemented more widely; often the critical features for success are not recognised. The Taskforce has taken particular care to evaluate existing interventions for their effectiveness and to identify the elements that allow them to be effective at scale.

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[1] Available from: http://www.pmcsa.org.nz/wp-content/uploads/2010/06/Adolescence-transition-interim-report-release-1Jul10.pdf.

We have also been particularly concerned to avoid a political perspective because much of the relevant literature is in the realm of social and behavioural science, a domain where there is considerable risk of relying on perception, anecdote or values-based discourse and over-riding the evidence base or generating solutions in the absence of data, particularly when other considerations come into play.

The Taskforce acknowledges that in an area such as adolescent development, which involves a high level of multi-factorial complexity and where the quality of much data is patchy, there will be many uncertainties. Thus in some areas, rather than draw firm conclusions, we indicate where there is a need for more high quality research.

2. Context of the report

It is undeniable that the passage from childhood to adulthood is complex. In New Zealand a large number of children do not make this transition easily, which results in an unacceptably high rate of adolescent morbidity for young New Zealanders compared with those in other OECD nations. The OECD report released in 2009 entitled *Doing Better for Children* gives a range of comparative figures that suggest that young New Zealanders are at greater risk than those of virtually any other nation we would want to compare ourselves with. We have deliberately not explored in detail – because any attempt to do so would involve speculation rather than evidence-based reasoning – this paradox of why New Zealand's young people do so poorly in spite of the opportunities provided by our unique natural heritage and our moderately prosperous economy. Nevertheless, the discussion in this report suggests some possible explanations that reflect the young and emerging nature of our society. What we do know, however, is that our society is not homogeneous and that adolescents from disadvantaged environments are at greatest risk for negative outcomes.

The poor outcomes for our young people include teenage pregnancy and abortion, teenage crime, teenage suicide and teenage mental health problems. Many of these issues are justifiably of great concern to the New Zealand public, officials and politicians. Binge drinking, bullying, suicide and other impulsive and risk-seeking behaviours leading to injury and criminal activity are all areas of high public concern.

The key question that we have to ask is why some young New Zealanders are at particular risk? But the opposite question is equally important. Why is it that most young New Zealanders transition through adolescence without significant problems? We can learn as much from what determines resilience as we can from what determines risk, and this issue is discussed in Chapter 5.

Puberty and adolescence together represent a critical period of transition from childhood to adulthood, from reproductive immaturity to maturity, from dependence to independence. It is not possible to understand these years without taking both a life-course and an interdisciplinary approach, recognising that many of the determinants of risk and resilience operate much earlier in the life course – indeed extending back to early childhood and even to fetal life. Some of these determinants are biological, some are environmental (including in particular family circumstances), some are societal and some are sociological and educational. Many of them interact to determine later outcomes.

The complexities of the issues are such that it would be naive to imagine that there can be a magic bullet that can address the problems that confront our young people. The Taskforce has concluded that an integrated approach, based on current scientific knowledge, could greatly improve adolescent morbidity for coming generations of children. Again, we

emphasise the need for a sustained and consistent approach which does not get caught in partisan politics. A generation of effort will be needed and New Zealand cannot afford so many young people being placed at risk. International comparisons suggest we can do much better.

3. Definitions and biology

As Chapter 1 describes, puberty is the period in a young person's life when they transition from having an inactive to having a fully mature (in a biological sense) reproductive system. Puberty takes some years to complete and starts somewhat earlier in girls than boys. The physical changes that accompany puberty are a reflection of the rising patterns of sex hormones in this period. The sex hormones also act on the brain to change brain structure and function, inducing psychosexual feelings and facilitating risk-taking and impulsive behaviours.

In girls, the increased levels of estrogens lead to the development of breasts, the development of pubic and axillary hair and late in puberty the onset of menstrual periods (the occurrence of the first period is called the menarche); associated changes in other hormones cause a growth spurt. The average age at menarche has fallen greatly over the past two centuries – for European girls from about 16 years to about 12 years. It is still falling, but not so quickly. This means that about half of girls are fully biologically mature before the end of year 8 of school – many will have started their hormonal changes by the age of 8 years.

In boys, the age of puberty also appears to be falling but it starts 1 to 2 years later and is complete about 2 to 3 years later than in girls. This gender difference in the rate of maturation has a number of social and sociological implications. During puberty in boys, the male hormone testosterone is released, leading to muscle development, a growth spurt, facial, axillary and pubic hair and genital growth.

In both boys and girls, the falling age of puberty primarily reflects a healthier and better nourished society, including improved maternal and child health, thereby advancing normative shifts in the physical development of children and adolescents. Paradoxically, there are other factors including child abuse, developmental stress, poor fetal development and childhood obesity that can also accelerate puberty for a small number of children. In the context of this report, this paradox illustrates the complexity of the issues we have considered as well as the importance of events earlier in the life course for adolescent development.

Adolescence is defined in this report as the period that extends from entry into puberty until the individual is fully accepted as an adult in the particular societal context. Because of the recent historical change to an earlier age of pubertal onset, the adolescent period in contemporary Western society is no longer isolated to the teenage years but instead begins around age 9 to 12 years, with adult roles finally taken on in the mid-twenties or later. It is this prolongation that leads to the far greater importance of adolescence as a life phase in modern society, and it is the consequent mismatch between hormonal and neural biology and social and cultural factors that contributes to the higher risk of teenage morbidity. The prolonged period between the onset of puberty and the final acceptance of adult roles and responsibilities in complex societies like New Zealand contrasts sharply with that in other societies in which adolescence (with regard to pubertal onset and adult roles) may only span a period of 2 to 4 years. Clearly cultural and sociological factors are important in defining the period of adolescence, which also requires an understanding of

issues like self control, wisdom, judgement and responsibility. Laws regarding adolescents try to encapsulate these issues when setting the minimum legal ages for various activities. Unfortunately, this practice leads us to define rights and responsibilities by chronological age even though we recognise that there is enormous individual variation in the rate of maturation and that age is only a rough proxy for developmental stage.

One of the most significant findings from the field of neuroscience over the last decade has been the observation that some regions of the brain are not functionally mature until the third decade of life. The late-maturing regions of the human brain underpin the processes required for a host of cognitive activities, including attention span, perseverance, planning, problem solving and critical thinking. They also underpin the processes required for self-regulation including impulse control, wisdom, judgement, and forward thinking. Essentially, there is a mismatch or maturity gap between the age of sexual maturation, with its associated changes in brain function leading to greater reward-seeking and sensation-seeking, and the level of brain maturation that is required to navigate the risks that come with additional freedom. Greater risk taking is a normal part of that process and that can involve testing the boundaries of the group norms. When the group norms are not well established, or are characterised largely by risky behaviours, exceeding the boundaries may result in transient or permanent harm. Some have suggested that the later part of adolescence represents a new period of development, referred to as 'emerging adulthood' that extends until at least the mid-twenties.

One intriguing and poorly understood question is why brain maturation takes so long. Did it always take this long, but in a simpler society the final stages of the maturation process were less significant? Or is there something about the context of modern society that generated a delay that did not exist before? The answer to this question has important implications for interventions – and understanding it may have implications for why New Zealand's young people are doing comparatively less well than in many other countries.

4. Contextual considerations

The world has changed so much for young people in just a generation: the personal computer, the internet and the mobile phone – all taken for granted by the average young New Zealander – were not available when their parents were the same age. Given the dramatic technological changes that have taken place, it is almost impossible for the older generation to understand the context in which young people now live. It is an absolute mistake for an older generation to project their experiences onto this generation – the corollary being that a better understanding of young people in the 21st century is likely to be an important prerequisite for effective smoothing of the transition.

In addition to changes in technology, the Taskforce has had to consider other contextual issues at considerable length. Some are obvious, such as the increase in both single parent families and in families where children are living with only one biological parent. The greater involvement of women in the workforce has changed the nature of experience for young people. The development of effective and accessible contraception in association with very different social inputs changes the behaviour of both young and old. The availability of alcohol, other drugs and inexpensive motor vehicles, together with 24-hour access to cash via ATMs, has rapidly escalated the opportunity for risk-taking behaviours for this generation of young people. We must also consider the impact of mobile phones, the internet, social networking and a media that is essentially unrestricted in how it markets to young people, with frank sexuality and risk-taking behaviour being promoted

extensively – although there remains uncertainty as to the impact of these changes on the developing brain and on adolescent behaviour (Chapters 8, 9 and 10).

These changes have been rapid and dramatic. The changed nature of society as reflected in the media has led to greater ambiguity regarding the boundaries of acceptable behaviours. One manifestation of this is the increased incidence of extreme bullying. As a result of these changes, for many young people the essential controlling and guiding role of parents, teachers and community organisations has been increasingly replaced by the celebrity and the peer group as a significant influence on adolescent behaviour. Parents often feel they do not have the capacity or the knowledge to put boundaries on their children and have lesser control – in many cases they do not know how to give their children guidance or are scared of creating limits.

In addition, over a generation we have seen a shift from younger children having a relatively unstructured environment to one which is more structured, both by the demands of parents (for example, fears of the consequences of unsupervised play outside the household) and by the reality that working parents need their children to be in structured supervision after school. In contrast, the teenage years have become much less structured with greater curricular choice, greater personal mobility and reduced social constraints. Further, the internet creates extraordinary informational freedom and changes the nature of social interaction.

These contextual changes are enormous and are reflected in multiple ways through this report. They are changes which in many cases are irreversible and which create both challenges and opportunities for our young people.

5. Morbidity and mortality in New Zealand adolescents

The transition between childhood and adulthood is characterised by a developmental paradox – despite a substantial increase in both physical and cognitive ability, there is also a dramatic increase in morbidity and mortality during adolescence. Some statistics indicate that mortality rates during adolescence increase by as much as 200% relative to middle childhood. This increase in morbidity and mortality is due, in large part, to difficulties in the control of emotions and behaviour and patterns of brain maturation that lead to high levels of risky behaviour during the adolescent period. Although some of the risks that adolescents take undoubtedly have positive consequences (such as participation in sports, overseas travel, going away from home to attend university), many of their risky behaviours have harmful, and sometimes fatal, consequences.

By international standards, risk-taking among New Zealand adolescents is high. Excessive alcohol use is common; 70% of New Zealand 12- to 17-year olds report that they have no problem accessing alcohol and 30% of teenagers report that they made no attempt to control their drinking in order to avoid memory confusion or loss. The Youth '07 National Survey of the Health and Wellbeing of New Zealand Secondary School Students found that about 34% of secondary school students reported binge drinking in the past 4 weeks. Drinking begins early in New Zealand; it is estimated that 90% of adolescents have experimented with alcohol by the age of 14 years and, relative to their international counterparts, New Zealand adolescents also have a tendency for younger binge drinking. New Zealand also has problematic social-health issues in relation to adolescent sexual behaviour (Chapter 10). New Zealand ranks fifth among OECD countries for rates of teenage pregnancy. New Zealand youth are at a high risk of sexually transmitted infections, with

those under 25 years having the highest rates of *Chlamydia* infection, gonorrhoea, genital herpes and genital warts. Finally, New Zealand has the highest rate of teenage suicide among OECD countries.

6. Life-course approach

For the reasons described above, social factors such as socioeconomic circumstance, family structure, and the school, community and peer group environments can contribute to adolescent difficulties. Particular challenges arise from cross-cultural contexts that can create additional pressures and conflicts as young people develop a sense of identity. Adolescents with a sexual orientation that differs from that of the majority of their peers, or adolescents with disabilities, may also not experience an easy transition to adulthood. Nevertheless, the seeds of many adolescent difficulties are sown very early in development. For example, many adolescent problems are associated with a history of early neurological and biological factors, low cognitive ability, school failure, childhood antisocial behaviour, family violence, parental drug and alcohol use, physical abuse, neglect and poor parenting practices. Similarly, adverse prenatal, infant, and childhood experiences contribute to a diverse range of poor health outcomes in adolescence and adulthood, including elevated rates of depression and a cluster of metabolic risk factors including obesity, diabetes, and cardiovascular disease.

Given that the experiences of infancy and childhood have a major impact on adolescent outcome, this review highlights the importance of a life-course perspective to understanding adolescence. What follows is a series of recommendations for policy makers that are derived on the basis of international published research. We recognise that these recommendations have to be integrated with the other considerations that policy makers must consider. However, the key purpose of this report is to emphasise that in order to maximise the outcomes for adolescents, we must incorporate the science base into the policy formation process.

Some of our recommendations are designed to improve outcomes for our current cohort of adolescents, whereas others focus on New Zealand's current cohort of infants and young children and are designed to maximise their development through adolescence. These recommendations involve long-term investment that may not reap obvious benefits for a decade or more – but their long time horizon makes them no less important. If we want to improve the outcome for New Zealand's young people, it is urgent that we act now and that we make commitments over the long term.

We strongly argue that prevention and intervention strategies applied early in life are more effective in altering outcomes and reap more economic returns over the life course than do prevention and intervention strategies applied later. In fact, in many instances it can be demonstrated from overseas studies that the financial benefits of early investment are actually greater than the costs of the interventions themselves. Further, because many of the apparently disparate negative outcomes that we are concerned with are highly comorbid – meaning that they occur in the same individuals – early-life interventions designed to mitigate one of these outcomes may also have positive effects on several of the others, and so good early-life interventions can provide even better value for money because of their multiple positive consequences.

7. Families

Strong families/whānau are the bedrock of society and they provide the foundation for healthy child and adolescent development. The importance of strong families is a common feature across the whole of this report, but specific issues are discussed in Chapters 2, 4, 5, 7 and 14. The implications are broader than simply behavioural. For example, there is a growing consensus that pathways to obesity start before birth or infancy and that developmental influences are at least as important as genomic influences (Chapters 1 and 21).

The early years of life have a unique and formative impact on child health, development and relationships throughout life. Secure mother-infant attachment is an important predictor of resilience in later life including higher self-esteem, reduced anxiety and reduced hormonal responses to stress. Chapter 2 identifies that many adverse developmental outcomes can be prevented when parents are provided with support and information that enables them to be optimally responsive to their infants and young children. Early childhood interventions should be available across a wide variety of policies and programmes. These include near-universal services, such as childcare and early childhood education, as well as targeted interventions for a range of vulnerabilities, including economic hardship, childhood disabilities, child maltreatment and parental substance abuse and mental illness among others. Programmes that combine child-focused educational activities with explicit attention to parent-child interaction patterns and relationship building appear to have the greatest impact. In contrast, services that are based on generic support, without a clear description of intervention strategies matched directly to measurable objectives, appear to be less effective, especially for families facing significant risk.

Even within families with few risk factors, there is growing concern that parents feel unable to establish limits around their children's behaviour, particularly as they enter adolescence and the pressure of peers and the opportunities for risky behaviour increase. There is clearly a need to provide parents and caregivers with the skills and the resources that will help them to set effective limits on behaviour. Both current and future parents should have access to these programmes. There is no evidence to support formal parenting education at school as being effective (Chapter 6) and there is an urgent need for research to identify effective programmes that would assist parents.

Chapter 14 identifies a clear need for additional support for families with a history of inter-parental conflict, domestic violence and child maltreatment, as well as for families who are undergoing separation and divorce. It is essential that we identify children who are growing up in risky families; once we do, it is possible to implement a variety of evidence-based intervention programmes that have been shown to improve outcomes in children, adolescents, and adults.

8. The importance of early intervention

A large body of evidence suggests that many adolescent difficulties including crime, substance abuse, and mental health problems have their antecedents in early childhood. For example, measures of self-control during the first decade of life, beginning at age 3 years, can help us predict physical health, personal finances and criminal offending three decades later (Chapter 3). Frequently, but not invariably, the worst outcomes occur in a minority of young people whose early childhood and family life have been marked by multiple challenges including poverty, family instability, child abuse, and family violence. Increased recognition that these early years lay the foundation for future development

has led to investment in evidence-based prevention and treatment programmes for preschool-age children and their families.

8.1   Home visiting programmes

Both within New Zealand and overseas, large investments have been made in intensive home visiting programmes for families facing stress and difficulties. These programmes usually start around or before birth and are delivered by home visitors who provide advice, assistance, support and mentorship to families. Programmes may last up to 5 years and address a wide range of family issues including parenting and child behaviour. Many of these programmes have been evaluated using randomised controlled trials. The outcome following many of these home-based interventions has been disappointing and few positive effects have been found. There are, however, a few programmes that have been shown to be effective and these are detailed in Chapters 2 and 4. The general conclusions that emerge from the literature on home visitation are that well-designed home visitation can reduce rates of conduct problems in early childhood that contribute to adolescent difficulties, but to be effective these programmes need to be carefully implemented and require rigorous and continuous monitoring and evaluation.

8.2   Centre-based programmes

Centre-based programmes provide another possible approach. In these programmes, children from at-risk backgrounds attend pre-school education centres that provide systematic programmes aimed at reducing risks of behavioural difficulties and increasing academic competence. It is important to note that such programmes should not be equated with the provision of preschool education; the programmes described below contain specific features aimed at mitigating childhood disadvantages. As with home visitation, randomised trials suggest that well-designed, centre-based programmes can reduce risks of longer term problems. Because multiple risk factors contribute to conduct problems in childhood, early childhood centre-based programmes that reduce multiple risks are more successful in preventing chronic delinquency and other adolescent problems and in maximising long-term success than are those that target only a single risk factor. The programmes that demonstrate long-term effects on crime and antisocial behaviour tend to be those that combine centre-based programmes for children with family support services (Chapters 2 and 4).

8.3   Community-based programmes

Community-based programmes that attempt to provide services, resources and support for at-risk families and children can also reduce negative outcomes for children and adolescents. Some of these community-based programmes have been shown to be effective (see Chapters 2 and 4).

8.4   Parent behaviour management training

One of the most successful approaches to addressing behavioural problems in early and middle childhood has been parent behaviour management training programmes. Typically, this intervention involves therapists or facilitators teaching parents a range of skills for the management of challenging behaviour. These skills include: carefully observing and recording child behaviour; the use of positive reinforcement, the avoidance of physical punishment; the use of time out, loss of privileges and related parenting skills. Parent management training may be provided in both a group context and a one-on-one basis.

There is now a range of standardised, well-validated and widely used programmes that employ these principles (see Chapter 4).

8.5   Investments in early intervention in New Zealand

There has been increasing investment in a series of early intervention programmes in New Zealand, but with a few exceptions there has been no evaluation of these programmes using randomised trials to evaluate their efficacy in a New Zealand context. Of those programmes that have been evaluated, many have been shown to be ineffective. A matter of high priority is to set up a consistent programme of research and evaluation to develop high-quality early intervention programmes (and to cull ineffective and, in some cases, potentially harmful programmes) for New Zealand children at risk of longer term problems and difficulties. It is important that any such programme of research takes into account both Māori and Pasifika perspectives. Chapters 1, 2 and 4 of the report review the issue of early intervention, make recommendations about effective evidence-based programmes, and examine the cost benefit of early intervention.

9. Education

Although the quality of school education in New Zealand as evaluated in international comparisons is very good, a significant group of children, many attending low decile schools and particularly Māori and Pasifika children, have educational risks in the adolescent years. Differential patterns in educational access and outcomes occur in early childhood education and become pronounced in upper primary and at secondary school. As Chapter 7 discusses, increased access to and increased quality of early child education for Māori and Pasifika whānau/families and in low decile communities are needed. Without the non-cognitive skills that should be developed early in life, the probability of later school and social failure is much higher. Nevertheless, provision of preschool education alone should not be seen as an 'inoculation' against later educational risk – a co-ordinated approach from preschool to secondary level is indicated, with a life-course approach to family/whānau engagement in specific tutoring coordinated with school components. Specifically, families need resources and guidance in how to support children in developing knowledge for school success.

The current socio-historical context in which adolescents now live their lives means that many parents no longer have sufficient knowledge or wisdom to help their children navigate through the complex issues that they currently face. In addition, other sources of life skills education (for example church and community groups) that traditionally played a role in children's lives have largely disappeared from many parts of society – Pasifika are an exception in this respect. Given this gap, Chapters 6 and 10 explore the value of life skills education within the school system and consider whether programmes providing information about issues like human biology, mental health, self control, nutrition, alcohol and drugs, and media literacy can improve resilience and decrease morbidity in young people. They unfortunately conclude that very few programmes beyond early childhood have been shown to have significant impact on adolescent behaviours, and that formal programmes aimed at the adolescent should only be introduced where positive effect can be demonstrated in controlled trials. Even then, proper scale up and continuous evaluation are needed.

10. Mental health

There is growing evidence that the human brain continues to mature over a long period of development extending well beyond an individual's 20th birthday. The nature of brain maturation and the complicated environment in which young people are currently living put the adolescent at higher risk for mental health disorders, particularly anxiety and depression. The triggers for such disorders may appear quite trivial in relationship to what is seen in the mature brain. The way in which adolescent depression may manifest is also very different from the way in which it manifests in adulthood. For example, relative to adults, depressed adolescents are more likely to attempt or commit suicide against a background of relatively trivial background circumstances.

Chapters 15 and 16 make recommendations around adolescent mental health and suicide prevention. They note that New Zealand has a woefully deficient number of mental health services that are aimed specifically at young people. Furthermore, doctors, teachers, and parents are poorly trained to identify those young people who might be at risk. Given that the opportunity for successful intervention is greatest when the intervention occurs early, it is economically sensible to increase the mental health work force in New Zealand, particularly those who are specifically trained to work with children and adolescents.

There are capacity deficits for both mental health screening and treatment, although in a financially constrained environment we need to find more effective ways of identifying adolescents who are at risk and more cost-effective ways of treating them. Preliminary work, for example, has shown that therapy provided on-line, or e-therapy, holds some promise for treating adolescents with anxiety and depression. The other advantage of e-therapy is that the cost is low and there is little or no barrier to access.

In the US, routine screening for depression in adolescents aged 12 to 18 years is now recommended in locales where treatment options are available. Evidence shows that there are screening instruments available that are suitable for use in primary care and can correctly identify adolescents with depressive disorder, and that treatment can improve outcomes. In New Zealand, screening is available in some schools and a coordinated approach to detect and manage depression in adolescence has the potential to improve the transition to adulthood for a substantial group of young people who are not accessing help currently. If screening were to be put in place then access to therapy would be important. Given the concerns about the possibility that antidepressants can increase the risk of self-harm, increasing access to psychological therapies for young people would be important.

11. Drugs and alcohol

Age-related changes in the human brain that occur during the teenage years render adolescents highly susceptible to the effects of alcohol and other drugs. Many of the negative behaviours that contribute to morbidity and mortality in adolescence (such as unprotected sex, traffic accidents, suicide, antisocial behaviour and crime) occur against a backdrop of drug and alcohol use. Although cannabis has often been viewed as a relatively harmless drug with few adverse effects, Chapter 20 reviews the mounting evidence that cannabis exposure during adolescence has multiple harmful effects including increased risk of psychosis and other mental health disorders, increased risk of other illicit drug use, increased risk of school dropout and educational underachievement, and increased risk of motor vehicle accidents. We recommend that policies are developed that reduce access to cannabis by teenagers. There is also a sound case for reviewing New Zealand's legislation

on the possession of cannabis to obtain a better balance between criminalisation and harm avoidance.

Similarly, heavy alcohol use by young people is more harmful than heavy alcohol use by adults. Not only does heavy alcohol use during the adolescent period contribute to risky behaviours that may lead to injury or death, but there is also mounting evidence that heavy alcohol use during adolescence may lead to permanent brain damage. In terms of intervention, Chapter 19 summarises the clear evidence that increasing the purchase price of alcohol and restricting its marketing and availability are effective in reducing excessive alcohol consumption and the subsequent harm to young people. Although some level of education regarding the dangers of binge drinking is obviously necessary, we know that education alone is not enough; most adolescents binge drink (and engage in other risky behaviours) despite the fact that they are well aware of the potential negative consequences of their actions.

12.   Media

Young people currently live in an environment in which they are bombarded by electronic information via the television, the internet and mobile phones (Chapters 8 and 9). The long term impact of this heavy diet of media exposure is not yet known. Published research on the effects of exposure to violence in the media (including video games) in promoting aggressive behaviour is inconsistent, and more study is needed (Chapter 8). It is also uncertain whether exposure to sexually explicit material can be linked to early sexual behaviour and higher rates of teen pregnancy (Chapters 8 and 10).

However, media content clearly has the potential to affect young people's perceptions of the boundaries of acceptable behaviour. Where the Crown has the capacity to make reasonable suggestions regarding the media, they should do so. Because of the inability to control much of media content, however, initiatives that encourage media literacy and cybersafety might help young people to approach these issues in a more informed manner (Chapters 8 and 9).

In addition, Chapter 16 concludes that there is no evidence to support the recent suggestion that increased coverage of suicide in the media will reduce youth suicide, and much evidence that it would actually do harm.

13.   Culture and context

New Zealand adolescents from all ethnic backgrounds are increasingly culturally eclectic, borrowing and living traditions from the range of cultural backgrounds to which they are exposed (Chapters 12 and 13). The Māori content of the early childhood and primary school curricula has increased over time, and the expression of cultural identities is encouraged. Further, Māori and Pasifika preschool education settings (such as Te Kohanga Reo and Pasifika equivalents) have developed to a point where language and cultural immersion tuition is a choice for some (but not all). Nevertheless, Chapters 7, 11 and 12 present generally consistent evidence to suggest that Māori and Pasifika young people are at increased risk of a wide range of adverse outcomes, including educational underachievement, antisocial behaviours, problems with alcohol, mental health disorders and suicidal behaviours. These findings suggest that a major focus should be the development of policies and practices that address the issues that place Māori and Pasifika young people at greater risk.

While it is the environmental context which matters, culturally relevant solutions are strongly indicated, and culturally dissonant learning environments should be identified and addressed. There have been suggestions by Māori and Pasifika advocates that to address these issues requires the adoption of culturally specific and appropriate frameworks. We emphasise, however, that the recommendations in this report are not intended to be ethnically specific – rather, they are context specific. That is, children of all ethnic backgrounds who experience multiple risk factors including poverty, family violence, abuse and neglect are more at risk for negative outcomes during adolescence than are children who do not experience these risk factors. Chapter 11 particularly acknowledges the position of Māori as tangata whenua and Treaty Partners and the desire of many Māori to continue to live and flourish in Aotearoa/New Zealand as Māori.

Comprehensive data on the health and well-being of immigrant minority youth in New Zealand are sparse. While some health databases include statistics for 'Asian' people, this category can mask important differences across several distinct ethnic groups. Government agencies and researchers are encouraged to develop approaches that represent the diversity of ethnic, cultural and migration experiences within these groups, and monitor the impact of settlement policies on migrant and refugee youth.

Given these factors, where interventions are to be targeted, they should be targeted according to risk rather than according to ethnic identity. Once individuals and groups at risk have been identified, strong cultural identity requires culturally relevant interventions and environments, but these interventions, like all others, must be carefully managed and monitored. The same rigour and evaluation needs to be applied to culturally tied interventions as to others (Chapter 22).

14. Legislation and adolescence

Adolescents are a vulnerable population for a wide range of adverse outcomes and life-course difficulties, and their heightened vulnerability is frequently reflected in legislation aimed at reducing the risks faced by adolescents (for example, minimum ages for driving, alcohol consumption and sexual consent), in specific legislation designed to deal with adolescents who commit crimes, and also in legislation relating to the age at which certain rights are conferred (for example, ability to vote).

Given what we know about the prolonged course of human brain development, our view is that adolescents should continue to be a special case under the law and that legislation that involves them should be drafted with particular attention to the complex task of weighing the rights and obligations of adolescents as full participants in society against the vulnerabilities of this population. At the same time we need to recognise that in spite of their vulnerability, adolescents also have a large capacity to learn and many have the ability to overcome adversity. The key task for lawmakers is to strike a balance between protecting young people from harm and allowing them enough freedom to learn from their mistakes.

15. Economics

There is a growing body of research demonstrating that targeted investment in children, their families and their communities produces long-term returns that outweigh the costs involved (summarised in Chapter 1). Such investment may take the form of early intervention programmes aimed at disadvantaged families, or initiatives that aim to

revitalise neighbourhoods as cooperative units that provide improved environments for child development. Notably, early childhood interventions for disadvantaged youth are more effective than interventions later in life. Although all children gain from quality early childhood education, society benefits most from the investment in children from low-income or disadvantaged homes. Such targeted investment is distinct from current policies that focus on universal provision or untargeted income support transfers. For example, the OECD has commented that New Zealand ...

> *"... spend[s] considerable amounts on single parent benefits which last until children are into their teens with the notion that this promotes child well-being. There is an international consensus that there is little to no evidence that these benefits positively influence child well-being ..."*

Policy work is needed on the optimal mix of targeted and untargeted measures applied throughout the life course that aim to promote achievement and reduce morbidity during the adolescent years.

16. *Research gaps, policy development and policy evaluation*

A common theme that unites the majority of chapters in this report, and is summarised in Chapter 22, is the importance of developing policy and interventions that are based on evidence derived from the scientific literature. There is a large and growing body of scientific knowledge available to provide policy makers and administrators with advice about the interventions that are most likely to be effective in addressing the adolescent transition. However, it is also important to keep in mind that the existence of evidence to support a policy intervention does not always guarantee that it will be efficacious within a New Zealand context. Reasons for failure typically include lack of intervention fidelity, well trained staff or appropriate infrastructure. For these reasons, it is important that new policies are exposed to rigorous evaluation for effectiveness and cost-effectiveness within New Zealand before being implemented widely, and that ongoing monitoring of programme performance and outcomes is performed. These processes will require the development of a cadre of scientifically literate policy makers and of well-trained front line implementation staff.

The report also identifies a number of significant knowledge gaps, both generally and within the specific New Zealand context. Given the benefits of improving the transition, New Zealand should give priority to addressing these gaps. Some of the major knowledge gaps include: what is the functional significance of the apparent prolongation of the phase of brain maturation, can it be impacted by different patterns of life-course exposure, what is the role of school-based education in life skills in enhancing outcomes, what is the role of modern media in altering brain function and behaviour, what intervention and prevention programmes are effective within at-risk communities in New Zealand?

17. *Our key recommendations*

- We recommend a primary prevention or 'life-course' approach to reducing the morbidity associated with adolescence. Social investment in New Zealand should take more account of the growing evidence that prevention and intervention strategies applied early in life are more effective in altering outcomes and reap more economic returns over the life course than do prevention and intervention (or punitive) strategies

applied later. This will require long-term commitment to appropriate policies and programmes.

- Targeted investment in evidence-based education, prevention and treatment programmes directed towards at-risk children and their families is particularly cost-effective. Nevertheless, not all such programmes have been shown to be effective in the New Zealand context and greater care needs to be taken in choosing which programmes to foster. For example, some programmes that simultaneously address parents and their children appear to be particularly effective.

- Targeted investment is also needed to address the long tail of educational under-achievement. Increased access to, and increased quality of, early childhood education for Māori and Pasifika whānau/families and for low decile communities is one component of such investment. Co-ordinated intervention from preschool to secondary level is also indicated, with a life-course approach to providing whānau/families with resources and guidance in how to support children in developing knowledge for school success.

- Beyond the programmatic considerations, there are significant gaps in our knowledge of what influences the transition through adolescence. Given the costs of poor outcomes and the benefits of good outcomes, efforts should be prioritised to address these gaps.

- Existing programmes aimed at life-skills development at schools require rigorous assessment of their effectiveness. Only evidence-based and well-validated programmes should be used, and these programmes need to be better integrated within the curriculum.

- Additional capacity is required in the mental health work force in New Zealand, particularly those who are specifically trained to work with children and adolescents, so as to provide effective screening and treatment for the substantial group of young people whose transition to adulthood is marred by mental health issues.

- Depressive disorder is a leading risk factor for suicide, and we recommend a strategic national approach to reducing depression in adolescence. There is no evidence to support the recent suggestion that increased coverage of suicide in the media will reduce youth suicide, and much evidence that it would actually do harm.

- Measures to increase the purchase price of alcohol, to restrict its marketing and availability, and to more tightly regulate drink-driving, would reduce the considerable harm that excessive alcohol consumption does to New Zealand's young people.

- A major focus should be the development of policies and practices that address the issues that place Māori and Pasifika young people at greater risk of morbidity during adolescence. Strong cultural identity requires culturally relevant interventions and environments, but the same rigour and evaluation needs to be applied to culturally tied interventions as to others.

- There needs to be an acceptance that programmes aimed at improving outcomes must meet criteria of effectiveness based on evidence rather than advocacy. All new and extant programmes aimed at youth development and assistance should be exposed to rigorous evaluation for outcomes and cost-effectiveness within New Zealand before being implemented widely or continued. Continued monitoring of outcomes should be performed to ensure that programmes remain effective. This is likely to allow significant reprioritisation of resources while achieving better outcomes.

- Government should be cognisant of the social and economic importance of a smooth transition from childhood to adulthood, and of the importance of the family/whānau and broader social context to this transition. Consequently, during policy development, the public service needs to consider the potential impacts on adolescent well-being, even when the policy might not be obviously related to that group.

18.   Final comments

Human development is complex and multifactorial. No single intervention will in itself lead to a step change in outcomes for our young people – making a substantive difference over time will take an integrated and consistent approach involving new programmes and interventions. Central to this report is our firmly held view that evidence, properly assessed and applied, is key to selecting and implementing effective programmes. Some programmes aimed at high-risk groups will be expensive in the short term but justifiable over the longer term, both economically and in terms of social progress. Current spend in this domain is already enormous, and some of the current programmes are likely to be ineffective, poorly targeted and in some cases potentially harmful. If programmes are developed against an evidence base and evaluated to scientific standards, resources can be redistributed to better effect without necessarily increasing public spending. The importance of establishing rigorous processes for evidence-based evaluation, piloting and monitoring of programmes is clear from some of the examples in this report. The potential for programmes to have unexpected effects must also be considered. If done well and properly communicated, effective use of the evidence base should enable policy makers to get beyond advocacy-based policy development and to establish programmes that will deliver quality outcomes for New Zealand's young people.

Chapter 1

Puberty and adolescence: transitions in the life course

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Summary

- With increasing frequency, there are discordances between biology, social and physical environments (often termed 'mismatch') with repercussions across the life course.

- Social evolution has intensified in recent decades and has had a particularly strong impact on human health via substantial changes in family and social structure, lifestyle, nutrition and physical activity, and in human interactions via increasingly complex social environments.

- Transitions during the life course are particularly sensitive periods wherein this mismatch may be observed to have long term consequences. Adolescence itself as a transition period from childhood to adulthood has become prolonged relative to recent recorded history, and both expected and observed behaviours have subsequently changed as well.

- Strongly supported by experimental and observational physiological, neurological and sociological data, this prolongation of physical and social development has both positive and negative consequences for an individual.

- However, society is ill-equipped to mitigate the negative effects of these changes, resulting in increased observations of antisocial behaviour on a large scale.

- Recent studies suggest that events in the early life period most strongly influence later life health, behaviour and functionality, all of which influence social and physical health and economic productivity on both an individual and a population scale.

- Investments in early life that target both cognitive and non-cognitive skill formation have seen substantial economic rewards, but it is increasingly observed that non-cognitive skills have a broader impact on social adaptation and positive social outcomes.

- Later interventions as discussed elsewhere in this volume are also effective, but there are considerable data to suggest that prevention has broader effectiveness than remediation.

1. Introduction: a life course perspective

All mammals, including humans, have distinct phases to their lives. Some such as the transition from being a fetus to being a newborn are abrupt; others such as the transition from being a child to being an adult are gradual. The human life course comprises the fetal period, infancy, childhood, a pre-pubertal juvenile period, adolescence, adulthood and senescence, and generally extends in modern times over 7 to 8 decades. The transition from being pre-reproductive to being reproductively competent – that is, the process of puberty – starts some years after birth, and while males stay reproductively competent for the whole of their lives, women cease to be able to conceive at or prior to menopause. This slow life course with a long prepubertal period is distinct to the human and several other long-living species which have relatively few offspring (compared to other mammals) who receive a high parental investment over many years after birth [1]. The pre-pubertal juvenile period is essentially unique to humans [2], and refers to that period after about the age of 7 years when independent living is possible but does not occur; this phase is generally accepted as having evolved to allow humans to achieve greater cognitive skills before entering puberty, given the essential role of learning in our species.

Humans are, of course, more than their evolved biological componentry. We live within social networks and in social contexts, and this social environment – which has its evolved basis – creates, and merges with, the physical environment to interact with our biology and make us what we are. But arguably we are organisms that, more than other mammals, rely on learning and past experience to influence both our individual and social behaviour.

Recent research extends this paradigm considerably: past experience influences not only our behaviour through learning, but both our biology and our behaviour through chemical changes in the way our genes our controlled – a process termed epigenetics. This leads to long-lived (effectively permanent, although putatively reversible) changes in the way both our brain and other aspects of our biological systems respond [3, 4]. It is this information that leads to the crucial understanding that events in any one part of the life course can have important influences on how subsequent parts of our life course play out. We know, for example, that events before birth can have life-long consequences that manifest as a greater risk of heart disease or diabetes in adulthood [5]. And increasingly we recognise that events before birth, in infancy and in childhood have major influences on how the transition from child to adult – that is through puberty and adolescence – plays out [6]. Indeed, two long-running New Zealand studies based in Dunedin and Christchurch have been instrumental in establishing such influences (for example, [7, 8]). A major thrust of other chapters in this report is to highlight that, because of the critical importance of early life developmental factors, it is inevitable that if the transition through adolescence is to be improved, greater attention must be given to earlier stages in the life cycle.

It is self-evident that the human condition at any point in the life cycle is a result of genetic biology, developmental biology, learning, past and current environments and culture (in its broadest definition) interplaying with each other. Yet, because different academic disciplines have been focused on particular components which are well separated in their academic traditions, it is only recently that a greater integrated understanding of these interactions has emerged. These differences have been most pronounced in the artificial

but long standing 'nature' versus 'nurture' debates, where nature is generally used in a folk-biological sense to mean innate (which itself has multiple meanings [9]) or genetic and therefore not changeable, and nurture refers to learning and the context of the social and cultural environments. This has led to simplistic views of what is alterable and what is not, and to overzealous claims from different academic disciplines which have limited our understanding of human development. The emergent biologies of life history theory and epigenetics allow these concepts to be integrated – in effect, they cannot be separated [10]. Thus when a period of transition in the life course is being considered, such as puberty/adolescence, there are biological, developmental, social and cultural factors all at play. This chapter dissects these elements for explanatory purposes but they are of course intertwined. Evolutionary perspectives integrate these domains and are therefore a particularly useful heuristic.

2. Puberty

Puberty can be defined as the period in which a juvenile's previously inactive gonads (testes in the male; ovaries in the female) become activated, with the ensuing hormonal changes leading to physical and psychological changes allowing for reproductive competence. Puberty is not an instant in time; it takes 3 to 5 years to occur. It generally starts somewhat earlier in girls at between 7 and 12 years of age, and between 8 and 13 years of age in boys. In girls the first signs of puberty are the appearance of breast buds and then pubic hair. As these develop there is a growth spurt; late in the growth spurt ovarian action becomes cyclic, the girl starts having periods and she becomes fertile. In boys the first sign of puberty is the start of testicular enlargement followed by the development of pubic, armpit and facial hair, a change in the positioning of the larynx (leading to the voice breaking), the onset of sperm formation and a growth spurt. In both boys and girls this process leads to changes in body composition, with boys in particular becoming more muscular. The initiation of puberty is due to changed functions in the hormone control region of the brain called the hypothalamus, which starts to release a master control hormone; how this is switched on is poorly understood [11]. The physical features of puberty are reflected in an increase in sex hormones (primarily testosterone in boys; estrogen and progesterone in girls) released in the circulation by the activated gonads. These hormones also affect brain function, affecting the number of connections in the brain and perhaps the number of brain cells [12]. As a result the progression of puberty is associated with the development of certain aspects of brain function and, in particular, the development of psychosexual thoughts which are reflected in the interests and behaviour of the young person transitioning puberty. There is a presumed relationship between this psychosexual maturation and the changed way young people socialise and interact with their peers, and start engaging in attention seeking behaviours in relation to these peers.

This distinct life course pattern arose through the evolution of the human species. In evolutionary biological terms, the capacity to reproduce in an appropriate manner at the appropriate time in the life course is a major driver of what shaped our species. Thus it is to be expected that puberty, that is the shift to reproductive competence, is influenced by a number of environmental factors. For example, in modern hunter-gatherer societies the age of puberty is reduced in societies where the rate of mortality is high [13]. This is because the biological drive reflected in evolutionary processes is to ensure successful progeny, which in a risky environment is maximised by reproducing early. Recently Daniel Nettle's team has shown that similar drivers operate in Western societies. Extensive

studies of large UK cohorts showed that the life course is accelerated in those living in poverty ridden circumstances or those who experienced adverse early life familial events, where earlier age of puberty, earlier age of reproduction and shorter life span are observed [14-16]. Similarly, other threatening circumstances (in real or evolutionary terms) such as low parental supportiveness [17], being born small [18], childhood abuse [19] and dysfunctional paternal behaviour [20] can accelerate the onset of puberty. It is worth noting that the latter two studies looked at New Zealand children. Extreme circumstances such as severe childhood undernutrition, severe stress, and illness (e.g. anorexia nervosa) can also delay the onset of reproductive competence, and the processes underlying these occurrences demonstrate biological overrides on the timing of pubertal processes.

The age of onset and completion of puberty in Western populations has markedly declined over the past 200 years [21]. This is best documented for the female where the age at first period (menarche) provides an unequivocal time point in maturation. For European girls, the average age at menarche in the late 18th century was about 17 years; it has fallen progressively and quite rapidly over the next 150 years, then has continued to fall more slowly up to the present time, where it is now approximately 12 years of age. There is of course large variation in individual timing and a mean age of 12 years is associated with a normative range extending from 11 to 15 years. However, because menarche occurs relatively late in the progression through puberty, this means that possibly 50% of New Zealand girls have entered the pubertal process during primary school, and have had their menarche before they leave intermediate school [22]. Two generations ago, it was rare for a primary school girl to enter puberty but now an increasing number will have had menarche at primary school. This is a dramatic change in short time span and highlights the difficulties of imposing parental and grandparental concepts of maturation onto the current generation. There are some population differences in the age at menarche [21], but the extent to which they represent genetic differences or reflect populations in different stages of the nutritional and socioeconomic transition is unknown. In New Zealand, Māori and Pasifika girls tend to experience an earlier onset of menarche, with about 80% menstruating by age 13 compared to 62% of those of European origin; the disparity at age 11 is particularly concerning, with the number of Māori and Pasifika girls reporting menarche exceeding that of European girls by about 2.5 to 3.5 times [22].

While changes in the age of puberty are less well documented in the male they appear to have followed a similar trend of falling considerably over recent generations [23].

The evidence would suggest that this fall in the age of puberty onset – generally termed the secular trend – arose because of a marked improvement in maternal and infant health and nutrition since the Enlightenment in Europe at the beginning of the 19th century. Experimental [24] and epidemiological [25] evidence suggests that the improved state of maternal nutrition is important, alongside the generally accepted role of improved infant health and childhood nutrition [6]. Thus the fall in the age of puberty can be seen as a general reflection of an improvement in maternal and child health. It may be that excessive obesity in childhood further accelerates the fall in the age of puberty, and given the increasing rates of childhood obesity in developed societies to alarming proportions [26], this may be having some additional effect above that of the secular trend. There is little substantive evidence to suggest that the changing age of puberty in the normal population is linked to environmental contaminants such as toxins and contraceptive pills in the water supply, although there have been rare situations such as that of precocious puberty in Puerto Rican children in the early 1980s, suspected to be caused by inordinate hormonal use in farmed animals or by mycotoxin contamination of food [27, 28].

There can be a complex interplay between experiences before and after birth and the age of puberty. Within the normal population, the earliest ages at menarche are seen in those who were smallest at birth and who become relatively overweight in childhood [6, 29, 30]. This can be understood in life history terms [6]. Its most dramatic effects are in children who transition from highly deprived environments early in life to enriched environments in childhood. A classic example is that of girls from developing countries who are adopted in infancy to families in Europe [31]; some of these girls may undergo menarche at as early as 8 years or less and are therefore at considerable disadvantage, both psychosocially and physically, because menarche presages the end of the growth spurt.

While earlier (but not precocious) puberty is generally a sign of good child health in Western society, the problem is that because of the rapid fall in the age of puberty, there is an increasing mismatch which those aspects of maturation which are independent of sex hormone effects. The perception that an individual looks mature and is advanced in puberty can lead to inappropriate assumptions about other aspects of their maturity and behaviour. This presumption can occur both in how others perceive the child and how the child perceives himself or herself. These issues are addressed in more detail in the next section.

3. Adolescence

For the purposes of this report, adolescence is defined as the period between the onset of puberty and the time when the individual is accepted as an adult by the society in which he or she lives. As such it involves a broader set of considerations including societal, cultural, behavioural as well as neurobiological aspects in its definition. There are clearly major biological substrates to progression through adolescence. Some aspects of brain function mature apparently independently, or at least partially independently, of puberty *per se*. In general processes of executive function including impulse control, judgement, evaluation of risk, reward behaviours and what might be called wisdom are not fully developed by the time puberty itself is complete, as discussed in the following section. Some aspects of psychosocial – as opposed to psychosexual – function also mature later although these probably reflect the executive functions detailed above. Society relies on this cluster of behaviours to assess when an individual can be accepted as an adult. Because this is highly variable among individuals, societies have tended to formalise this through legal ages to define adulthood or maturity. For example the age of legal responsibility, of legal sexual intercourse, of voting, of ability to leave school, of eligibility to join the military, of consenting to a medical procedure, of buying alcohol or hiring a car are all defined by law or regulation – these social milestones vary considerably both within a society and across rather similar democracies. There is therefore a high degree of ambiguity both for the individual and for the society in terms of how an adolescent should be evaluated in a particular situation.

In simple terms, adolescence can be envisaged as a period in which sexual maturation is occurring or has occurred, with neurobiological consequences promoting sexual thoughts, and risk and attention seeking behaviours. However depending on the society in which the individual lives, his or her behaviour, wisdom and judgement may not be seen as fully mature. The contextual variation of this is obvious across different populations: in simple societies such as those of traditional hunter-gatherers adolescence may be very short, particularly for females, whereas in modern Western society adolescence has become very prolonged.

Indeed it has been argued that prolonged adolescence is a relatively recent phenomenon in Western societies. As stated earlier, puberty had much later onset 100 years ago and for reasons discussed below, most individuals made a rather rapid transition from the pubertal stage to being an adult. When the age at menarche in a girl was between 16 and 17, there was generally a very short transition to being married or joining the workforce by the age of 18 to 20, and being accepted as an adult by that society. But now the age of puberty is much lower and yet, for reasons detailed in the next section, full psychological maturity is not exhibited in most until well into the third decade of life. This suggests that adolescence has extended from perhaps 1 to 3 years in length to between 7 and 15 years in length, with consequences which are at the heart of this report.

This discrepancy has been termed the mismatch of puberty [32], and there are data to suggest that this is a major driver of adolescent morbidity. For example, in girls where the timing of completion of puberty can be readily recorded from the age at menarche, earlier puberty – that is, a greater degree of pubertal mismatch – is associated with a greater risk of sexual activity, uptake of smoking and drinking, drug experimentation, aggression and eating disorders [33-35]. The curve of risk rises noticeably when the age at menarche is below 11 years. In studies of a large Swiss francophone cohort of teenagers subject to extensive psychological evaluation, earlier puberty was linked to a greater risk of acting out behaviours, substance abuse, sexual activity, and depression and anxiety in the young people [36]. In boys this was reflected in a significantly greater risk of attempting suicide. The study had a limitation in that puberty was not prospectively recorded and given the different social contexts in which populations operate, more research would be needed to evaluate whether generalisation of this observation is possible. Regardless, there is no doubt from the literature that earlier onset of puberty and the delayed age of completion of adolescence are associated with higher teenage morbidity [6, 37].

4. Brain maturation and adolescence

4.1 Biological maturation of the brain

In recent years, a wealth of neurobiological data have emerged from studies of Western adolescents suggesting that biological maturation of the brain, as reflected in brain imaging and functional studies, happens much later in life than was generally believed [38-41]. Many neuroimaging studies mapping changes in specific regions of the brain have shown that those regions associated with higher levels of executive function including task initiation and management, self-image, impulse control, judgement, strategising pathways and managing strong emotion, only fully mature well into the 20s [42-45]. Adolescents also have different responses within their brain pathways to reward-initiating stimuli compared to children and adults [46], and this is generally thought to relate to earlier maturation of striatal reward areas of the brain than fronto-cortical self-regulatory control regions [47-51]. An alternate and not mutually exclusive explanation is that the adolescent brain exhibits transient expression of reward-seeking pathways as an inherent part of the maturation of exploratory life skills [46]. Either way these data highlight the distinct features of the adolescent brain, which create challenges for society, families and individuals reflected in the acting out behaviours of adolescence. It explains why the adolescent is more vulnerable to poor decision making and risk taking behaviour [52] and is more sensitive to reward inducing stimuli such as peer pressure, drugs and alcohol [47].

The significance of these neuroimaging data showing late maturation of the brain regions important for executive functions is supported by behavioural studies of psychosocial maturity and other socially responsible behavioural traits in adolescents and adults. These show that 'maturity of judgement' measures such as responsibility, perspective (ability to assess short and long term consequences) and temperance are, on average, fully attained at about the age of 20 years – much later than was generally thought [53, 54]. Therefore, adolescents exhibit less psychosocial maturity than adults despite generally having similar cognitive abilities and being biologically mature.

These findings of asynchronous maturation raise three explanatory possibilities. Firstly, executive brain function has always taken a long time to mature but the late maturing components were not critical to normative behaviours in more simple societies. Secondly, we live in a more complex society than that in which we evolved to live, and as a result it takes longer to accumulate the full range of social skills to operate as a productive member of society. Thirdly, both modern society and the way children are bought up earlier in the life course have changed the manner in which the brain matures. In part this may also reflect the attitudes we bring to bear on young people – that is, our willingness, or lack thereof, to accept that they have reached the age of maturity. The interplay between how we respond to young people and the way their brains and behaviours mature is poorly understood. These are not mutually exclusive explanations and can be distilled to two factors: we live in immeasurably more complex societies than those in which we evolved [32], and we may be changing the way the brain matures as a result of educational and child rearing practices which have emerged in recent decades.

4.2   Societal and cultural influences

There are academic arguments to support each of these explanations, but formal evaluation remains to be undertaken. Several possible societal and cultural changes need to be considered in this context. Firstly, 50 years ago primary school children had relative freedom outside school and undertook considerable independent and unsupervised play activity. Now parental attitudes of care and risk avoidance, and the shift of more women into the workforce, have meant most young children live more regimented lives. In contrast, adolescents previously had limited choices within the school system and their social activities were more regulated and limited. Now, they have a very broad range of choices and parents may tend to feel that they have relatively little control on the boundaries of behaviours that they exhibit. Access to money is very different for the modern adolescent; it equates to more freedom from the parent. This is not just a sociological issue – is it that the switch in rearing practices from a loose-to-tight progression to a tight-to-loose progression has changed the learning experiences that influence the maturation of executive function and its biological substrate in the brain?

Secondly, the human brain largely evolved in the Pleistocene period when humans lived in much simpler societies, generally in clan groups estimated to be between 50 and 150 people in size, with simple social and hierarchal structures [55]. Studies in primates of the part of the brain associated with higher function – the neocortex – show a tight correlation between normative social group size in that species and neocortical size. If humans are fitted on this relationship it suggests that we evolved to live in social networks of about 100–150 people, and Robin Dunbar has listed a number of social units which demonstrate that until recently this was indeed the way humans organised themselves [55]. But it is self-evident that in the modern connected world we live in expanded networks; we interact with far more than 150 people and even if much of that interaction

is telephonic or electronic it is still meaningful. This applies particularly to young people, who are fundamentally changing the shape of their social networks more rapidly than others through the use of the internet and social networks such as Twitter and Facebook. The concept of 'Facebook friends' means that young people are sharing the intimacy of their lives not just with the small family network of old but with literally hundreds of people. The nature of communication has also changed – communication is no longer associated with face-to-face contact, and non-verbal communication through purely electronic means is becoming increasingly pervasive. These sociological changes may also have neurobiological consequences. There is a growing and worrisome literature suggesting that brain structures may be altered by these changing patterns of interaction and communication [56]. Such changes could potentially have functional consequences. For example, there are suggestions that the nature of knowledge assimilation and learning as a result of technology usage has changed, and that this impacts on the ability of young people to learn and to pay attention to tasks [57]. This propensity towards distraction may have far reaching consequences – given the ubiquity of these new technologies, it is likely to have attendant influences on how young people learn and develop social skills [58].

4.3   Effects of the early environment

The third consideration beyond the accumulating evidence that these changed ways of learning and inter-personal exposure might affect the development of brain function and communication skills stems from another growing body of evidence, which suggests that the early environment of parental-infant attachment and of experiential (informal) learning can have permanent effects on brain function and maturation. Some of these effects are mediated through the actions of hormones such as oxytocin and vasopressin [59]. Some of these effects are likely mediated through epigenetic mechanisms which change the settings of gene switches. While most of this science is based on compelling data from animal studies [60], there are supportive data in humans showing that stresses and challenges early in life will change the settings of switches involved in pathways associated with social experiences and stress responses, with permanent effects [61]. Recent studies on suicide victims who had been abused during childhood showed epigenetic changes in the brains that were not found in non-abused victims [62]. Epigenetic changes have also been detected in women who experienced childhood abuse and later developed antisocial behaviour [63]. Attachment between mother and infant is more than simply a behavioural relationship; it involves the action of a number of hormones in the brain, and secure attachment is an important predictor of resilience in later life [64], including higher self-esteem, reduced anxiety and reduced hormonal responses to stress [61]. There is increasing evidence that this involves epigenetic processes and that these effects, which reflect the transmission of social determinants into a biological substrate, may have intergenerational consequences [65, 66]. In turn the same hormones involved in attachment appear to play a role in how individuals respond to each other and in creating cooperative and trusting relationships rather than aggressive tendencies later in life [67]. While this aspect of the science is still emerging, it is reasonable to postulate that these long lasting effects of poor attachment involve not only emotional aspects but also changes in the basic biology of the brain.

4.4   Transcultural differences

There are considerable transcultural differences in adolescent morbidity even among Western countries; New Zealand and other anglophone countries generally compare

poorly to non-anglophone European countries in, for example, teenage pregnancy and abortion rates [68, 69]. These transcultural differences should be informative but little research has been done to understand their basis. The age of puberty is similar across these populations, but what does differ is the balance of focus on early childhood education and support. It has been suggested that cultural differences in early childhood experience explain the disparateness in adolescent morbidity, and given New Zealand's dismal position it is a field of research meriting investment.

4.5   Cognitive versus non-cognitive skills

Such considerations are given greater weight by the work of James Heckman and others [70-72]. It is important to distinguish cognitive function as measured by formal IQ tests from other aspects of brain function, and in particular executive functions mediated through the prefrontal cortex. It is now clear that success in formal education and in many other areas is dependent on this latter class of brain function. Heckman and colleagues have pointed out that in early childhood, not only are formal cognitive skills starting to develop but this is also a critical window in which the broader range of non-cognitive but crucial life skills are established which promote school achievement, job performance and financial security [73]. Indeed, the evidence reviewed in Chapters 2, 3 and 4 highlights the growing data showing that it is the development of non-cognitive skills in early childhood that is critical to successful passage through later life. A large body of research has demonstrated that targeted investment in high risk populations through interventional programmes at this point in the life cycle pays social and economic dividends in terms of reduced incarceration, reduced arrest rates, higher employment and higher earning capacity later in life (described in the final section of this chapter). Once again this reinforces the notion that the biological, social and cultural factors conflate and cannot be separated.

4.6   Implications for research and intervention

While these data point to the vital importance of the early life as a period for intervention, action and targeted prevention, this does not mean that actions later in the life course are not justified or without benefit. However the complexities of the phenomena we are dealing with, and the strong evidence implying biological substrates that are not necessarily irreversible for the behaviours in question, mean that interventions must be well designed, research-based and carefully evaluated – unfortunately this is not always the case as will be discussed in Chapter 22. A framework that focuses on neuroscience within the wider context of adolescent research is needed [74], and there is a compelling case for including the neurobiologist with the more traditional social and behavioural scientist in promoting an interdisciplinary approach to the design of interventions [46].

5. A synthesis

Puberty is a biological process in which the individual's gonads are activated and he or she becomes reproductively competent. In evolutionary terms, reproductive competence would have evolved in parallel with the ability to cope as a reproductively active member of the society in which the individual lived. However society is now immeasurably more complex; the nature of social organisation and the skills required to function as an adult are very different from those operative 50,000 to 10,000 years ago. Adolescence marks the period in which sex hormone activity has been initiated, but due to an interplay of neurobiological, societal and cultural factors the individual is not accepted as fully mature.

What has definitely changed is the age of puberty, which has fallen quite dramatically in many populations in recent decades. This has a number of implications. The pubertal brain functions differently from the pre-pubertal brain and is particularly responsive to reward incentivising activities. Executive function placing control on these pathways is not fully mature. Further the big shift in age of sexual activation means it is increasingly likely to start during primary school, whereas the current structure of the school system, which separates primary, intermediate and secondary education, was designed on the presumption that pubertal behaviours did not get exhibited until secondary school. Current societal concepts of and attitudes to teenage sexual activity, for example, were largely developed in the 19th and early 20th centuries at a time when puberty was not completed generally until about the age then established in Western societies as the age of legal consent. There is increasing discourse on the implications of this emergent science for the justice system (e.g. [75]), and in particular of the potential for the immature brain to respond differently from the mature brain in response to punitive punishments, which may make recidivism more rather than less likely.

On the other hand it is now evident that aspects of executive function do not mature until much later, on average in the third decade of life. It is not clear whether this is a new phenomenon or whether its implications are only now emerging as important in a more complex society. The outcome however is a much prolonged period in which pubertal hormones are active but full maturity of executive function does not exist. The consequences are a period in which reward seeking behaviours are not adequately self-controlled, and as discussed in subsequent chapters, this is reflected in multiple behaviours and activities of concern.

Against this background of pubertal mismatch, the impact of widespread marketing aimed directly or indirectly at adolescents is worrisome. Marketing and media targeting young people contain a high content of promotion of risk-taking behaviours, alcohol consumption and sexuality. The celebrity culture, which is unabashedly marketed to the adolescent, creates role models and heroes out of behaviours which are particularly risky for young people with immature impulse control.

These issues will not disappear. The age of puberty has fallen largely because children are healthy. Technological developments mean that the complexity of society will not diminish. The internet greatly limits the control or regulation of communication among young people. The challenge therefore is to develop a better understanding of how to manage the life course so as to promote resilience in young people through nurturing of non-cognitive capabilities, which will in turn create greater resilience in adolescence. The life course approach would argue that one's focus should be on the early childhood period. It also suggests that greater attention to the understanding of neural maturation should be part of the research agenda. It may well be that significant changes in the structure of the educational system are needed to assist young peoples' maturation of executive function. Greater sensitivity is needed by society as a whole to the messages that are projected at young people during this vulnerable period.

The complexities of individual biology, developmental exposures and the contexts within which every young person lives mean that there is considerable individual variation in the timing and pattern of maturation, both biologically and behaviourally. Superficially, it might seem that resilience is related solely to the variation in timing and pattern of this maturation. However, as this chapter has tried to illustrate, it is now apparent that important aspects of brain maturation can be influenced by events earlier in the life course. This information provides preventative (as opposed to remedial) opportunities

to develop strategies enhancing the opportunities for more young people to transition to adulthood without harm to themselves or to the community.

6. An economic perspective on the life course

The life course perspective has economic as well as biological, behavioural and educational dimensions. Economists have used the life course approach to model the return on investment early in the life course on later outcomes. They have modelled the value of intervention in one phase of the life course in affecting progress through a later phase in the individual's life so as to estimate the costs and benefits of preventative and remedial interventions. The range of outcomes that can be considered include educational achievement, earnings, employment, health, relationships and interactions with the justice system (arrests/incarcerations). Human capital approaches have generally been used [76, 77].

Heckman and colleagues have considered the importance of cognitive and non-cognitive (executive) brain functions, and their development in early childhood with respect to outcomes in the high school and subsequent years. Importantly, they have studied high intensity targeted intervention programmes in early childhood such as the Perry Preschool and Abecederian programmes, both of which are US-based targeted high intensity intervention programmes for at-risk children, involving structured day care/kindergarten and home interventions with well-trained therapists. Their findings can be summarised as follows: targeted investments in early life increase high school completion rates [78], and intensive early childhood programs for at-risk African-American 3-4 year olds show long term positive effects in both genders; overall the greater effects are on non-cognitive traits and, in males, lead to crime reduction and improved self-control [79]. Throughout this body of work the development of non-cognitive executive skills is closely linked to performance on formal learning tasks. The importance of early childhood to the optimal manifestation of both cognitive and non-cognitive skills through adolescence is clear. While remediation of non-cognitive skills is possible, prevention is logical and more effective [80]. Heckman's group studied the economic return on graduates of the Perry Preschool programme through their third decade and showed a high level of economic return, with the greatest impact on crime reduction [77, 81]. Similar data were obtained from follow-up of the Abecederian study [82]. The relationship between crime and low educational achievement is well documented [83].

To quote Heckman and Masterov [81]:

> "An accumulating body of knowledge shows that early childhood interventions for disadvantaged young children are more effective than interventions that come later in life. Because of the dynamic nature of the skill formation process, remediating the effects of early disadvantages at later ages is often prohibitively costly (…) Skill begets skill; learning begets learning. Early disadvantage, if left untreated, leads to academic and social difficulties in later years. Advantages accumulate; so do disadvantages. A large body of evidence shows that postschool remediation programs like public job training and general educational development (GED) certification cannot compensate for a childhood of neglect for most people."

Much of this disadvantage will manifest in adolescence through dropout rates, asocial and acting out behaviours associated with poor impulse control, crime and reinforcement of disadvantage for the next generation. It is also clear that much of the advantage of early intervention is mediated through non-cognitive skill development and that this differential

can be anticipated to be particularly manifest in adolescence [84], when immaturity of executive function in relation to biological maturation is most likely to confer individual and community disadvantage.

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Chapter 2

Social and emotional competence: intervening in infancy

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Summary

- Social and emotional competence is one of the most important developmental objectives for successful transitions throughout the lifespan and its origins are in infant-caregiver relationships.

- Beginning at conception and continuing throughout infancy and toddlerhood, profound changes occur in the construction of the brain leading to the emergence of increasingly complex social, emotional, cognitive and motor skills.

- The relationships that a child builds with the primary-caregiver and other family members are critical to the development of social and emotional competence.

- Key risk factors to the healthy development of these relationships can be observed during pregnancy and early childhood and are frequently associated with the mothers' own history of abuse, psychopathology and substance abuse.

- We can improve the transition to adulthood for young children by intervening in the early years (from conception) with a strategy that incorporates a continuum of services that support early social and emotional development through primary caregiver and family relationships.

- Widespread implementation of programmes for infants and their families should be undertaken only after they have been shown to be effective through randomised controlled trials. Ongoing monitoring should be carried out to ensure fidelity and continued effectiveness.

- Educational pathways are required to ensure that multi-disciplinary health workers have the skills required to support infants, young children, and their families particularly where there are multiple risk factors.

1. Introduction

During the past five decades a vast amount of knowledge about the developing brain, genetics, molecular biology, and the interdependence of cognitive social and emotional development has emerged. On the basis of this knowledge, we have come to appreciate that what happens during the early years of development (conception to 5 years of age) matters a great deal. This is not because this phase of life is a 'critical period' of development where circumstances irrevocably damage the developing child, but because this is a time where either a strong or a fragile foundation is built [1].

The following chapter will draw on this extensive body of research to illustrate the following:

- The importance of infancy and early childhood social and emotional development to the transition to adolescence and from there to adulthood.

- The strong association between multiple risk factors apparent at conception and during infancy and the striking disparities in health and mental health that can persist across development. These disparities can include: children's short- and long-term mental health, school readiness and subsequent academic performance in adolescence, and adverse health and mental health outcomes in adulthood.

- The need for well-designed and tested interventions that incorporate a continuum of services to improve social and emotional outcomes for children during early childhood. These are likely to prevent emotional and behavioural problems during the transition to adolescence.

2. What is the question?

How can we intervene during early childhood to promote social and emotional competence in New Zealand children?

3. Why is social and emotional competence during early childhood important to the transition to adolescence?

At no other time during the lifespan do we observe the profound changes that occur during infancy and early childhood. In just a few years, infants change from totally dependent newborns to complex creatures who can come and go as they please; express themselves and share feelings and intentions; and empathise with others. It is also the time when developmental trajectories are established. These trajectories can either lead to optimal growth and development or set the stage for early childhood developmental, emotional and behavioural problems that persist into middle childhood and adolescence [2, 3].

3.1 Social and emotional competence and early relationships

Sensitive and responsive relationships that promote social and emotional competence emerge through the 'serve and return' interactions that occur between a parent and baby [4]. In these interactions, young children make behavioural bids for interaction through babbling, facial expressions, and gestures. A parent who is sensitive to the meaning of these bids will respond with the same kind of vocalising and gesturing. This reciprocal exchange of gestures and facial expressions has been compared to a tennis game where reciprocal 'volleys' of communication go back and forth between parent and child. These interactions begin within the first months after birth and gradually increase in emotional

complexity over the first year resulting in a 'secure' attachment between the parent and child [5].

These early interactive experiences not only lead to the formation of healthy relationships, they lay the foundation for social communication, and build and strengthen the architecture of the developing brain. Children who have formed healthy relationships with their primary caregivers are more likely to develop insights into other people's feelings, needs, and thoughts, which in turn leads to cooperative interactions with others and an emerging conscience, all skills that support early and ongoing peer relationships [6].

In addition, secure attachments promote the growth of a broad range of competencies that children will use for a lifetime. These include a love of learning, a comfortable sense of oneself, positive social skills, multiple successful relationships in adulthood, and a sophisticated understanding of emotions, commitment and morality; and, ultimately lead to adults who can make a positive contribution to society [7-10].

3.2   The architecture of the brain and early social and emotional development

The construction and development of the human brain occurs over an extended period of time, beginning shortly after conception and continuing until the early 20s. Brain development during gestation, infancy and early childhood form the basic networks and foundation upon which other more complex networks are built. These networks develop in parallel to social and emotional development and depend on the experiences and stressors infants and young children are exposed to in their early environments. Therefore, whether a baby is exposed to stressors during early development, whether these stressors are continual and when they occur can determine whether well-organised networks and a strong foundation are constructed or alternatively whether there is a disorganised and weak foundation. Common stressors may include maternal depression, maternal substance abuse, and parenting that is threatening, abusive or chronically neglectful [11].

4. What is the scale of the problem?

Over the past decade international comparisons have shown that infants and young children are most at risk for maltreatment and infant mortality. New Zealand in particular is falling far behind other OECD countries in the care and protection of their youngest citizens [12].

- World-wide the risk of death by maltreatment is approximately three times greater for the under-ones than for those aged 1 to 4 years, who in turn face double the risk of those aged 5 to 14 years.
- Infant deaths are just the tip of the iceberg as for every one child that dies it is estimated a further 300-1500 are being abused or neglected.
- Alcohol and/or substance abuse contribute to at least half of all child abuse cases.
- New Zealand has a level of child maltreatment that is four to six times higher than the average for the leading countries.
- The OECD (2009) *Doing Better for Children* report highlights the fact that New Zealand spends less than the OECD average on young children and much less than it does on older children. The OECD concludes that "spending more on young children is more likely to generate positive changes and, indeed, is likely to be fairer for more disadvantaged children" [13].

- Current mental health funding has been based on a model that disadvantages children and adolescents who make up 28% of the population, yet receive only 11% of the funding.
- Risk is particularly high for Māori and Pasifika infants and families where rates of poverty and abuse are highest, which may explain the links to the disparity in these children in school performance, high rates of suicide, substance abuse and conduct disorder.

5. What does research tell us about the early risks for social and emotional competence?

It is hard for us to think that infants and toddlers may experience mental health problems, but they do. Some disorders are genetic, such as autism, and other disorders emerge on the basis of experience. For example, it is very clear that even very young, and otherwise normal, babies experience emotional distress if they are physically hurt or if they are neglected [14].

In fact, we know from a number of studies that infants, toddlers and preschool children can and do have a range of mental health problems that can interfere with the development of social and emotional competence as well as physical and mental health [15-17].

The clinical discipline of infant mental health has been in existence for the past 50 years. The primary focus of this multidisciplinary field is to identify and treat developmental, emotional and behavioural problems that emerge during infancy and early childhood. The discipline is underpinned by empirical research in genetics, basic neuroscience, child development and developmental psychopathology. This ever increasing body of literature has revealed the importance of early social and emotional relationships to the optimal development of the newborn, infant and child [1, 18]. It has also been shown that for some children, mental health and behavioural problems may begin very early and endure [14].

Many young children show clear characteristics of post-traumatic stress disorder, conduct disorder, depression, attention-deficit/hyperactivity disorder and other emotional and behavioural problems; however, these conditions may present differently in infants and toddlers and may be overlooked or misidentified [19]. The signs and symptoms that are precursors of these problems will be more in keeping with the infants' or toddlers' ability to express their distress, and this is largely dependent on their stage of development. For instance, infants may develop feeding problems and in extreme cases impaired growth [20]. In toddlers, tantrums that are normative have to be differentiated from those that are more frequent, more prolonged and more violent and that might indicate early emotional or behavioural problems [21]. Recent evidence also suggests that some of the characteristics of neuro-developmental disabilities such as autism can be detected during the first 12 months. Early detection is important because failure to identify and intervene early leads to poorer outcomes for these children [22].

5.1 What are the stressors in early childhood that lead to poor transitions?

Children who are most at risk for social and emotional problems are those children who are continually exposed to one or more environmental stressors. A certain amount of stress in early childhood can be adaptive and growth promoting. However, chronic or 'toxic' stress can have an adverse effect on the developing architecture of the brain. This is particularly apparent in the fetal and early childhood periods. Toxic stress during these

early periods can affect developing brain circuits and hormonal systems. Chronic stressors are likely to come in families where there are one or more risk factors that may include, poverty, parental mental illness, parental substance abuse, domestic violence and teen pregnancy [23].

There is a preponderance of evidence that shows that mental health problems in young children occur within the context of early relationships that can include parents, early childhood caregivers, peers, extended family members and teachers. Studies have shown that these relationships play a critical role in shaping a child's social, emotional and cognitive development in the earliest years of life [24, 25].

Of central importance is the infant-primary caregiver relationship. Research has shown that children who do not experience the reciprocal 'give and take' interactions during infancy with their primary caregivers, or those who have primary caregivers who are abusive, threatening or chronically neglectful are at risk of developing mental health and behavioural problems during early childhood that can persist through adolescence [26-29]. For instance, there is a great deal of evidence that a mother's clinical depression reduces her ability to respond to her child sensitively with a negative effect on her young child's emotional development, social sensitivity and concept of themselves. These findings have been demonstrated in both developmental research and studies of brain functioning [30].

Many of the childhood risk factors that have been linked to problems that interfere with the smooth transition to adolescence have been identified in two New Zealand longitudinal studies, the Christchurch Health and Development Study and the Dunedin Multidisciplinary Health and Development Study (Chapters 3 and 4 in this report). More recent longitudinal studies targeting high-risk populations of mothers who are substance dependent are also beginning to provide the evidence for the effects of environmental risks that occur prenatally and during the early postnatal period [31-34]. Of particular concern is the link between maternal smoking and conduct problems in children whose mothers smoked during pregnancy [35, 36]. Recent studies have established a direct link between prenatal tobacco exposure and a number of neurodevelopmental and behavioural outcomes during infancy, early childhood and adolescence [35, 36].

5.2 *What are the links between early problem behaviours and conduct disorder?*

There is now compelling evidence that the experiences encountered during infancy and the early years of a child's life lay the foundation for later health, development and psychopathology [1, 37-39]. A good deal of this evidence comes from longitudinal research and large epidemiological studies, including the Christchurch Health and Development Study and the Dunedin Multidisciplinary Health and Development Study. Individuals who begin committing antisocial or delinquent acts at early ages tend to continue to commit these acts throughout adolescence and early adulthood [37, 38, 40]. In addition, they are more likely to commit a greater number of offences than do individuals who first commit the same offences at later ages [37, 41, 42]. In fact, children who will go on to exhibit a persistent pattern of antisocial behaviour can be distinguished from their peers as early as 3 years of age [38].

Although a number of factors have been shown to be associated with the persistence of conduct disorder throughout childhood, one of the main mechanisms for the early development of problem behaviours is an extended chain of problematic parent-infant interactions. A number of studies indicate that children who develop problem behaviours

early in life have home environments that are characterised by neglect, harsh discipline practices, and inadequate monitoring [40, 43, 44].

5.3 What are the links between early adverse environments and later adolescent and adult mental and physical health?

It has been well established that early environments that include adverse childhood experiences and other risk factors such as low-income are related to chronic childhood illnesses, and, decades later, to adult mental and physical health problems [45-49]. For instance, the Dunedin Study has found that experiencing low socioeconomic circumstances during early childhood can have long-lasting negative influences on adult health, irrespective of a child's health at birth or the economic circumstances they achieve during adulthood [46]. Compared with those from high socioeconomic status (SES) backgrounds, children who grew up in low SES families had poorer cardiovascular health at age 26 years. Substance abuse resulting in clinical dependence (alcohol) was also related to lower SES during early childhood.

A number of recent epidemiological and longitudinal studies have also shown that children who have a family history of violence, mental illness and abuse are more likely to have poor mental and physical health in adolescence continuing into adulthood [45, 47-49]. The specific family variables that were associated with poorer health outcomes were having a parent with a psychiatric disorder, being abandoned by a parent, parental divorce, low levels of parental education, and family conflict.

6. Who is most at risk?

It is important to realise that risk factors are neither randomly distributed nor unrelated to one another. It is far more common for multiple, interacting risk factors to be operating in families where children are at risk of early mental health and behavioural problems [23, 50-54]. In fact, a better indicator of the predictors of early childhood problems is likely to be the number, the timing and the chronicity of environmental risks operating prenatally and during infancy [55]. The following groups of children are most at risk:

- children born with a biological or health problem such as chromosomal disorders (e.g. Down Syndrome, Fragile X Syndrome), difficult temperament, or being born with a very low birth weight;
- children born to teenage parents;
- children born to parents who, for a variety of reasons, are unable to interpret their child's distress or be sensitive to their infant's cry, who have negative feelings toward the child, or who have a lack of parenting knowledge;
- children born to parents who have a mental illness, a history of abuse, or parents who abuse alcohol, tobacco and other drugs. Of particular concern are mothers who continue to use alcohol, tobacco and other drugs during pregnancy; and
- children who are living in poverty, or living in neighbourhoods where there is a high incidence of community violence.

7. What can we do?

A large number of programmes have been developed to address the above risks to early social, emotional and cognitive development. These programmes may be child-focused,

parent-focused or the intervention may be targeted at both. These programmes include a variety of services that include childcare, preschool, families' own homes and community-based centres, and are organised along a continuum of risk. Services that focus on preventing or improving poor child health and development are at one end of the spectrum while at the other end of the spectrum the focus may be on treating children and families where there are established problems and multiple risk factors (see Table 2.1). At present, a few of these programmes, or similar ones, are available in New Zealand. However, we need a much more comprehensive and integrated system of services if we are to redress the intergenerational problems of substance abuse, mental illness and conduct disorder that currently interfere with children's transition to adulthood.

The following interventions are a sample of programmes that have been shown to have positive outcomes for child health and development. They provide an indication of the range of programmes that have been implemented to provide early interventions for children and families at different levels of risk. Cost-benefit analyses that have been calculated for a number of early intervention programmes show a substantial return on money invested. See Chapters 3 and 4 for a discussion of the cost benefits of specific early intervention programmes.

7.1 Universal preventive interventions in primary care settings: integrated services

A number of initiatives in the United States (US) have sought to change the way mental health and substance abuse (also referred to as behavioural health) services are delivered to young children and families. The premise for these services is that primary health care providers represent a significant and natural point of contact for young children in the first few years of life and offer the opportunity to identify early problems through regular screening of the child and other family members. As such they have the opportunity to intervene early with caregivers of infants and toddlers to promote children's mental health and well-being. Not only are paediatric primary care providers in a unique position to connect with a large number of families, but research also suggests that families may want screening and follow-up [56, 57].

All of these approaches have been evaluated (most by randomised controlled trials [RCTs]) and all have found a range of positive developmental outcomes for the child and often improved parenting [58-61]. These programmes have been embedded in different primary care sites across the US and all offer the following:

- antenatal services and/or services to women and families with children under the age of 4 years;
- integrated screening for adult mental health and substance abuse issues into their primary care practice;
- integrated developmental screening for children into their routine primary care practice;
- facilitated referrals in the context of ongoing relationships with the family and community-based providers; and
- consideration of cultural and linguistic mix of patient population.

Examples include: *Early head Start*, *Healthy Steps for Young Children*, and *Starting Early Starting Smart*.

Table 2.1. Description of a continuum of services for infants, toddlers, preschool children and their families

Type	Age (y)	Comments
Universal/preventive		
Early Head Start [58]	0-2	Offers home visitation and centre-based programmes, or a mix of both. The best outcomes have been achieved by the programmes that offer both home visitation with a centre-based component. Healthy Steps continues to evaluate and improve their programme.
Healthy Steps for Young Children [59, 60]	0-5	Programme carried out through primary care practices. Developmental specialist was embedded in the practice and offered families, referrals for needed services, developmental screening, parent support and education, parent support groups, a telephone information line. Healthy Steps achieved results similar to Early Head Start at much less cost per family (US$ 4,500 vs $US 400).
Starting Early Starting Smart [61]	0-5	Behavioural health services integrated into settings where young children and their families access other services and supports, mainly primary care. Provided mental health and substance abuse counselling as well as developmental screening and healthcare. Programme effectiveness based on four outcomes: (1) access and use of service, (2) social, emotional and cognitive outcomes for children, (3) caregiver-child interaction outcomes, and (4) family functioning.
Indicated/targeted home visitation		
Nurse Family Program [63-67]	0-2	Programme uses specially trained nurses who work with families. Home visits begin prenatally and are carried out fortnightly until the child's 2nd birthday. Good longitudinal data showing reduced child abuse and neglect, better family functioning. For more detail see Chapter 4.
Early Start [62, 68]	Under 3	New Zealand home visitation programme. This programme is one of the few home visitations to date that has found significant outcomes for a New Zealand population using an RCT. See Chapter 4 for more details.
Therapeutic interventions		
Child-Parent Psychotherapy for Family Violence [69-72]	2-6	This intervention is an integrated model using behavioural, social learning and psychotherapeutic techniques. It targets infants, toddlers and preschoolers who have observed or been victims of abuse or violence. These children may be suffering from PTSD and require intensive intervention.
Parent Child Interaction Therapy (PCIT) [73, 74]	2-6	PCIT is a short-term behavioural intervention designed for families with children between the ages of 2 and 6 who are experiencing a broad range of behavioural, emotional, and family problems. This intervention is currently being trialled in New Zealand. The effectiveness of this intervention is reviewed in Chapter 4. At present it has not been evaluated for the New Zealand population.
Watch, Wait & Wonder [75, 76]	0-4	This intervention is currently available in New Zealand as well. As a relational psychotherapy it involves the mother in building her relationship with her child through play. It has been shown to be very effective in treating disorganised attachment in early infancy.
Vulnerable Infants Program—(VIP) Rhode Island, and Miami's Infants and Young Children's Mental Health Program [77]	Infancy and early childhood	These programmes were set up to serve high-risk mothers in Rhode Island and Dade County Florida in collaboration with family courts, psychologists, psychiatrists and social workers. The aim of these interventions was to support mothers and their infants by providing a number of services tailored to the individual requirements of the family. Integral to these programmes was building the early mother-infant relationship. The Florida pilot programme obtained a benefit-cost analysis which revealed that for every US$ 1.00 spent in the treatment and support of the 43 infants that had completed the intervention there was a potential benefit of US$ 6.37 in savings from costs normally incurred for this population including, special education, abuse and neglect investigations, and costs associated with child placement and counseling [77].

7.2   Indicated or targeted preventive interventions: home visitation programmes

Home visitation is a type of service-delivery model that can be used to provide a range of different kinds of interventions usually to a population that may otherwise be difficult to engage. Home visitation programmes vary greatly in their goals, clients, providers, schedules, administrative structure, and activities. However, they are linked by their service delivery, their goal of helping children by helping parents of those children, and their focus on younger children [62-67]. It has been suggested that home visiting has a number of advantages over primary health care and family services including: (1) the ability to reach out to those who do not otherwise seek services; (2) the ability to enhance clients' comfort by meeting in their own environment and making it more likely that families will feel able to reveal health or problem conditions; (3) the facility to provide tailored interventions that support and guide clients through real-life situations; (4) the convenience of delivering the intervention in the home so there is no need for the family to arrange transportation, child care, or time off work; and (5) the added benefit that can result in establishing a satisfying, ongoing provider-client relationship.

Examples include: *Nurse Family Program*, *Early Start*.

7.3   Tertiary or therapeutic interventions

Therapeutic interventions are intensive services that serve infants and caregivers experiencing difficulties of a severity that warrants intervention by a health service and may include input from child protective services or family courts. Generally this means the difficulty, for either the infant or the care-giver, is of a magnitude that it would be diagnosed as a disorder, there are identified parent-infant interaction difficulties that are likely to impede healthy social and emotional development of the infant, and/or the level of risk for the child requires custody arrangements. These interventions require specific training, and often, input from a multidisciplinary team.

Examples include: *Child-Parent Psychotherapy for Family Violence*, *Parent-Child Interaction Therapy (PCIT)*, *Watch, Wait and Wonder*, *Vulnerable Infants Program* (Rhode Island Family Courts and Women & Infants Hospital), *Infant and Young Child's Mental Health Program* (Florida Family Courts).

8. Where is policy/intervention currently focused?

The importance of services that intervene to address emotional and behavioural problems that emerge during infancy, toddlerhood and the preschool period has become well recognised by a number of clinicians, researchers and professionals working in health and allied services in New Zealand. Evidence for this interest became apparent at a recent conference held in February 2010 that provided the latest clinical research on children at risk for early conduct problems, early relationship problems, preterm birth, autism, and substance abuse. This conference was attended by over 400 delegates; most were New Zealand clinicians and researchers eager to address the problems they are seeing daily in their clinics. Current policies, recognition and interventions include:

- a general recognition from health and government that intersectoral collaboration to ensure infants as well as children and adolescents who come into care have comprehensive health, and education assessments with appropriate interventions;
- a recognition that appropriate referrals and interventions are required for parents who experience antenatal and postnatal depression; however, there is an insufficient

focus on the importance of the primary caregiver relationship and most services to address the needs of the parents and the needs of their children are delivered separately; and

- the slow development of specific assessment and intervention services for infants within Child and Adolescent Mental Health Services. There is equally slow attention to infants' social and emotional development in Perinatal Mental Health Services.

Universal/preventive initiatives

- The development of a 'Needs Assessment and Care Plan' which will be implemented with training that will support professionals (midwives, Tamariki Ora/WellChild providers) to incorporate knowledge supporting emotional and social competence in infants into their work with families..

- Funding for trials of two parenting interventions, Triple P and the Incredible Years. These have both been shown to be effective in studies elsewhere.

Selected or indicated and targeted interventions

- The development by Counties Manukau DHB of a DVD for all new parents showing them the capacities for social communication among infants 0-12 weeks so that parents can establish those 'serve and return' interactions that are important to the development of early social and emotional competence. These DVDs are available nationally. Careful evaluation will be required to determine their effectiveness.

- The development of a number of small programmes in DHBs that will target the very high-risk families and their infants.

9. Implications for future policy

There is sufficient evidence to show that the pathways to serious emotional and behavioural problems start from conception and are linked to changes in the developing brain. In addition, a number of evidence-based interventions are available that could be used to improve outcomes by intervening early. Possible ways forward include:

- providing developmental assessments and intervention services for young children experiencing significant adversity before they exhibit problems in their behaviour or development, this will increase their chances of achieving social and emotional competence;

- ensuring that programmes for infants, toddlers and preschoolers include a focus on early relationships, particularly the infant/child-primary caregiver relationship;

- developing services that focus on all agencies that are involved with the health and welfare of young children, including allied services such as Child Youth and Family and family courts;

- developing strategies that range from providing information and support to address problematic child behaviour, to initiating therapeutic interventions to address significant parent mental health or substance abuse problems;

- investigating, implementing and evaluating the most promising interventions that can offer a combination of home- and center-based services involving parents, extended family members, home visitors, providers of early care and education, and/or mental health professionals (Table 2.1); and

- ensuring that in the planning of all interventions is done in partnership with Māori, Pasifika, Asian and immigrant people to ensure that cultural attitudes and beliefs

about behaviour and mental health are sensitively managed, with respect for diversity.

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Chapter 3

Self-control

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Summary

- Recent research has prompted policy-makers to re-assess the value of investing in educational programmes aimed at developing children's self-control as a means of improving population health and productivity, and reducing crime.

- The importance of self-control is also reflected in 'opt-out' schemes that encourage people to engage in healthy lifestyles (e.g., eating low calorific food; obeying the law), and economically shrewd behaviour (saving money) by making these the easier options requiring no effortful self-control.

- Whilst promising, robust evidence from studies in the general population are required to confirm that individuals' self-control has ubiquitous effects on health, wealth and public safety.

- Recent work from the Dunedin Longitudinal Study investigated 1000 children who varied on levels of self-control, and showed that self-control predicted an impressive array of life outcomes including those of physical and financial health and criminal offending, up to three decades later.

- Importantly this new research showed that self-control mattered regardless of the children's intelligence, social-class of origin, and early home environment as well as mistakes made as adolescents.

- These findings indicate that policies aimed at teaching self-control, particularly early in life, may have positive, long-term, pervasive effects, thus saving taxpayers money and enhancing future national prosperity.

1. Introduction

The need to delay gratification, control impulses and regulate emotions is one of the earliest and most important developmental tasks confronting children, and later success in many life domains depends critically on children's mastery of this self-control skill.

2. What is the question?

In plain language, self-control is a vital skill that involves scanning the horizon so as to be prepared for what might happen to you, for envisaging your own future possibilities, for planning ahead to get where you want to go, for controlling your temper when life frustrates you, for getting along with other people and attracting their help and support, and for waiting for the good things that are worth waiting for, instead of opting for short-term enticements. We all use it every day, but some of us use it more skillfully than others. It is possible that self-control has never been more important because of the changing historical context. Modern history is marked by an increase in human longevity, requiring us all to pay more strategic attention to our health and wealth to avoid disability and poverty in old age. Modern history is also marked by increases in food availability, sedentary occupations, access to harmful addictive substances, ease of divorce, self-management of retirement savings, and imprisonment of law-breakers. These historical shifts enhance the value of self-control in modern life. A century ago everyone benefitted from the effects of public education on literacy; today we might need something to enhance everyone's self-control skills. The question is what would that 'something' be?

In scientific language, self-control is an umbrella term that summarises concepts and measurements from a wide range of disciplines (e.g., impulsivity, conscientiousness, self-regulation, delay of gratification, inattention-hyperactivity, executive function, willpower, inter-temporal choice).

For example, neuroscientists have studied self-control as a high-level, key decision-making function underpinned largely by the brain's frontal cortex [1, 2]. Using clever experiments, neuroscientists have begun to identify specific brain structures and systems involved when people apply self-control [3]. Behavioral geneticists have shown that self-control is a product of both genetic and environmental influences [4, 5], and are now trying to discover genes associated with self-control [6]. Developmental and personality psychologists have studied how young children develop self-control skills as they grow [7, 8], as well as mapping the stability (as well as change) in self-control across the lifecourse [9]. Health psychologists have shown that self-control can predict earlier mortality [10], a broad range of psychiatric disorders [11] and aspects of unhealthy lifestyles such as eating poorly, smoking, engaging in risky sex, drinking and driving, and failure to adhere to medical regimens [12]. Sociologists report that low self-control is associated with increasing rates of problem gambling [13], unemployment [14] and crime [15], providing strong evidence that low self-control is a core characteristic of those who break the law [16, 17].

According to Baumeister et al. [18] self-control appears to be "vulnerable to deterioration over time from repeated exertions, resembling a muscle that gets tired" (p. 351). Baumeister's view implies that effortful self-control depends upon a finite set of resources which can be exhausted. The corollary is that, just like muscular strength, resources for self-control can be built up and/or conserved in various ways.

3. Why is it important for the transition to adolescence?

Prominent economists have identified individual differences in self-control as a key variable for policy formulation aimed at improving the physical and financial wellbeing of the population, and for reducing the crime rate [19]. Contemporary interest in self-control skills, in particular those of conscientiousness, self-discipline and perseverance, dates back to preschool education programmes that targeted poor children almost half a century ago. Interestingly, while these programmes failed to improve intelligence test

scores, they nevertheless produced other benefits including reduced teenage pregnancy, school drop-out, delinquency and work absenteeism [20]. Some have speculated that it was the impact on self-control that helped mediate these unexpected positive outcomes.

4. What is the scale of the problem?

Insomuch as self-control is malleable, it would appear to be an important prevention target. The key question then becomes when in the life course is it best to intervene in order to optimise the benefit-cost ratio [21].

Further, and as pointed out by Moffitt et al. [22] (p. 2693):

> "Regardless of its malleability, however, if low self-control is influential, policy-makers might exploit this ... if citizens were obliged to opt out of default health-enhancing programs or payroll-deduction retirement savings schemes, individuals with low self-control should tend to take the easy option and stay in programs, because opting out requires unappealing effort and planning [23, 24]. Similarly, the idea behind the crime-reduction policy of 'target hardening' is to discourage would-be offenders by making law-breaking require effortful planning (e.g. antitheft devices require more advance planning to steal a car)."

In the context of the current heightened policy interest in self-control (now evident in a number of countries), data published in 2011 by the Dunedin Longitudinal Study provide timely and highly relevant information for New Zealand policy makers [22]. The Dunedin study design has several strengths: it uses a general population sample and has conducted repeated measurements of the participants as they have grown up. This contrasts with experimental behavioural-economics studies that test performance on laboratory self-control tasks (such as delay of gratification, discounting and inter-temporal choice tasks) and then relates this performance to indirect measures of wealth, health and crime. Although these lab experiments provide useful information about the consequences of low self-control, they lack 'ecological' validity. Indeed some economists have noted that "behavior in the lab might be a poor guide to real-world behavior" [25]. Thus, the naturalistic Dunedin Study builds on experimental research on self-control by providing sorely needed information about how well variability in children's self-control, as it appears in the general population, predicts a range of 'real-life' outcomes in adolescence and adulthood.

The Dunedin Study examined a wide range of adult health outcomes including metabolic abnormalities, inflammation and depression because these signal risk for costly age-related diseases and premature mortality. Wealth outcomes such as credit problems and poor saving habits were examined because these are harbingers of late-life poverty and financial dependence. Convictions for crime, because crime control poses major costs to government, were also examined.

The Study's birth-cohort sampling frame and minimal attrition (96% of the living cohort were still participating after 3+ decades) enabled investigation of the full range of childhood self-control and subsequent outcomes, as well as the estimation of the effect sizes for these associations, information that is valuable for informed policy making. In studies of this kind, it is also important to isolate self-control as the active ingredient affecting health, wealth and crime, as opposed to other influences on children's futures, such as their intelligence or social-class origins. Dunedin Study data allowed for these statistical controls.

5. What research tells us about causative factors

The Dunedin Study addressed three important policy questions. First, we tested if health, wealth and crime outcomes varied as a function of one's position on the self-control gradient. This helps inform about the relative merits of universal versus targeted approaches. Second, we asked whether low self-control in childhood set people up to engage in high risk behaviours as adolescents (e.g., smoking tobacco, early school leaving, or teen parenthood), and whether it was these outcomes that predicted an increased likelihood of poor adult outcomes. In other words, if self-control's influence was mediated through adolescents' mistakes, adolescence would be an ideal window for intervention. Third, and because self-control was first measured at age three in the Dunedin Study, we were able to see if individual differences in pre-schoolers' self-control had consequences into the fourth decade of life. If this was the case, then the early childhood period would be an ideal time for intervention.

What did we find?

We assessed children's self-control on multiple occasions (at ages 3, 5, 7, 9, 11 years) during their first decade of life. Our overall measure of self-control was made up of multi-source information obtained via parents, teachers, researchers and the children themselves. We also measured the children's socioeconomic origins and intelligence. This is important because research in developed countries has consistently shown that children experiencing socioeconomic advantage and with higher IQs end up more wealthy [26, 27], live longer and healthier lives [28-30], and break fewer laws [31]. This pattern was also evident in the Dunedin Study data, requiring us to control for social-class origins and intelligence to better understand the independent effects of low self-control.

At age 32 years, we assessed a wide range of physical health outcomes including: cardiovascular, respiratory, dental and sexual health, as well as immune functioning, via direct physical examinations. We also used structured diagnostic interviews to assess depression and substance dependence (tobacco, alcohol and cannabis dependence, as well as dependence on other street and prescription drugs), following DSM-IV criteria [32]. Substance-dependence was also verified by reports provided by people who knew the Study members well, with study member permission. We also assessed financial planning, savings, home ownership, investment funds or retirement plans, money-management difficulties and credit problems. These sorts of adult financial problems were also verified by reports from people who knew the Study members well, again with their permission. Finally we obtained the official court convictions records for New Zealand and Australia.

The answers to our three policy-pertinent questions were as follows: (i) we observed a self-control gradient in which both boys and girls with less self-control had less health, less wealth, and more crime as adults than those with more self-control (controlling for childhood socioeconomic status and IQ), at every level of the distribution of self-control. Importantly, this gradient was not a function of attention deficit hyperactivity disorder (ADHD), as removal of the 61 study members with a diagnosis of ADHD resulted in the same pattern of findings; (ii) children with poor self-control were significantly more likely to have begun smoking by age 15, left school with no educational qualifications, or become teenage parents. The greater number of these risk behaviours/outcomes, the worse the adult outcomes. These adolescent risk factors accounted for approximately half of the variability in adult outcomes, thereby indicating the benefits of intervening during, or immediately prior, to adolescence. Nonetheless, even after taking account of the mediating role played by these adolescent 'snares', childhood self-control continued to significantly

predict poor adult health (with the exception of diagnosed substance dependence), wealth and greater criminality; (iii) we found that staff ratings of the children's self-control when they were as young as 3 to 5 years old [33] significantly predicted age-32 health, wealth and convictions, albeit with modest effect sizes. However, modest effect size over three plus decades is impressive and points to the value of intervening in the preschool years.

6. Where is policy/intervention currently focussed?

The take home message from these findings is clear:

"With respect to timing of programs addressing self-control, our findings were consistent with a "one-two punch" scheduling interventions during both early childhood and adolescence [34]. On the one hand, low self-control's capacity to predict health, wealth and crime outcomes from childhood to adulthood was, in part, a function of mistakes our research participants made in the interim adolescent period. Adolescents with low-self-control made mistakes, such as starting smoking, leaving high school, and having an unplanned baby, that could ensnare them in lifestyles with lasting ill effects. (Our choice of snares was not exhaustive, but we elected to study those that are already high-priority targets of adolescent education policy). Thus, interventions in adolescence that prevent or ameliorate the consequences of teenagers' mistakes might go far to improve the health, wealth and public safety of the population. On the other hand, that childhood self-control predicts adolescents' mistakes implies that early childhood intervention could prevent them. Moreover, even among teenagers who managed to finish high school as non-smokers and non-parents, the level of personal self-control they had achieved as children still explained variation in their health, finances and crime when they reached their thirties. Early childhood intervention that enhances self-control is likely to bring a greater return on investment than harm-reduction programmes targeting adolescents alone [35]." Moffitt et al. [22] (p. 2697).

7. What research tells us about intervention programmes that work

Piquero, Jennings, and Farrington [36] published a meta-analysis of 34 randomised clinical trials of programmes aimed at enhancing children's self-control. Their review showed there was a significant overall positive effect. The programmes included various approaches such as behavioural reward schemes, cognitive coping training, and role playing with videotapes. The programmes that seemed to work best were those that had more girls, more non-whites, and were smaller programmes, tightly focused, and of shorter duration. Larger, more diffuse, long-term programmes were not as successful. It did not seem to matter whether the intervention was offered at school versus in a clinical setting, or whether it enrolled high-risk children versus ordinary children. However, a number of these initial studies had relatively high drop-out rates, and in some of the studies the child's outcome was not ascertained by someone who was kept blind as to which intervention the child received. Drop-out and non-blind assessment can bias results of a randomised trial.

8. Implications for future policy

Although the data summarised in the Piquero et al. report are promising, the definitive answer about what works best is not in yet, and more programmes should be designed, and evaluated rigorously. However, the data that are available, together with programmes

reviewed in Chapters 2 and 4, suggest that high intensity intervention during early childhood such as the Perry Preschool Program may be more effective than interventions that occur later in development. Once an effective approach or programme is identified, there will be the challenge of scaling it up so it remains effective in New Zealand (see Chapter 22). It will also be important to demonstrate that there is a return on investment—a good benefit-cost ratio. All this work is going to require sustained commitment on the part of scientists, practitioners, and funders.

Perhaps the most novel aspect of the findings described here is that they are consistent with a universal approach to very early intervention to enhance self-control at all levels. This is because health, wealth and crime outcomes followed a gradient across the full distribution of self-control in the population. The observed gradient implies room for better outcomes even among those in the population whose childhood self-control skills were average or better. A universal approach has the upside of avoiding stigmatisation and the challenges of screening, but also the downside of increased cost. This is a general issue in all interventional programmes—when to target populations and when to be non-selective. Most programmes that are effective in improving child outcomes have some effect on all children, but fiscal realities mean that targeting may be necessary to deal with particular disadvantage.

On a more general note, many of the other chapters in this monograph emphasise the critical role played by self-control and related executive functions. It could even be argued that self-control is the *sine qua non* of the non-cognitive skills now regarded as key for life success (see Chapters 1 and 6). Given New Zealanders' well-publicised appetite for debt and aversion to saving as well as our unacceptably low levels of impulse control (e.g. child abuse), speculation about a national lack of self-control seems inevitable. Only rigorous cross-cultural comparisons can confirm this notion. If confirmed, however, a potent combination of programmes and effective self-control interventions is likely be needed to overcome the New Zealand paradox: that is, New Zealand is a temperate, peaceful, ethical and developed nation in which children should flourish, yet it is actually one in which they experience some of the highest rates of adolescent morbidity and mortality in the OECD.

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Appendix 1: Summary of evidence on effective interventions

As noted above, Piquero, Jennings and Farrington [36] reported a meta-analysis of 34 randomised trials of programmes aimed at enhancing children's self-control. They reported an overall significant positive effect for a range of programmes that collectively emphasised skill acquisition using behavioural/cognitive-behavioural techniques, largely derived from social learning theory.

The Piquero et al. paper reports effect sizes for self-control. The effect sizes were described using the most common effect size statistic (Cohen's d). Additionally, and following Hedges and Olkin [23], effect sizes were also reported following adjustment for sample size to avoid potential bias.

Of the 34 studies reviewed, approximately two thirds enrolled high risk samples, with a similar proportion providing interventions in a group, versus individual, format.

Self-control was measured in different ways across the studies, via reports from parents, teachers or the self, as well as via direct observation or clinical records.

Across all reporting sources (n.b. a study could have more than one source) the majority of effects size estimates were positive (n = 40/45 sources). They ranged from a low of –0.51 (95% CIs –0.73, –0.03) to a high of 2.86 (95% CIs 2.04, 3.86). Approximately half of the effect sizes were statistically significant at $p < 0.05$.

Following adjustment for sample size, all the effects sizes were categorised by source of measurement (e.g. parent, teacher). All estimates were positive and significant (with the exception of parent reports), ranging from a small effect (0.28) to a 'substantial' moderate effect size (0.68; see Table 4 in Piquero et al. [36]).

Appendix 2: Benefit-cost analysis of effective interventions for enhancing self-control

Formal benefit-cost analyses like those undertaken for Early Child Education (ECE) interventions (e.g. Aos et al. [37]) were not reported in the Piquero et al. [36] study. However, the self-control construct described in this chapter appears to be, in broad terms, similar to some of the attributes targeted in many of the successful ECE programmes e.g. 'learning dispositions' or 'non-cognitive skills'. In this context it is interesting that the effect sizes observed in the self-control meta-analysis were similar to those typically reported for outcomes in the ECE literature. This suggests that the benefit-costs reported for ECE interventions might provide a rough guide as to what might be expected if similar benefit-cost analyses were conducted for self-control interventions.

In this regard, Aos et al. [37] reported a meta-analysis of ECE programmes for low income 3- and 4-year-olds with follow-up to variable ages, but with a maximum age of 27 years, and showed a benefit-cost ratio of 2.36. The Perry Preschool Project (whose most recent follow-up was at age 40 years) reported a benefit-cost ratio of 16.14 (the outcomes of interest included IQ, academic scores, teen pregnancies, need for special education and arrests, and rates of high school graduation and monthly income). Similarly, a very recent paper by Reynolds et al. [38] also reports a positive benefit-cost ratio (a total return to society of $US 10.83 per dollar invested) for the Child-Parent Center Early Education Program, followed up to the age of 26 years.

The benefit-cost ratios reported for ECE programmes demonstrate substantial returns on investment from interventions conducted in the preschool setting. The findings reviewed in this chapter suggest the tantalising possibility that similar (or possibly even greater) returns might be achieved for proven programmes targeting self-control specifically.

Chapter 4

Childhood conduct problems

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Summary

- The seeds of many adolescent difficulties are sown very early in development.

- For example, conduct problems which frequently begin in early childhood often extend over the life course. Conduct problems in childhood and adolescence are relatively common and may afflict up to 10% of the population.

- Conduct problems in childhood (and adolescence), have profound consequences for later development including antisocial behaviour, crime, mental health difficulties, suicidal behaviours, substance abuse, teenage pregnancy, inter-partner violence and physical health.

- A number of evidence-based interventions have been shown to be effective in the prevention, treatment and management of childhood conduct problems. Current moves to introduce such programmes into New Zealand should be encouraged and strengthened.

- Other programmes in this area have either not been evaluated or have been found to be of limited efficacy, or even harmful.

- Major issues that remain to be addressed are workforce enhancement, programme evaluation resources, and development of Te Ao Māori programmes.

1. Introduction

The aim of this chapter is to provide a broad overview of the aetiology, consequences and treatment of conduct problems during development with a specific focus on both New Zealand evidence and the development of New Zealand-based policy and services.

2. What is the question?

There has been long standing scientific, public and political interest about issues relating to the prevention, treatment and management of antisocial behaviours in children and adolescents. Typically, these concerns have focused on a minority of young people who are characterised by recurrent aggressive, violent, oppositional, dishonest and antisocial behaviours. The terminology used to describe these young people has varied between disciplines. In psychiatry and clinical psychology these individuals are usually described as having Oppositional Defiant Disorder (ODD) or Conduct Disorder (CD) [1, 2]. Within educational circles terms such as "challenging behaviour" or Emotional and Behavioural Disturbance (EBD) have been used [3] to describe the same constellation of behaviours. To address these differences in terminology, the New Zealand Advisory Group on Conduct Problems (AGCP) has suggested the use of the term "conduct problems" which they define as follows:

> *"Childhood conduct problems include a spectrum of antisocial, aggressive, dishonest, delinquent, defiant and disruptive behaviours. These behaviours may vary from none to severe, and may have the following consequences for the child/young person and those around him/her: stress, distress and concern to adult care givers and authority figures; threats to the physical safety of the young people involved and their peers; disruption of home, school or other environments; and involvement of the criminal justice system."* [4]

3. Why is it important for the transition to adolescence?

It is widely recognised that conduct problems in childhood and in adolescence cause difficulties and stress for young people and for those individuals who are associated with them including parents, teachers and peers [5]. There is now substantial evidence from New Zealand's major longitudinal studies that these problems have long term consequences that extend into adulthood. Specifically, both the Christchurch Health and Development Study (CHDS) and the Dunedin Multidisciplinary Health and Development Study (DMHDS) have followed birth cohorts of about 1000 children from early childhood up to the age 30 and beyond. The findings of these studies have made it possible to determine the extent to which conduct problems in childhood and adolescence are precursors of longer term adverse outcomes [6-12]. These studies have demonstrated that young people with significant conduct problems are at increased risks of:

- later crime, arrest and imprisonment;
- substance use and abuse;
- mental health problems including depression and anxiety;
- suicidal thoughts and attempts;
- teenage pregnancy and parenthood;
- inter-partner violence;
- impaired parenting behaviours;
- poor physical health; and
- poor dental health.

Given this body of evidence, there is no other commonly occurring childhood condition that has such far-reaching and pervasive consequences for later health, development and social adjustment. For this reason, social investments into the prevention, treatment

and management of conduct problems should be a matter of the highest priority in the planning of services for children and adolescents.

4. What is the scale of the problem?

While estimates of the fraction of children with clinically significant conduct problems have varied, most studies set the prevalence of these problems in the region of 5-10% [3, 13-15]. If we use the lower limit of this range to estimate prevalence, within the 3- to 17-year-old New Zealand population, there will be in excess of 40,000 children and adolescents with significant levels of conduct problems. Those most likely to display these problems are: male, Māori, and young people from socially disadvantaged backgrounds which are characterised by low socioeconomic status, violence, parental criminality and substance abuse, and inconsistent or harsh parenting practices [3, 16].

5. What research tells us about causative factors

There is a large and ever growing literature on the factors that place children and young people at risk of developing significant levels of childhood conduct problems as well as the factors that may act in a protective role [17-21]. What emerges most strongly from this body of evidence is that there is no single factor or set of factors that explains why some young people develop significant conduct problems while others do not. Rather, the evidence suggests conduct problems are the end point of an accumulation of factors that combine to encourage and sustain the development of antisocial behaviours. Amongst the better documented findings are the following.

5.1 Genetic factors

The predominance of males with conduct problems clearly hints at the possibility that biological and genetic factors may play an important role in the development of conduct problems. There is, in fact, strong evidence to suggest the role of underlying genetic factors from research using twin and adoption designs, which has suggested that up to 40% of the variability in antisocial behaviours may be genetic in origin [22]. More recently with the development of genetic technology it has become possible to examine the role of specific genes in the development of antisocial behaviour, and this research is beginning to highlight the importance of gene x environment interactions, in which the outcomes that young people experience depend on both their genetic background and the environment to which they are exposed [23, 24].

5.2 Socio-economic factors

Another pervasive finding in the research literature is that rates of many types of childhood problems, including childhood conduct problems, tend to be higher amongst families facing sources of social inequality and deprivation, including poverty, welfare dependence, reduced living standards and related factors [25-30]. These findings highlight the fact that the general socio-economic milieu within which children are raised has far-reaching consequences for their healthy development.

5.3 Family

There is a substantial body of research which shows that the nature and quality of the child's family environment plays an important role in the development and maintenance

of conduct problems [26, 31-38]. In particular, children reared in homes characterised by multiple sources of adversity, including family violence, child abuse, inconsistent discipline practices, multiple changes of parents and similar factors, emerge as being at substantially increased risk of developing significant levels of conduct problems.

5.4   Schools

As Rutter has pointed out, children spend in the region of 15,000 hours at school [39]. Given this, it is not surprising to find that the nature and quality of the school environment play an important role in shaping children's behaviour. Growing evidence suggests that schools that offer consistent, non-punitive and supportive environments reduce risks of conduct problems [40-42].

5.5   Peers

The nature and quality of the young person's peer relationships also play an important role in shaping behaviour; peer influence is particularly important during adolescence. Affiliation with antisocial and substance-using peers leads to the onset of conduct problems in young people with a previously unproblematic life history [26, 43-46]. The role of peers in the development of conduct problems also underlies an important distinction drawn by Moffitt on the basis of her work [29, 47, 48] with the Dunedin Multidisciplinary Health and Development Study (DMHDS). In particular, Moffitt suggested that there were two distinct trajectories by which conduct problems develop. The first is the 'life course persistent pathway'. Young people following this pathway show signs of conduct disorder very early in development which persist over the life course. Moffitt suggests that this pathway includes young people who have neuro-psychological deficits and who are exposed to disadvantaged or dysfunctional childhood environments. The second pathway is the 'adolescent-limited pathway'. Young people following this pathway typically do not show significant conduct problems until adolescence; they develop conduct problems by imitating the behaviours of antisocial peers.Unlike their life-course persistent counterparts, individuals who exhibit adolescent-limited antisocial behaviour typically outgrow these behaviours by early adulthood.

5.6   Overview

What emerges from this large body of research is that the development of childhood conduct problems is the end point of a large number of biological, sociological, family and personal factors which act cumulatively to affect the young person's developmental trajectory and place a significant minority of individuals at risk of developing antisocial behaviour patterns. Conversely, what protects young people from developing these problems is exposure to supportive and nurturing environments at home, school, and in other social contexts.

6. *What research tells us about prevention programmes that work*

Over the last two decades there have been rapid advances in the development of effective programmes aimed at the prevention, treatment and management of conduct problems. These advances have been possible as a result of an increasing number of research studies that have examined treatments for conduct problems using randomised controlled trials (RCTs). Typically in such trials, young people with conduct problems are divided into two groups at random. One group (the experimental group) receives the new treatment or

programme, whereas the other group (the control group) is provided with the usual or existing treatment. Providing that RCTs are well conducted, they provide strong, but not infallible, evidence of the effectiveness of interventions [49, 50].

There is a large literature on the risk and protective factors associated with childhood conduct problems. One of the most robust and pervasive findings in the literature is that children who develop conduct problems frequently come from home environments characterised by multiple sources of social, economic, family and related disadvantage [26, 31, 38, 46, 51]. These findings have motivated efforts to intervene with so called 'at risk' populations very early in development to mitigate the effects of economic, social and family disadvantage and improve outcomes for children. Typically, these programmes are targeted at addressing multiple issues relating to health, development, parenting and child behaviour during the preschool years. A brief review of findings from this research approach is given below.

6.1   Home visiting programmes

Both within New Zealand and internationally, large investments have been made in the development of intensive home visiting programmes for families facing stress and difficulties [52-60]. These programmes usually start around or before birth and are delivered by home visitors who aim to provide advice, assistance, support and mentorship to families. Programmes may last up to 5 years and aim to address a wide range of family issues including parenting and child behaviour. Many of these programmes have been evaluated using randomised controlled trials. Reviews of this evidence suggest the results of many home-based interventions have been disappointing and few positive effects have been found [52, 61, 62]. There are, however, at least two exceptions to this trend. The first, and most impressive, is the Nurse Family Partnership (NFP) developed by Olds and his colleagues [61]. The NFP provides a programme of intensive home visitation delivered by nurses to disadvantaged young mothers. The children whose mothers participated in the programme were followed up to the age of 15. In comparison to a random control group, the adolescents in those families who had received NFP had fewer arrests, convictions and probation violations suggesting that NFP interventions mitigate risks associated with severe antisocial behaviours in adolescence that often emerge from conduct problems in childhood [63].

The second study to show positive benefits for child behaviour was the New Zealand-based Early Start programme. The children in this programme have only been evaluated up to the age of 3 years, but findings up to that age indicate that children enrolled in Early Start had fewer problem behaviours at age 3 years [52]. The general conclusions that emerge from the literature on home visitation is that well-designed home visitation can reduce rates of conduct problems, but to be effective these programmes need to be carefully implemented and require rigorous evaluation [63]. The most successful programmes are designed to enhance children's emotional, regulatory, and social development as well as increase their numeracy and literacy skills. Children whose home environments are poor or are characterised by other risk factors gain the most from these centre-based programmes.

6.2   Centre-based programmes

Centre-based programmes provide an alternative to home-based programmes. In these programmes, children from at-risk backgrounds attend pre-school education centres that provide systematic programmes aimed at reducing the risk of behavioural difficulties and

increasing academic competence. It is important to note that such programmes should not be equated with the provision of preschool education; the programmes described below contain specific features aimed at mitigating childhood disadvantages.

While formal evaluations have shown that these programmes have limited success in increasing children's cognitive abilities over the long term, there is growing evidence that they may make strong contributions to the development of non-cognitive behavioural skills [64].

Notable examples of successful centre-based programmes include the Abecedarian programme [65, 66] and the Perry Preschool Project [67]. As with home visitation, randomised trials suggest that well-designed, centre-based programmes can reduce risks of longer term conduct problems. This evidence has been recently reviewed by the economist James Heckman who concludes:

> *"Early interventions targeted toward disadvantaged children have much higher returns than later interventions such as reduced pupil teacher ratios, public job training, convict rehabilitation, tuition subsidies or expenditure on police."* (p. 1902) [64]

Because multiple risk factors contribute to conduct problems in childhood, early childhood centre-based programmes that reduce multiple risks are more successful in preventing chronic delinquency and in maximising long-term success than are those that target only a single risk factor. The programmes that demonstrate long-term effects on crime and antisocial behaviour tend to be those that combine centre-based programmes for children with family support services.

6.3   Community-based programmes

A further preventative approach has been through the development of community-based programmes that attempt to provide services, resources and support for at-risk families and children. Two examples of effective community-based programmes are the Chicago Child Parent Centres [68, 69] and Communities That Care [70].

7.   What research tells us about treatment and management programmes that work

Although the prevention programmes outlined above provide useful approaches for reducing the risks of conduct problems for children from 'at risk' environments, even with such programmes a number of children will go on to develop significant conduct problems. There is now a large, impressive and ever growing body of literature about the types of programmes that are most effective for the treatment and management of conduct problems. These interventions span both home and school and are suitable for different ages, while sharing a number of common features:

- all programmes use non-punitive problem solving approaches that attempt to address the sources of the children's problem behaviours;
- all are founded in a clearly articulated theoretical framework regarding the aetiology of conduct problems;
- all programmes are manualised making it possible to transfer the programme to a new context; and
- the evaluation of all programmes has been founded on a Prevention Science model and the use of randomised controlled trials (see Chapter 22 for further discussion).

7.1   Parent Behaviour Management Training

One of the most successful approaches to addressing conduct problems in early and middle childhood has been Parent Behaviour Management Training programmes. These programmes have been based on two areas of research. First, maladaptive parent-child interactions, particularly in relation to discipline practices, have been shown to foster and to sustain conduct problems among children. Second, social learning techniques, relying heavily on principles of operant conditioning, have been extremely useful in altering parent and child behaviour. Typically, Parent Behaviour Management Training involves therapists or facilitators teaching parents a range of skills for the management of behaviour. These skills include: carefully observing and recording child behaviour; the use of positive reinforcement, the avoidance of physical punishment; the use of time out or loss of privileges; and related skills. Parent management training may be provided in both a group context and a one-on-one basis [3, 71-74].

There is now a range of manualised, well validated and widely used programmes that employ these principles. The programmes include:

- the Triple P (Positive Parenting Programmes) [75, 76];
- the Incredible Years Programmes [77, 78];
- Parent Management Training Oregon [79, 80]; and
- Parent Child Interaction Training [81, 82].

These programmes offer a series of options for delivering parent behaviour management training which range from universal programmes directed at all parents to highly intensive programmes for children with severe behaviour disturbance. The weight of the evidence suggests that these programmes are most successful with children in the 3–7 years age range where treatment may reduce rates of conduct problems by up to 80% [3, 4, 83] with programme effectiveness declining with increasing age of the child [3, 4, 84].

7.2   Teacher Behaviour Management Training

Parallel to research into Parent Behaviour Management Training there has also been similar research into classroom-based Teacher Behaviour Management Training. However, the extent of this research has been far more limited than research into Parent Behaviour Management training and there are relative few well validated and manualised programmes available. Teacher Behaviour Management Training programmes include:

- the Incredible Years Teacher Programme [78]; and
- the CLASS and RECESS programmes developed by the Oregon Social Learning Centre [85-87].

7.3   School-wide interventions

There is increasing evidence to suggest that the nature and quality of school environments play an important role in the prevention and management of childhood conduct problems. This research has led to the development and validation of the School-Wide Positive Behavior Support (SWPBS) programme. SWPBS is a decision making framework that guides selection, integration, and implementation of the best evidence-based academic and behavioural practices for improving important academic and behaviour outcomes for all students [88, 89].

SWPBS emphasises four integrated elements: (a) data for decision making, (b) measurable outcomes supported and evaluated by data, (c) practices with evidence that these outcomes

are achievable, and (d) systems that efficiently and effectively support implementation of these practices. The programme is suitable for implementation in both primary and secondary school settings [83, 84].

7.4   Multimodal programmes

As children grow older and their conduct problems become more entrenched, the effectiveness of the programmes described above tends to decline [4, 83, 84]. Recognition of this fact has led to the development of multimodal intervention which is aimed at treating and managing conduct problems across a range of settings involving families, the school, teachers and peers. These programmes are most suited for adolescent populations and include:

- Multisystemic Therapy [90, 91];
- Functional Family Therapy [92, 93];
- Coping Power [94];
- Stop Now and Plan [95]; and
- Linking Interests of Families and Teachers [96].

All of these programmes are manualised and have been validated by randomised controlled trials.

7.5   Residential/out of home interventions

Finally, some children and young people with conduct problems may be removed from their home either because of conduct problems or because of care and protection issues. While conventional residential and foster care has been found to have limited effectiveness in addressing the issue of conduct problems, there are two specialised out of home interventions that have been found to be effective.

The first is Multidimensional Treatment Foster Care (MTFC) [3, 97]. In this programme children with severe behavioural difficulties are placed with specially trained foster parents who are provided with ongoing support by a team of trained therapists. Placements typically last for 6-9 months. The programme involves a structured behaviour management system for the child, supplemented with family therapy and support for the child's birth family. Teaching Family Homes also provide out of home treatments for children with severe conduct problems – in these homes, up to six children are placed with specially trained foster parents who act as therapists who teach the children a range of behavioural skills, including social skills, problem solving, emotional control and related skills [98].

8.   Interventions for which evidence of efficacy is limited or lacking

While there is growing evidence on the types of programme that are effective in the treatment and management of childhood conduct problems, it has also become apparent that many programmes in this area have either not been evaluated or have been found to be of limited efficacy. Amongst the programmes found to be of limited efficacy are:

- wilderness programmes [99];
- boot camps and military style training [100, 101];
- mentoring programmes [102, 103];
- restorative justice [104]; and
- Scared Straight programmes [105, 106].

For some of these programmes (wilderness training, military style training, mentoring and restorative justice) it is possible to find examples of apparently successful programmes. However, what is not clear are the features that distinguish unsuccessful programmes from successful programmes. For other programmes, such as Scared Straight, there is evidence suggesting that the programmes may have harmful effects. Research into programmes with limited evidence of efficacy has two important messages for the choice and implementation of programmes. First, this research suggests that it is important that investments into policies are based on well founded evidence provided by randomised controlled trials. Secondly, variations in the outcomes of apparently similar programmes highlights the importance of subjecting programmes to thorough evaluation when they are installed in a new and culturally different context, such as New Zealand [4].

9. Where is policy/intervention currently focused?

Given this body of evidence, the key task is to develop policies, strategies and services that translate this evidence into effective practice in New Zealand. A promising start has been made in some sectors of Government:

- The Positive Behaviours for Learning (PB4L) strategy developed by the Ministry of Education has made a step in the right direction by setting out a plan for three of the evidence-based programmes noted in the review above [107]. These programmes are the Incredible Years Basic Parent Programme, the Incredible Years Teacher Programme and School Wide Behaviour Support.

- The Drivers of Crime Strategy [108] also proposes to include a primary care-based version of the Triple P programme.

- The Ministry of Social Development in partnership with the Ministries of Education and Health has invested in the development of an evaluation of the Incredible Years Parent programme, with further evaluation of the Incredible Years Teacher programme and School Wide Behaviour Support being planned [109].

10.   Implications for future policy

While there is increasing investment in evidence-based programmes for the treatment and management of conduct problems in New Zealand, there are a number of major issues that still need to be addressed. These include the following.

10.1 Implications for the New Zealand Youth Justice System

The prevention, treatment and management of conduct problems in childhood and adolescence has important implications for the New Zealand Youth Justice System. In particular, children with early-onset, life-course persistent conduct problems have a high risk of coming to the attention of the justice system and will make up the majority of those individuals who go on to become repeat offenders. Providing the early intervention programmes described above offers a means of reducing the number of young people who develop life-course persistent conduct problems. Further, a number of programmes reviewed previously offer promising treatment approaches for addressing adolescent conduct problems and are well suited to be incorporated into the New Zealand Youth Justice System. These programmes include: Functional Family Therapy, Multisystemic Therapy, Treatment Foster Care and Teaching Family Homes. All of these interventions have been evaluated using randomised controlled trials and have been found to be

effective in reducing rates of antisocial behaviour amongst adolescents with significant conduct problems. There is a strong case for extending current Youth Justice provisions to trial the effectiveness of these methods in a New Zealand context.

10.2 Workforce issues

Many of the programmes described in this chapter require trained professional staff including child psychologists, child psychiatrists, trained therapists and teachers to oversee supervise and deliver evidence-based programmes. These staff are currently in short supply and there is an urgent need to invest in workforce development [4].

10.3 Programme evaluation resources

There have been ongoing debates about the extent to which evidence-based programmes developed outside New Zealand can be transplanted into a New Zealand context and still remain effective. To address these concerns it is important that programmes are thoroughly evaluated in a New Zealand context before being widely implemented. At the present time there are limited research resources inside and outside Government. There is a strong case for increasing investments into research and development staff to ensure that investments made into New Zealand-based programmes are adequately evaluated [4, 83]. As shown in the Appendix, research in the US and elsewhere has shown that the return from well-implemented and well-evaluated prevention, intervention, and treatment programmes for conduct problems is often very good, with programmes returning several times their costs as a result of reduced rates of crime imprisonment and associated costs.

10.4 Development of Te Ao Māori programmes

As noted earlier, rates of conduct problems in Māori are higher than for non Māori [4]. Given that conduct problems are an important precursor to a wide range of later adverse outcomes, it is a matter of high social and policy importance that this inequality is addressed. One important route for delivering culturally acceptable and culturally appropriate programmes for Māori is through increased investment and support of Te Ao Māori (by Māori for Māori) initiatives in this area [4, 83]. These issues are discussed at greater length in Chapters 11 and 22.

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Appendix 1: Summary of evidence on effective treatments

The review in the main chapter provides an overview of the evidence regarding effective interventions to address conduct problems in young people. This review is based upon a large and growing literature that has identified effective strategies, interventions and treatments to reduce the prevalence of conduct problems amongst young people. Table 4.1 attempts to provide a brief and accessible summary of this body of evidence. The format of the Table has been adapted from the Table presented in a companion chapter on alcohol in adolescence (Chapter 19) and summarises the evidence on a series of approaches to address conduct problems.

The Table is divided into preventive programmes which aim to reduce rates of antisocial behaviours before these occur and treatment programmes aimed at providing assistance to children and young people with significant conduct problems. Each area of intervention is classified in terms of:

(a) overall effectiveness

(b) breadth of research support

(c) cross national testing

Overall effectiveness is scored as:

0   Evidence indicates a lack of effectiveness

+   Evidence for limited effectiveness

++   Evidence for moderate effectiveness

+++   Evidence for a high degree of effectiveness

?   No controlled studies have been undertaken or there is insufficient evidence upon which to make a judgement

Breadth of research support is scored as:

0   No studies of effectiveness have been undertaken

+   One or two well-designed effectiveness studies completed

++   Several effectiveness studies have been completed, sometimes in different countries, but no integrative reviews were available

+++   Enough studies of effectiveness have been completed to permit integrative literature reviews or meta-analyses

Cross-national testing is scored as:

0   The strategy has been studied in only one country

+   The strategy has been studied in at least two countries

++   The strategy has been studied in several countries

+++   The strategy has been studied in many countries

In addition, the table provides narrative comments on specific interventions. Table 4.1 may be used to clarify and elaborate on the general recommendations made in the chapter.

Table 4.1. Summary of effective programmes for the prevention and treatment of conduct problems

Strategy or intervention	Effectiveness	Breadth of research support	Cross-national testing	Comments
Prevention programmes				
Home visiting (e.g. Nurse Family Partnership)	++	+++	++	There is evidence that some home visiting programmes, notably the Nurse Family Partnership can be effective in reducing antisocial behaviours. However, many programmes in this area have been shown to be ineffective.
Centre-based programmes (e.g. Abecedarian, Perry preschool)	+++	++	+	There is good evidence from US-based programmes to suggest that centre-based programmes targeted at disadvantaged pre-schoolers may have long term benefits in reducing later antisocial behaviours.
Community-based programmes (e.g. Communities That Care; Chicago Parent Child Centres)	++	++	++	There is growing international evidence to suggest that community level programmes targeted at disadvantaged communities and families may have positive benefits in reducing antisocial behaviours in young people.
Treatment programmes				
Parent Behaviour Management Training (e.g. Incredible Years, Triple P, Parent Management Oregon, Parent Child Interaction Training)	+++	+++	+++	Parent Behaviour Management Training (PBMT) is the most effective and well supported approach to addressing childhood conduct problems and has been supported in numerous controlled trials. The benefits of these programmes are greatest for young (< 8 years) children and decline with increasing age.
Teacher Behaviour Management Training (e.g. Incredible Years Teacher Programme)	++	+	+	The evidence for the effectiveness of Teacher Behaviour Management Training (TBMT) is far weaker than for PBMT. However, there is growing evidence from controlled trials and single subject studies that TBMT is effective in reducing rates of antisocial behaviours in a classroom setting.
School wide programmes (e.g. School-Wide Positive Behavior Support)	+++	++	++	There is growing evidence that School-Wide Positive Behavior Support is effective in both reducing antisocial behaviours in schools and providing treatment for children with conduct problems.
Multi-modal programmes [e.g. Multi Systemic Therapy (MST); Functional Family Therapy (FFT)]	+++	++	++	There is substantial evidence that multi-modal programmes such as MST and FFT are effective in addressing the needs of adolescents with conduct problems. However, results for MST have been variable.
Out of home programmes [e.g. Multi-dimensional Treatment Foster Care (MTFC); Teaching Family Homes (TFH)]	+++	++	++	There is growing evidence to suggest programmes such as MTC or TFH are effective in reducing rates of antisocial behaviour in children and young people with significant conduct problems.

Appendix 2: Cost benefits of effective treatments for conduct problems

There is extensive evidence to suggest that the programmes summarised in Table 4.1 are highly cost effective. A summary of a number of illustrations of the cost effectiveness of various approaches is given below.

- **Home visiting:** The Rand Corporation conducted a cost benefit analysis of the Nurse Family Partnership programme. This evaluation concluded that the programme returned US$ 4 for every dollar invested, with 20% of these savings coming from reduced costs of criminal justice for the offspring of families enrolled in the programmes [110].

- **Centre-based programme:** In an analysis of the costs and benefits of the Perry Preschool Program, Cunha and Heckman estimate that the programme returned over US$ 9 for every dollar spent, with 72% of these savings coming from reduced costs of future crime [111].

- **Community-based programmes:** Cunha and Heckman estimated that the Chicago Child Parent Centres produced a return of US$ 7.77 for every dollar invested with 25% of these savings coming from reduced costs of future crime [111]. A cost-effectiveness study revealed that a 10-year investment of US$ 30 million in prevention programs through the Pennsylvania Commission on Crime and Delinquency (PCCD) returned over a 10-fold benefit with an estimated US$ 315 million gained through reduced corrections costs, welfare and social services burden, drug and mental health treatment, and increased employment and tax revenue [112]. The prevention program investment was assisted in Pennsylvania through the Communities That Care framework.

- **Parent Behavior Management Training:** In a review of the costs of the Incredible Years programme in Wales, Scott [71] concluded that the longer term return from this programme was likely to be 10 times higher than the cost of the programme.

- **Teacher Classroom Management Training:** No cost benefit estimates of Teacher Classroom Management Training have been reported. This reflects the limited research evidence in this area.

- **School-Wide Positive Behavior Support:** No evaluation of the cost benefit of SWPBS has been found. However, Blonigen et al. provide a detailed account of the costs of SWPBS and outline the issues to be addressed in conducting a full cost benefit analysis [88].

- **Multi modal programmes:** The Blueprints for Violence Prevention Group has estimated that there is a US$ 8.38 return from every dollar invested in Multi-systemic Therapy and a US$ 6.85 return from investments made in Functional Family Therapy [93, 113].

- **Out of home programmes:** The Blueprints for Violence Prevention Group estimate that there is a US$ 14.07 return from every dollar invested in Multidimensional Treatment Foster Care [93, 113].

All of these analyses make it clear that investment in well-validated, well-implemented prevention and treatment programmes for conduct disorder is likely to be highly cost-effective with the returns from these programmes being several times the costs of the interventions. However, in appraising this literature three points need to be borne in mind.

First, all of the cost-benefit analyses reviewed have been conducted outside New Zealand and there is no guarantee that cost-benefit ratios reported will apply in the New Zealand context.

Secondly, the cost-benefit estimates reported assume that the programmes described are well implemented and effective. Investments in ineffective or poorly implemented programmes are likely to produce negative returns.

Finally, many of the cost-benefit estimates rely on measures of later crime and similar outcomes. This implies that the benefits of such programmes will often occur many years in the future while the costs are incurred in the present. These features highlight the need for a long term investment strategy in which today's dollars are invested for the future well-being of young New Zealanders. There is a universal consensus in the literature on this topic that such a strategy is likely to be highly cost-effective, providing investment is made in well-founded and well-implemented evidence-based programmes [110, 111, 114-116].

Chapter 5

Resilience

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Summary

- It is important to distinguish between resilience in the presence of risk in which protective factors help to prevent the risk trajectory from increasing, and protective factors that help build positive development for all so that risk is decreased for all.

- Building resilience is more than just providing individuals with knowledge, skills and positive attitudes, although programmes that do this are helpful.

- Resilience is also about the relationships between adults and children and young people. Programmes that build these relationships have positive outcomes.

- Resilience is shaped by policies that enhance the abilities of families, schools and communities to provide structure and opportunities for young people to contribute, participate and develop skills. The best outcomes occur when policies ensure that programmes work together across silos.

- There is evidence to show that mental, emotional and behavioural disorders can be identified early in at-risk populations and prevented. These need to be overlapping and co-ordinated across health, education and social welfare agencies, be developmentally appropriate, and based in the community.

"A central issue is not so much how young people are coping with, or adapting to changes, but how and under what conditions young people's wellbeing is maximised" [1]

1. Introduction

In recent years, youth health research has gone beyond the identification of risk factors to the examination of protective factors that promote good outcomes or resilience. Resilience research seeks to understand and identify factors that protect vulnerable youth, and encourage them to thrive. These include individual factors but also factors in the environment and the relationship between the two.
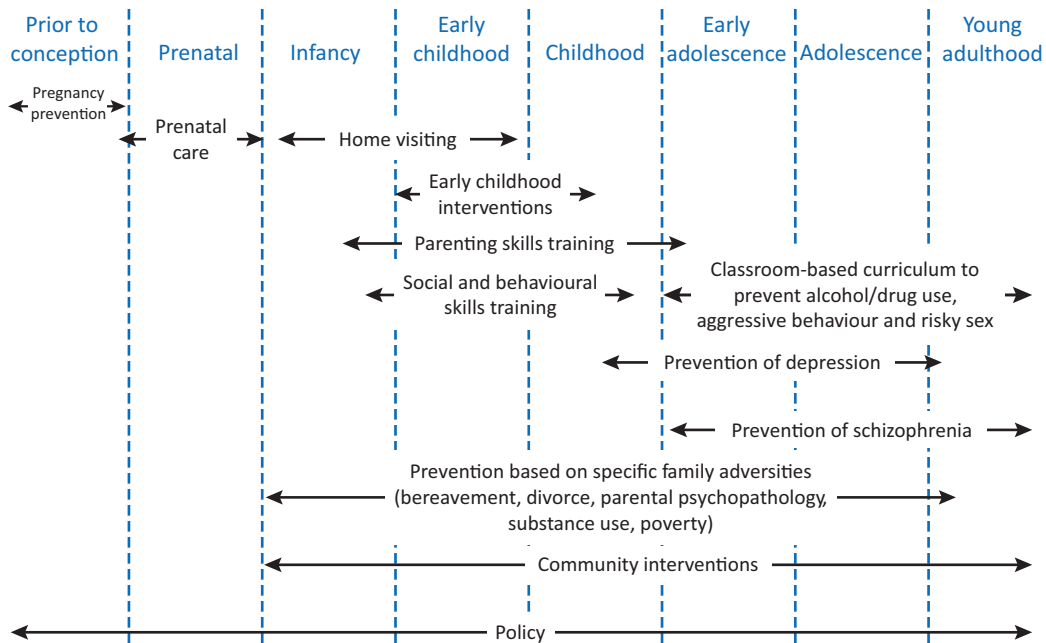
Prior to conception	Prenatal	Infancy	Early childhood	Childhood	Early adolescence	Adolescence	Young adulthood

← Pregnancy prevention →

← Prenatal care →

← Home visiting →

← Early childhood interventions →

← Parenting skills training →

← Social and behavioural skills training →

Classroom-based curriculum to prevent alcohol/drug use, aggressive behaviour and risky sex →

← Prevention of depression →

← Prevention of schizophrenia →

← Prevention based on specific family adversities (bereavement, divorce, parental psychopathology, substance use, poverty) →

← Community interventions →

← Policy →

Figure 5.1. Interventions in the pathway to adulthood

Interventions in the pathway to adulthood whether they be to decrease the effect of risk factors such as poverty, parental psychopathology, and community violence or to increase protective factors such as belonging to a group, social skills development and improving parenting skills, need to be applied in an overlapping complementary way, as illustrated in Figure 5.1 [2].

Michael Rutter [3] defined resilience as being a relative resistance to environmental risk experiences, or the overcoming of stress or adversity, or a relatively good outcome despite risk experiences. He was at pains to point out that resilience is not just social competence or positive mental health. He points to findings of large individual differences in people's responses to all kinds of environmental hazards and to evidence of 'steeling' effects in which successful coping with stress or adversity can lead to improved functioning and increased resistance to stress/adversity.

There is considerable evidence that much of the variance in psychopathological outcomes can be accounted for by the summative effects of risk and protective factors. Resilience is an interactive concept that can only be studied if there is a thorough measurement of risk and protective factors, in the presence of adversity and at multiple levels [4]. Hauser et al. [5] followed 67 young people who were patients in an inpatient adolescent psychiatry unit into adult life. They found that three key elements characterised resilience: personal agency and a concern to overcome adversity; a self-reflective style; and a commitment to relationships.

Similar observations were made by Barbara Collins [6] in her follow-up study of young mothers who were first interviewed in 2001, when they were in their teens, and then later in 2008. The young women in the study showed a commitment to take on responsibility and use the insight gained from their experiences. The study highlighted the importance of parental and community support and the added help of agencies in the community and support provided by teen parent units, as important in their success.

2. What is the question?

Does a resilience framework provide evidence for effective interventions to improve transition to adulthood?

A resilience framework implies that a structure can be put in place that improves outcomes. Garmezy [7], Ginsburg [8], the Search Institute [9] and others have put forward lists of attributes that can be developed in individuals that help them to deal with stress and risk. For example, Ginsburg identifies seven 'Cs' of resilience:

- competence,
- confidence,
- connection,
- character,
- contribution,
- coping, and
- control.

These are important and help individual young people to do well. Yet resilience is more than just the healthy development of individuals.

Luthar [10] points out that biological, as well as psychological factors need to be taken into account; that resilience is as much about teasing out underlying process to identify points for intervention as it is about making lists of influential factors. Luthar goes so far as to say that "Resilience rests, fundamentally, on relationships".

Many studies [11-14] including Ungar et al. [15] reveal similar protective factors in spite of the differences in culture and national economic factors. These common protective factors include: spending time with parents, feeling safe in neighbourhood and school, feeling that adults, especially teachers, care for you and having non-delinquent peers [16, 17].

Indeed, there are several well known examples illustrating the value of combining information about psychosocial experiences with information about biological factors. Findings from the Dunedin Multidisciplinary Health and Development Study have shown how adult violence and antisocial behaviour were predicted by an interaction between childhood maltreatment and a functional polymorphism in the promoter region of the gene encoding the enzyme monoamine oxidase A (MAOA) [18]. In this study, those with the 'low' version of the MAOA gene were at increased risk of behaving in an antisocial and violent manner when they grew up, whereas those with the 'high' version of this gene appeared resilient to the negative effects of childhood maltreatment, and did not go on to perpetuate the cycle of violence. This was the first report to demonstrate the operation of a gene–environment interaction (G x E) predicting a behavioural outcome using a measured gene. Indeed, it appears biological factors can protect against negative psychosocial outcomes, much like how some people are protected against developing malaria when bitten by a mosquito. In the current context it is particularly noteworthy that there was no direct gene-outcome association. In other words the gene did not predict antisocial behaviour directly, rather its effects 'ran through' the environment. This basic pattern of findings was also observed in two subsequent reports from the Dunedin Study. The second study used the same basic design to reveal how a functional polymorphism in the promoter region of the serotonin transporter gene (5-HTTLPR) interacted with life stress to predict depression [19]. Specifically, the 5-HTTLPR short allele conferred risk in the presence of life stress whereas carriers of the long allele appeared resilient to adverse

life events. Again, the gene by itself told us very little about who would and would not develop depression. Thus, it seems that it is the combination of nature (i.e gene) and nurture (i.e life experience) that is key. Tellingly, this research involving genes strongly emphasises the importance of the 'environment' which is consistent with Luthar's point above emphasising the importance of relationships. It also supports the current focus on modifying the environment to enhance resilience among those at risk, regardless of genetic vulnerability.

The third study focused on adolescent risk specifically, asking if the emergence of psychosis following exposure to cannabis during adolescence was moderated by a functional polymorphism in the catechol-*O*-methyltransferase (COMT) gene [20]. Findings showed this was indeed the case. Some individuals were particularly vulnerable given one version of the COMT gene, whereas others with a different version were resilient. As before, the gene by itself provided little by way of predictive power. The environmental event was the trigger to the gene involvement, and thus should be the target for intervention. Interestingly, the observed association was age-dependent – cannabis use in young adulthood did not elevate risk for developing psychosis, even in the presence of genetic vulnerability in the form of the COMT valine allele. Thus, determining the timing and magnitude of the risk posed by cannabis for psychosis can inform a sometimes heated debate about the harms associated with cannabis use.

3. What does the evidence say about the effect of resilience on development?

3.1 Family structures

There are many studies into the sorts of family structures and parental styles that are conducive to healthy development (e.g. [21]). Most studies agree that parents who provide structures with clear but negotiable boundaries, consistent warmth, and consequences that are reasonable and not harsh have young people who generally do well. Families that deal with conflict constructively without violence, and set good role models for alcohol and other drug use also do better. Parents can act as a filter and have an influence on the type of friends their children have, their career choices and how much they value education. These things seem to be more important than the effect of divorce, low income, or being in a one-parent family.

Evaluation of programmes that assist parents at all ages of their children's lives to have better and more effective skills, are cost effective. These are well illustrated in other chapters.

3.2 Community structures

There is some evidence to show that young people who come from communities with resources do better in completing their education, are more likely to be crime and drug free and have better emotional well-being. It may be that these effects are mediated through parents who have more money, so are less stressed with more community support and also encourage their children to focus on their education.

Zarrett and Lerner [22] recently showed that young people take part in fewer risk-taking behaviours if they take part in collective family activities such as eating together and collective out-of-school activities such as chess clubs, music, drama or sport.

> **The Harlem Children's Zone**
>
> Based in a 97 block area of Central Harlem in New York City, the Harlem Children's Zone (HCZ) provides comprehensive neighbourhood-based services for youth from birth to age 23 in an effort to transform the health and educational outcomes for a generation of youth. Rather than focusing on a single issue or service area, HCZ aims to meet the full range of educational, health and social services needs of the youth in their community. Grounded in the philosophy that the community as a whole must be strengthened in order improve the chances of success for children, HCZ's youth programmes are complemented by parent education, community building, social work services and other supports for families and community. The organisation's goal is to create a "tipping point in the neighbourhood so that children are surrounded by an enriching environment of college-oriented peers and supportive adults".

3.3   The effect of peers

The effect of peers is variable and may not be as important as many have believed. Young people who come from families where discipline is particularly harsh or lax may be more influenced than those who come from nurturing families. Young people often express that they do not care about pressure from peers. They express their own decision making in wanting to 'fit in' with their peers but they do not see this as peer pressure, as it is not a direct influence from the friends themselves [23].This may explain the fact that programmes that teach young people to not be influenced by peers are often unsuccessful [24].

3.4   Schools

Schools have a vital part to play in developing resilient young people. Education that starts at an early age with an emphasis on teaching self control, delayed gratification and developing relationships with adults to grow social skills have good evidence of effective outcomes. Schools that have high expectations, moderate classroom sizes and in which teachers treat students with warmth, positive regard and support also have good outcomes academically. Better outcomes also occur when schools are smaller in size, have an emphasis on individual programmes not competition, and mixed ability rather than streamed classes [25].

The fewer changes in schools the better and young people also do better when they don't move house as much. Schools that provide these types of environments also seem to improve the mental health of young people. These are all illustrated in Chapters 4 and 7.

The Finance Project is an independent nonprofit research, training, consulting, and technical assistance firm for public- and private-sector leaders nationwide in the US. The report illustrates a number of programmes and systems with evidence of results. One example of a project that is trying to use a comprehensive approach is the Harlem Children's Zone [26]. This multilevel programme seeks to reach both children and young people as they move to adulthood (see Box above).

4. Interventions for which evidence of efficacy is limited or lacking

There has been a proliferation of mentoring programmes which seem to have some positive effects on youth development only if certain characteristics are adhered to. They

seem to be most effective if they last for more than a year, the mentor is well trained and contact is regular and frequent [27].

There is little evidence that addressing risk alone, teaching self-esteem and teaching literacy skills alone have any benefit to increasing resilience.

Much of the evidence for the concepts of resilience is inferred. As Seifer points out in his chapter in a book on the resilience of children of parents with mental illness, a review of the literature reveals a diversity of research methodology, a focus on risks, and the probability of multiple factors being present [10]. This points out that these inferences could be wrong and more research is needed to clearly define the effectiveness of interventions that affect resilience. The Centre for Advancement of Adolescent Health has done a review of the literature and comments that most studies have been focused on risk, and reiterates the call for more research [28].

5. Where is policy/intervention currently focused?

Much of current policy focuses on improving the individual with adherence to standards and punishment for failing. There are many laws governing the behaviour of young people, but they do not seem to be succeeding in keeping many out of detention. Money is being invested in youth jails and detention centres, whilst youth health services, community organisations which provide out-of-school activities and early education struggle to survive. There are many programmes in place which either have not been evaluated, or are still continuing despite the lack of evidence for their success.

6. Implications for future policy

If the lessons of the resilience research are to be learned then investment in teacher education to enhance social learning skills at all levels of education will be important. Parent skills training and family-friendly workplace policies to allow parents more time to spend with their families, especially in the first five years of life and around puberty, would be helpful. Investment in out-of-school activities so that all young people can access them, not just the middle class, would reduce the numbers in juvenile detention. The provision of health services that specifically cater for young people in primary care at school and in the community that can cater for the mental and sexual health of young people would also be effective. Evaluations of these sorts of services in the US, Australia and New Zealand show positive potential [29-31]. One of the most important messages from the literature is the need for more research into the concept of resilience and its application.

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Chapter 6

The value of evidence-based life skills education

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Summary

- Extant and new formal life skills education and harm minimisation programmes must be subject to formal evaluation for efficacy.

- Where justified, programmes must be provided by appropriately trained teachers/mentors. It is necessary to identify programmes designed for universal use and those for high-risk populations; given the situation of high teenage morbidity in New Zealand, such programmes would be a priority.

- They must be provided in an age-specific manner, be validated, continually monitored and shown to be effective in the New Zealand context.

- Consideration should be given to introducing more intensive and formal nutritional education as the evidence suggests that it is effective with respect to the obesity epidemic.

1. Introduction

At a number of points in this volume, reference is made to the value of providing formal educational assistance either within or outside the school system, with the intent of assisting the development of better skills to enable young people to cope with the challenges of life – we shall term this formal life skills education (FLSE). This can encompass a broad range of topics including nutritional education, civics education, financial skills, sex education, parental skills, relationship education, dealing with drugs and alcohol, and personal health.

While the intent behind such programmes is laudable, the evidence to support their widespread use in most domains is limited. Indeed under some circumstances there is

evidence that some programmes may produce results counter to what is desired. An example is that of driver education in formal high school programmes which is discussed later in this chapter. This therefore underscores the importance of proper evaluation by experts of claimed benefits of interventional programmes. A recent report into early childhood and parenting programmes prepared for the UK government [1] demonstrates how formal programme quality evaluation can be conducted.

Because the goals and objectives of different components of FLSE vary, and the societal attitudes to some components will be important in policy formation, this chapter both dissects out the general principles and reviews the domains where effort should or should not be focused.

2. General issues surrounding FLSE

There is considerable variation within OECD countries as to how many of the key FLSE domains are handled in the school years. Whether the subjects are covered or not reflects the lack of clarity and understanding of the needs of young people in the education system. There is a complex balance between the perceptions of the role of the State and the role of the family in teaching some of the more values-based life skills. The timing of when life skills education should be implemented in schools is also challenging, especially when the developmental stages of young people can vary widely among individuals; knowledge must be accompanied by the appropriate level of metacognitive skill to enable effective application during decision making.

It is important that young people have the necessary foundation of knowledge on which to base their actions and life choices. This can be done without the overlaying of values which imply social engineering or imposition of a particular religious or political bias, by encouraging young people to develop their own values as they consider the values of others in their homes, classroom and in their communities, including the media community. There is some limited evidence that values-free information transfer to young people allows them to develop healthy attitudes to the inevitable challenges they face [2]. Other evidence has shown that information on its own will not change behaviour.

Beyond the accusation that providing life skills education to young people is 'social engineering' – which if provided in the appropriate way is not the case – the other opposing argument is that such education is a parent's responsibility. Many of the challenges that young people face today are beyond the comprehension or coping ability of many parents. The increasing pace of technological change means that dealing with text bullying and internet pornography can be challenging. If parents did not learn about puberty changes themselves and did not have a parent role model of how to speak to young children about menarche and emerging sexuality, then it becomes very difficult especially when girls are experiencing puberty changes at an earlier age. It is equally hard for parents to cope with the stress and strain they are going through themselves to then be able to help their young people learn how to cope with the increased pace and overabundant choices of modern life. Furthermore, the sad reality is that those most at risk often come from family and social backgrounds where such support and mentoring may be absent; the intergenerational nature of disadvantage may well be reinforced by society not assisting in life skills information transfer.

FLSE promotes adaptive, positive behaviours that equip the child or adolescent to competently handle the challenges and demands inherent in the transition to adulthood. They include interpersonal relationship skills and executive functions such as

communication, respect, leadership and empathy, and intrapersonal skills such as self-awareness, assertiveness, decision making and problem solving abilities. The underlying philosophy is that an adolescent well equipped to make good choices, to sustain positive relationships with others and to handle peer pressure is more likely to be self-assured and emotionally competent, and therefore handle the transition to adulthood more easily and not end up as another statistic of adolescent morbidity. By strengthening the social and psychological foundations established during the pre-school and primary school years, it is hoped to help preempt the development of overly risky adolescent behaviours, or at least confront such behaviours before they become too deeply rooted. Some programmes are provided to all pupils within a school, irrespective of gender, socioeconomic status or ethnicity – essentially a public health approach that endeavours to improve the wellbeing of the entire population of youths; others target children or adolescents whose life circumstances suggest that they may be at higher risk of a generational cycle of impaired health and development. The utility of life skills programmes is well recognised by the WHO [3].

However despite the meritorious goals of improving these skills, the issue remains: what programmes have demonstrated value and thus merit consideration by the policy maker? In practice there are many programmes that have been introduced into schools worldwide that aim to reduce adolescent morbidity and mortality by targeting specific risky behaviours, such as substance abuse or imprudent sexual activity, or conversely encouraging the cultivation of salubrious habits such as good nutrition and exercise. It has been argued that the most effective of these generally incorporate a wide range of life skills within the curriculum [4], and the evidence suggests many programmes that tackle specific domains without regard for the holistic social, mental and physical wellbeing of the adolescent are less effective. We shall consider several of these domains in the remainder of this chapter.

3. Nutrition education

The issue of obesity in childhood, adolescence and throughout life is a major concern to all countries [5], creating the burden of non-communicable disease for the individual and a capacity and fiscal challenge for the health system. There is no doubt that a major factor – and the one most amendable to intervention – is good nutrition. Here the evidence that properly designed programmes starting in childhood have sustained value at least for several years is substantial. For example nutritional education provided within the US Headstart programme for preschool children have been shown to reduce obesity [6, 7], and full day attendance appears to have a greater effect than half a day of participation [8]. A similar result has been noted for the Planet Health programme for primary school girls [9].

There is also growing evidence from controlled studies of the intermediate effectiveness of nutritional education provided in schools at reducing unhealthy eating practices [10], overweight [11, 12] and biomarkers associated with later risks of diabetes and heart disease [13, 14]. Relatedly, systematic reviews of school programmes aimed at improving the level of physical fitness or physical activity in students suggest that they can be effective in increasing energy expenditure and in improving some physiological parameters [15, 16].

Key factors in the success of such programmes are appropriately trained teachers, placement of considerable value on parental involvement, and the evidence-based nature of the programmes (best started in a controlled fashion then scaled up) which

are appropriately monitored. Programmes need to be able to address the issues at multiple levels, from early life development through to the home, school and community. Importantly, the data suggest that there is greater effect on prevention than in changing bad eating behaviours that have already been established [12]. These studies highlight the importance of appropriate life skills education starting at the preadolescent phase.

Despite nutritional education clearly not being values-laden education, and the rising cost of obesity, such education receives little focused attention in New Zealand schools because of the devolved nature of the school curriculum. The value of contextualised learning, in which students are challenged to engage skills developed in life skills education to apply factual knowledge across complex social contexts, has been underestimated. So too has the importance of professional support for educators to effectively inculcate such an approach [17]. In nutritional education, understanding of the science underlying concepts in healthy living may reinforce positive behaviours. Indeed, evidence is mounting that the better that children understand their own biology, the more likely they are to make safer lifestyle choices [2]. Provision of information that is free from dogma and political or religious bias is likely to receive the greatest level of acceptance, since it avoids the values-related concerns described above. There is also evidence that influencing childhood understanding of nutrition influences broader with-in family understandings and changes family diet [18]. Thus the economic justification for such information being provided extends beyond the individual child into wider society.

4. Driver education

A systematic review of studies in the US and Australasia has provided considerable evidence that formal driver education at high school has no effect on – or in some cases even increases – the accident rates of young people because it leads to early driver licensing and greater risk taking, due to over-confidence in people who are already at a stage of their lives when they are at greatest risk of such activities [19]. Data from New Zealand show a detrimental effect particularly in females [20]. This may seem counter-intuitive but the objective data are clear and the result is compatible with scientific understandings. The data do not even support driver education as a rationale for shortening graduated licensing systems [21]. This is a classic example of where an evidence base is needed and programmes must be evaluated because *a priori* it would be assumed that adolescent formal driver education would be of value, and well-meaning advocacy could lead to greater investment with adverse consequences. Indeed, the evidence suggests that graduated driver licensing, and education programmes that place more emphasis on general risk reduction and building resilience, may be effective in reducing crash rates among young people [22, 23]. The study of the responses to the findings of a null or adverse effect are themselves interesting because they demonstrate the importance of independent scientific review of the data by experts – there were vested interests and lobby groups in the US that wished to deny the evidence of a null effect and acted aggressively, making policy formation difficult [24].

5. Drugs and alcohol

There is an extensive literature dealing with the effectiveness of school based drug prevention programmes. These have been subject to recent systematic review [25]. The problem is many drug and alcohol prevention programmes are started by well-meaning advocates without a strong scientific or pedagogical base for their effectiveness – or if they are indeed effective, what it is that makes them so. Unfortunately New Zealand

does not have a strong culture of formal evaluation of the variety of programmes in use, which is a recipe for investment in dogma rather than in effective programmes, and as a result it is likely that the desired effects are not being achieved for many young people. Inappropriate programmes may actually do harm. A first step must be to embark on an assessment of the current range of programmes with a view to proceeding only with those with demonstrable effectiveness, at least internationally, and developing monitoring regimes to ensure quality in the programmes offered.

Some school-based prevention programmes are structured to facilitate interactions among participants that support development of understanding of issues, whereas others are more didactic and simply provide educational information. There is also a need to be clear whether the target is licit (tobacco, alcohol) or illicit (marijuana, cocaine etc) as programmes may be effective against one but not the other. The issues relating to the efficacy and value of such programmes is explored in depth in Chapters 19 and 20. In general their outcomes are very disappointing. However, there is a consensus that some programmes may be more effective in preventing licit drug use if implemented sufficiently early in adolescence such that drug experimentation is still a minority experience [26]. The key element in the effective prevention of licit drug use is the use of intensive and interactive programmes at a sufficiently young age [25], such as the culturally-based 'Keepin' It REAL' programme that promotes anti-drug norms and the development of skills in risk assessment, decision making and resistance [27]. Such programmes can be broadly based, whereas in older adolescents specific approaches to alcohol or smoking are required for efficacy.

With respect to illicit drugs, interactive programmes led by mental health counsellors that focus on developing executive functions and social competencies are most effective in reducing marijuana usage, or at least delaying the age of first experimentation [28]. However in general most programmes focused on illicit drugs do not have any significant effect, or at best have a short lived and minimal effect [29]. A review of 58 studies on school-based drug prevention intervention programmes for the determinants of effectiveness found that those which involve mentoring, knowledge dissemination and focus on teaching generic life skills such as decision making and communication and coping are more likely to be effective than those focused solely on one of these domains, but that low risk youths are more likely to benefit from the educational component [25]. This is the conundrum of life course approaches – those at lowest risk often benefit disproportionately, and this reflects the multifactorial nature of how behaviours develop and the importance of the physical, social and family environment in which the young mind develops. The key issues that then arise are what programmes work in high risk environments, and what additional elements need to be present for a greater likelihood of success.

Indeed, 'the devil is in the detail', to quote from the title of an important recent review of what is and what is not effective [30]. In particular, there seems to be little evidence to support programmes which focus on social awareness (e.g. effect of peer pressure) and promotion of refusal skills [25]. Project DARE is an example of such a programme which, despite an understandable popular bias that it should work, does not and in some subgroups may even increase drug use [31].

The overall conclusion is that interactive programmes delivered at a high level of intensity and implemented during early adolescence are likely to be more effective [32]. Specifically, tackling licit drug use appears to be of benefit. It is clear that programmes that do not involve interactivity and that are aimed at older children are unlikely to have any substantive effect. It may also be important that such education aims to minimise

harm rather than focus on abstinence and delayed use (which has been the focus of most US-based research); there is some evidence that a focus on harm-avoidance may lead to somewhat greater effect sizes [33].

Perhaps the most extensively evaluated model is the Botvin LifeSkills Training (LST) programme, which has been implemented in many schools in the US and worldwide since 1995 as a preventative measure against substance abuse and violence [34]. The program consists of age- and developmentally-appropriate classroom sessions spanning the elementary to high school years that teach resilience-building psychosocial skills, and empower students to resist societal pro-drug influences. Randomised controlled trials, the quality of which has been independently verified by the US National Registry of Evidence-based Programs and Practices [34], have demonstrated the efficacy of the programme for a range of ages, ethnicities and geographical locations. For example among junior high school students receiving LST, significantly lower alcohol, tobacco, marijuana and combined drug use was seen 6 years post-treatment, with up to 66% fewer poly-drug users [35]; 50% fewer middle school minority students indulged in binge drinking at the 2 year follow-up point [36]; and 7th grade students had significantly lower substance, cigarette and marijuana use initiation 5 years after intervention [37]. In addition, compared to students who received a standard health education curriculum, LST participants exhibited significantly decreased verbal and physical aggression, involvement in fights, and delinquency 3 months after treatment [38]. Effects tended to be stronger for students who completed a greater proportion of the curriculum.

Although LST is designed as a universal preventive programme, there is also evidence to show its value in its specific use within at-risk populations: middle school students predicted to be at high risk of substance use, as determined by low academic achievement and associations with substance users, showed less smoking, alcohol consumption, inhalant use and poly-drug use after one year compared to high-risk youths who had not undergone any interventions [39]. In another study, students who were existing or past drug users, or who identified with other known risk factors, showed more pro-social beliefs and attitudes towards substance use [40]. Finally, 7th graders participating in LST who had prior experience with substance use showed significantly lower levels, and lower rates of increase, of monthly marijuana use, and monthly or more frequent poly-drug use [41]. The cost-benefit analysis of adopting this program is particularly compelling, with the expenditure:savings ratio estimated at less than 1:25 [1]. Also notable is the durability of the positive effects.

Issues relating to the raft of programmes offered in New Zealand are discussed in detail in Chapters 19 and 20.

6. Sex and biological education

Sex education is discussed at length and with respect to broader societal and philosophical aspects in Chapter 10. What is obvious is that many children are now gaining knowledge of sexuality through electronic media and their peers. Many parents are ill equipped to cope with juvenile sexuality exhibited at much younger ages than they themselves had experienced. It would seem to be intuitively important to ensure that all young people learn about their bodies and how they function. There is no evidence to show whether this kind of information helps to affect behaviour. However, there is evidence that health literacy and learning about where to go for health advice, especially about contraception, may aid healthy behaviour.

7. Parenting

There is little or no evidence to support formal parenting education at school as being effective.

8. Relationship to other aspects of the school curriculum

The responsibility for FLSE in New Zealand schools usually falls across a range of learning areas, principally Health, Science and Social Studies. The *New Zealand Curriculum* [42] is not a prescriptive document. Rather it is a framework that provides guidance to schools as they each design a curriculum appropriate to their community. Within this curriculum framework there are clear statements pertaining to the importance of the development of Key Competencies that students need to "live, learn, work, and contribute as active members of their communities" (ibid. p 12). These competencies, adapted from those identified within the OECD Defining and Selecting Competencies Project [17], support development of key behaviours and attitudes such as critical decision making, resilience, engagement with society and an understanding of self. These behaviours and attitudes, combined with knowledge of biology, health, economics and civics, and applied within appropriate social contexts are integral components of life skills education.

The breadth and relevance of contexts appropriate for life skills development, alongside the often interdisciplinary nature of knowledge required to engage in social contexts, have exciting potential for meaningful cross-curricula learning within schools. However alongside this potential is the challenge of the development of professional knowledge and capability to enable meaningful teaching and learning about, and within, complex social contexts. Furthermore each student will bring their own personal and differing life experience to the context, influencing their engagement with the learning process. The relative freedom of the *New Zealand Curriculum* provides opportunity for schools to develop a meaningful life skills programme relevant to their communities. This is challenging; programme development and evaluation are necessary. As part of this, professional development pertaining to key competencies, understanding the value and challenge of social contexts in learning environments, and the cross-curricular nature of life skills education are essential.

9. Embedding programmes in schools

In Chapter 22 a Prevention Science approach to moving from evidence to policy is described, the last stage of which is taking effective programmes to scale. This is arguably the most difficult of the stages, especially if the programme is based in complex open systems like schools or hospitals [43, 44]. Doing this well requires at least three components. The first is the recognition by those delivering programmes that some adaptation is inevitable, especially when programmes require judgements based on detailed knowledge. This means that the last stage needs to determine the conditions in the systems that are a threat to treatment integrity and the extent to which local adaptation can occur without undermining treatment integrity and effectiveness. Embedding programmes so that they are sustained in the face of local changes (e.g. demographic and economic) and without being dependent on the level of resourcing in the original implementation is a second component of taking programmes to scale. This requires building some capability in the application sites to maintain the programme including being able to monitor and evaluate effectiveness over time. In part this also means being able to monitor how the programme

can fit with other activities being carried out and in the case of schools being able to cut those additional programmes that do not add value. The third is having a staged roll out so that implementation resources are not undermined and ongoing research and development can occur into the factors associated with success in the first two components.

10. Conclusions

The evidence suggests that certain life skills programmes integrated within the educational curriculum can target some risk taking behaviours. Where efficacy can be demonstrated, their value to society – both in terms of individual outcomes and social benefit – likely justifies the investment. However, it is imperative that any programmes considered for adoption have a strong evidence base; in the US, one of the most popular middle school substance abuse prevention programmes (Project DARE) has had no demonstrable efficacy, yet continues to enjoy widespread implementation, possibly because it is intuitively perceived as effective [45]. The criteria for determining effectiveness are complex (see Chapter 22 and [1]) and require professional independent development. The experience with driver education – which seems logical, has strong public support and had considerable advocacy – demonstrates that intuition, anecdote and dogma are not grounds on which to invest in risk-minimisation programmes. Rather it is crucial to focus on rigorously assessed intervention programmes, either universal or targeted, to ensure the best outcomes and value for public money.

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Chapter 7

Educational outcomes in adolescence for Māori and Pasifika students

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Summary

- A significant group of children in New Zealand, many attending low decile schools and particularly Māori and Pasifika children, have educational risks in the adolescent years.

- The transition to secondary school is associated with a shift towards more negative attitudes to academic achievement and lowered achievement patterns, especially for 'minority' and poor students.

- Low engagement and achievement patterns for these children are associated with contemporaneous and longer term problems of health and well being and collective negative effects on communities.

- Differential patterns in educational access and outcomes occur in early childhood education and become pronounced in upper primary and at secondary school.

- Causal factors at secondary school include the role of positive relationships and expectations as well as specific aspects of teaching.

- Evidence is accumulating for the significance of four areas in which programmes can impact on achievement outcomes. These are: access to and participation in high quality early childhood education; systematic addition of resources for families; home and school partnerships in specific tutoring; and larger scale school reform models at both primary and secondary levels.

1. Introduction

This chapter examines why a significant group of children, many attending low decile schools and particularly Māori and Pasifika children, have educational risks in the adolescent years; what provisions increase the effectiveness of their development at school; and policy options for increasing school effectiveness. Low engagement and achievement patterns for these children are associated with contemporaneous and longer term problems of health and well being. These outcomes have a collective effect on their communities and there are longer term consequences for the wider New Zealand society.

2. What are the questions?

There are links between areas of morbidity and resilience covered in other chapters and children's engagement and achievement at school, and these can be seen as mutually influential. This chapter focuses on engagement and achievement and addresses three questions. The first is why educational achievement is significant in adolescence. The second is for whom, over what time and in what ways is schooling less effective than it should be. The third question is how to design more effective educational provisions. The achievement area of primary focus is literacy; but the patterns that are described below are generally common across core achievement areas including numeracy.

3. Why is educational achievement important in the transition to adolescence?

The transition to secondary school (in New Zealand at 14 years) is associated internationally and nationally with a decline in academic motivation. The general trend over primary years towards greater self motivation shifts towards students being more externally motivated (extrinsic motivation). This is accompanied by a shift towards more negative attitudes to academic achievement and lowered achievement patterns for some students during the secondary years [1-6].

Of widespread concern is the international finding that the changes are exaggerated for students from communities who historically have had limited economic, political, and social power, those who have been called (often pejoratively and inaccurately) cultural and linguistic 'minority' groups, especially those who are relatively poor in their societies [1, 2].

The New Zealand data provide some support for these relationships and the exaggerated effect for Māori and Pasifika students, especially those in low decile[1] schools [7]. Unfortunately, the longitudinal data are limited on relationships between achievement, attitudes and motivation. We need studies that systematically map any changes from before adolescence to over the adolescent period for different groups and under different economic, social and cultural conditions in New Zealand.

The longitudinal descriptions of Wellington children in the Competent Children Competent Learners (CCCL) study from before school to 16 years of age, provide important indicative data for a small number of Māori children (n= 45; 10% of the sample) and Pasifika children (n=18; 4% of sample). CCCL shows marked differences in achievement and attitudes (e.g. self efficacy, perseverance, social skills) at age 14 years and 16 years between Māori and Pasifika students and other students. While socioeconomic status (SES) accounts for some of these differences ethnicity also contributed to the differences [6]. Attitudes are more variable than achievement across the years but become very stable after the transition to secondary school. A significantly higher proportion of school leavers between 14 years and 16 years were Māori and Pasifika or had a mother with low educational qualifications, and the students still at school differed markedly from leavers on attitudinal measures and cognitive measures especially after entering secondary school.

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[1] A school's decile indicates the extent to which the school draws its students from low socio-economic communities and the mix of Māori and Pasifika students. Decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities and often the highest proportions of Māori and Pasifika students. A school's decile does not indicate the overall socio-economic mix of the school.

The CCCL study findings are reflected in wider New Zealand educational statistics where there are large ethnicity and SES differences (using the proxy of school decile) in engagement indicated by leaving school and achievement indicated by students leaving without formal qualifications at NCEA level 1 [8]. Despite some recent reductions, in 2007 approximately one in every 10 Māori students left without qualifications which is almost three times more likely than European/Pākehā. Rates are 10% higher for low decile schools than high decile schools. Although there are gender differences within these patterns, the gap between boys' and girls' performance is small and has continued to narrow in some areas.

Attainment at NCEA level 2 and 3, generally the level at which entrance to university is fully achieved, differs markedly by ethnicity, SES and to a lesser extent by gender [8]. In 2007 18% Māori and 20% Pasifika school leavers left with UE level qualifications, while the rate was more than double (44%) for European/Pākehā school leavers.

The inter-group differences in overall achievement at the point of sitting the examinations are reducing but there are two problems with the data. One is that the trends over time are rising in parallel (and that means the relative gap has changed only slightly). A second problem is that recent cohort data indicate considerably smaller percentages of Māori students stay at school until 17 years (58% compared with the average of 75% students who started in Year 9) and associated with this, Māori and Pasifika students have the highest rates of exclusion and expulsion [8]. Students from high decile schools are three times more likely than students from low decile schools to gain the opportunity to enter directly into degree-level study and this is one area where a gender gap with higher percentages for girls has been steadily increasing since 2004 [8].

Several studies show an important difference within the group of students at risk. Pasifika students tend to stay on at school longer and there is considerable parental support for this [8-10]. Together with differences in some achievement patterns noted below this indicates that the interventions for Pasifika students may need to be different in some respects than those for Māori.

These patterns have profound effects for individuals, families and communities. Internationally, in terms of individual outcomes, not graduating high school (having university entrance) restricts access to further study and employment as well as earnings [11-13]. The effects can be substantial: in one estimate increases in achievement test scores in the early years in reading of one standard deviation are associated with higher life time earnings of between 8 to 20 percent [14]. In New Zealand gaining the equivalent of Level 2 NCEA is associated with an increase in average weekly income of NZ$ 55 per week [15]. In addition to earnings, there are health benefits using various measures of morbidity-associated outcomes for well being associated with college graduation [11]. These associations are present in New Zealand [16].

There are collective outcomes too in the long term costs to countries of low achievement levels. The estimated long term effect on economic output of one additional year of education is generally between 3 and 6% [17]. Estimates of the cost to the public purse (in terms of truancy, exclusion from school, loss of earnings, etc) of failure to learn to read in the primary years in the UK is, by 37 years of age, between £44,797 and £53,098 [17]. United States estimates for total lifetime public savings per expected high school graduate at age 20 years are US$ 209,100 [18]. Higher educational levels are associated with increased social indicators such as civic engagement and reduced criminal activity [11, 17]. In New Zealand the associations between educational achievement and family well being have been made [16].

4. What are the developmental features?

Differences between groups in New Zealand in achievement and engagement are present early in secondary school [8] and these may be exaggerated during adolescence. But the educational disparities are detectable very early in development.

4.1 Early childhood patterns

In New Zealand, participation rates in Early Childhood Education (ECE) are related to ethnicity and SES (using proxy of school decile) [8]. In 2007 Māori and Pasifika children had 10% to 14% lower participation rates than European/Pākehā and 13% fewer children entered decile 1 and 2 schools with ECE participation than children entering decile 9 and 10 schools. Differential participation in ECE together with differences in family practices are related to the wide variation at school entry on readiness measures, with SES (using the proxy of decile), ethnicity and less markedly gender consistently associated with those differences [19-21]. The estimates related to school readiness (defined in terms of knowledge on school related literacy and numeracy tasks) suggest overall a 0.5 standard deviation difference on literacy and numeracy measures between Māori and European/Pākehā 5 year olds [22].

4.2 Beginning primary school

Despite early differences, development through the first stages of learning to read and write in New Zealand schools is relatively successful and has become more so since 1996 [23, 24]. An effective early intervention programme Reading Recovery [25] enables catch up of the majority of low achieving students in the first year, and is generally successful across SES and ethnicity groups under best practice conditions [26]. But although New Zealand has high levels of literacy achievement by Year 5 in international terms, there is a relatively wide and inequitable distribution with Māori and Pasifika students over-represented in the lower end of that distribution [8].

4.3 Middle and upper primary school

Since 1996 there has been a narrowing of the differences in the first stages of literacy [23], but those differences related to language and comprehension in both reading and writing have not reduced and there are particularly large differences by Year 4 between Māori and Pasifika students, and other students. In keeping with the emerging significance of language and comprehension to achievement by the middle years of primary, the CCCL study shows that literacy achievement at age 8 years (three years into school) is a better predictor for achievement at age 16 years than the beginning literacy scores [6].

If no targeted educational intervention for comprehension or writing occurs these differences for Māori and Pasifika children translate into a two year difference in achievement in low decile schools in the middle years [27]. The significant differences in comprehension and language-related achievement remain at Year 8 and the differences for Māori boys are consistently more marked than for Māori girls. These patterns are even larger for Pasifika students and are marked in the oral language areas including listening comprehension by Year 8 [23, 28].

5. What does research tell us about causal factors?

These longitudinal and cross sectional data indicate the scale of the challenge. The next part of the chapter considers the explanation for these patterns, especially for Māori and Pasifika students. The explanations are simplified here into two general categories. This section is followed by an outline of the contribution of educational provisions for potential solutions.

5.1 Developmental transitions

As noted above longitudinal studies commonly identify general shifts in motivation, engagement and achievement associated with entering secondary school and the transition to adolescence through secondary has been linked to a number of school features. These include more limited pedagogy with explicit evaluation, social comparisons and high stakes exams. The discontinuities in schooling between primary and secondary sectors pose threats to adolescents' psychological needs for autonomy, positive social relationships, and 'belonging' [3-5, 7]. These patterns, captured in a developmental match hypothesis to do with a poor 'stage environment fit' are exaggerated for children from 'minority' and poor communities.

However, evidence for this hypothesis is mixed. There is more consistent agreement around the significance of positive relationships than there is for adolescent needs for autonomy [2, 29]. School climate which provides emotional support from teachers, and peers (and more so from one's ethnic group), as well as parental emotional support is consistently associated with more positive outcomes of higher self esteem and achievement and lower depressive symptoms across countries [1, 30]. More limited support for the needs for autonomy may reflect methodological issues in the measurement of autonomy and the identification of features associated with autonomy [2, 29].

There is little research in New Zealand which tests the predictions of the developmental match hypothesis in terms of students' needs for autonomy. The CCCL found no features of secondary schools they examined which distinguished between those students who adjusted quickly or took longer (same school versus new school; size; gender-mix; change in decile). But they did find that attitudinal competencies (perseverance, communication, self management) in the first year of secondary school were associated with time taken to adjust and were the only measures to do so after prior performance and social characteristics were accounted for.

However, the significance of teacher relationships for both Māori students and Pasifika students' engagement (but to a lesser extent achievement) has consistent support. The former is tested within a limited quasi-experimental design format in the intervention programme, Te Kotahitanga [7]. At the core of the programme is a change in relationships through beliefs and teaching which is designed to promote engagement and success. Changes in the dimensions of caring (manaakitanga), high expectations (mana motuhake), secure and well managed environments (whakapiringatanga), interactional and best practice teaching (waananga and ako), and evidence-based monitoring (kotahitanga) are associated with higher engagement levels of Māori students. The perception of Pasifika students mirrors that of Māori students in commenting on the needs to feel respected and appreciated by their secondary teachers [31].

The developmental match hypothesis does not explain why the general shifts would be exaggerated for particular groups of students internationally and in New Zealand specifically for Māori and Pasifika students. Explaining this requires additional theoretical

concepts. Moreover, within the limited New Zealand data there are patterns that are counter to the finding. Pasifika students are more likely to stay at school to higher levels than Māori children. The reasons for this are associated with family beliefs about the status and significance of education [10].

5.2   Selection bias, access to educational resources and effective teaching

A variety of explanations identify educational provisions and expectations as creating by default, or actively through deliberate selection, the cumulative disparities. One set sees schools as reflecting mainstream families' and communities' interests and ways of teaching and learning and they therefore select for backgrounds and resources that are less often present with poor and Māori and Pasifika families. Other explanations are more focused on the access to educational resources that reflect social and cultural histories and experiences, and modifying or reforming schools to be better able to teach effectively. The explanations range from seeing schools as relatively powerless in changing systemic inequalities to being more optimistic about the potential for change [32].

Comparative international studies demonstrate that access to and knowledge of educationally powerful resources and experiences are clearly very significant [33]. For example, The World Inequality Study [34] showed the systematic effect of number of books in homes on achievement. The association found across 27 countries obtains irrespective of political or economic differences, is found across historical changes in political systems, and when background variables are controlled for.

Overall it is also clear that both outside of school and inside school variables affect engagement and achievement and that programmatic changes can make a difference [25]. The combined effects are illustrated in the summer learning effect (SLE). Longitudinal studies typically show consistent and relatively similar gains in achievement by different ethnic and social groups within the school year compared with over summer, with the negative effect strongest for children from families with limited economic and social resources. The SLE is cumulative over time and contributes to growing disparities by secondary years [35]. The SLE particularly affects students in low decile schools and Māori and Pasifika students [27].

6. What works

The school sector is an existing intervention which, in New Zealand, has some notably successful features as indicated by international comparisons. Clearly, however, components are not working as well for Māori and Pasifika students so the question is what can be added or changed. There is compelling evidence that there can be context specific conditions for the effectiveness of programmes, so the focus in outlining what works is on evidence for New Zealand applications that meet meta analytic criteria [25]. Given the focus on what happens in school and the significance of engagement at school the programmes which are associated with effective engagement at school are a priority. There are educational interventions which are provided to those children who are excluded from schools, and those who require alternative forms of education, which are not reviewed here.

A second focus is that the success criteria should include the strategic goal adopted by the Ministry of Education in Ka Hikitia, of Māori enjoying education success as Māori [36]. This is a concern for cultural well being and central to the overarching concerns of optimising the transition. Related to this is recognising that there is a major systemic intervention

which is available through the development of cultural and language-based alternatives to mainstream schooling. These include immersion and bilingual choices in Te Kohanga Reo and Māori medium schooling as well as language nests and bilingual classes for Pasifika students. There is evidence for higher NCEA levels for Māori students from Māori medium and immersion schools than for mainstream classrooms, although numbers are low [37]. New Zealand Ministry of Education figures show that the percentage of Māori medium school levers with NCEA level 2 or above has been consistently higher than all Māori school leavers since 2003. Both lines have been trending upwards essentially in parallel since 2005 and the typical difference has been of the order of 20% more students succeeding from Māori medium (75% in 2009 compared with 54%). These indicative results are promising and suggest the need for more research and development work to support scaling up.

What doesn't work is as important to know as what does. Hattie [25] recently synthesised a large number of meta analyses in education. His review shows that many of the school level features such as type of school, type of grouping, gender mix and class size have relatively small effects compared with variables within classrooms to do with curricula, teachers and teaching.

6.1   Quality early childhood education

As noted above, participation in high quality ECE provides a significant preparation for school and affects school success, although effects decrease over time [37]. The international data show the largest effects at age 15 and 16 years on both behavioural and achievement outcomes for low income families occur when high quality interventions are combined with parenting support and education (e.g. Abecedarian; Chicago Child-Parent centre; Perry preschool). Small to medium effects are reported at 15 and 16 years for learning dispositions and for achievement outcomes in mathematics and literacy.

Comparisons between high quality and low quality, and any ECE and no ECE indicate that participation in just any ECE is not what makes the difference. The ECE participation has to be of high quality to have the strongest outcomes in adolescence [37]. The CCCL study shows that the detectable effects of high quality ECE at 16 years obtain regardless of SES (maternal educational level), adding to the evidence that high quality ECE mitigates the effects of low SES on school readiness and subsequent achievement in the first three years at school [38]. There is considerable correlational evidence now for the components that define high quality [37], and experimental evidence for the effects of very specific teacher-led activities which contribute to high quality such as reading books interactively in an elaborative style [20, 21, 39, 40]. This means specific components of high quality can be designed with known outcomes [39].

6.2   Programmes that add resources to families

There are a number of large scale programmes that are designed to increase access to resources which in the case of literacy has mostly meant access to books. Some of these have used libraries with mixed success [41]. Others use a more 'book flood' approach in which books are given to families or children and these have had some important effects [42].

A New Zealand programme, the Books in Homes programme, was established in 1995 by the Alan Duff Charitable Foundation, and has grown to 463 schools and over 90,000 students in 2007. Kura Kaupapa Māori are also able to join the programme. Children receive 5 books each year that they can choose themselves and own. There are additional

Table 7.1. Summary of evidence for indicated programmes.
Abbreviation: *d* = effect size.

Programme	Outcomes *School success (at 18 yrs) for Māori and Pasifika students* • *achievement* • *engagement* • *well being (Ka Hikitia)*	Cost-benefit analyses?
Early childhood education (high quality with parenting components)	Modest gains (*d* = 0.17 to *d* = 0.44) in school achievement outcomes	Large net public return per additional high school graduate (Perry Preschool Project) (US$ 118,400) [18]
Adding resources (e.g. Books in Homes)	Gains in habits and attitudes	No evidence
Home and school tutoring (e.g.) • Pause, Prompt, Praise Taatari, Tautoko, Tauawhi • Reading Together • Hei awhina Matua	Marked (*d* = 1.81) gains in literacy skills in primary school years Smaller effects without a linked school component (*d* = 0.63)	No evidence
School reform model (a) • Learning Schools Model (primary)	Modest (*d* = 0.24 to *d* = 0.63) gains in achievement outcomes 9 to 13 yrs	No evidence
School reform model (b) • Te Kotahitanga (secondary)	Gains in engagement at 14 to 15 yrs Māori enjoying success in engagement at school as Māori with possible effects on achievement	No evidence US school reform model estimates large net public return per additional high school graduate (US$ 150,100) [18]

motivational components based at school (such as the special school assemblies with celebrities).

There have only been two evaluation studies [43, 44]. There is some evidence of initial effects on reading skills, but the longer-term effects are more detectable on reading habits and attitudes than on reading achievement. As noted below it is likely that a combined programme of providing resources, support and specific guidance for parents will have larger and more enduring effects, but this remains to be tested.

6.3   Home school tutoring programmes

General reviews of parental involvement and more specifically of homework find mixed effects on achievement. This reflects limited experimental evidence and a need to be specific about types of involvement and types of activities at school or at home with which parents might be involved [25, 45, 46].

However, the research evidence does point to the effectiveness of specific tutoring programmes involving parents/whānau. Before school the effects of deliberate programmes of reading books with children are impressive on both emergent literacy measures, school readiness measure and language measures [21]. In early primary school large effects corresponding to a 10 point gain on standardised tests are associated with parents interacting with reading books, with larger effects associated with more specific tutoring with guidance and resources from schools [47]. There is New Zealand descriptive

and experimental research to support this finding in general, and specifically for Māori families and also in Māori medium settings [48].

At later years a recent experimental study suggests that family involvement in specific comprehension related activities can directly impact on achievement at school [21]. A recent Best Evidence Synthesis [49] identified joint home and school interventions across the primary school age range (such as Pause, Prompt, Praise/Taatari, Tautoko, Tauawhi) having very large effects while parent-only tutoring programmes such as Reading Together have smaller but still relatively large effects.

There are four provisos relating to these outcomes. The large effect sizes are associated with purpose built tests of gains rather than standardised measures of achievement. This means that the generalised effects for achievement and curriculum or age appropriate levels may not be known. A second proviso is that there are limited studies of specific New Zealand programmes. For example, the Reading Together programme has been tested in two small scale studies and evidence for its effectiveness specifically for Māori and Pasifika students is limited. More systematic replication and evaluation studies are needed. Thirdly, there are no follow up studies of longer term effects into secondary school. Lastly, there are no specifically secondary school programmes that have been examined via meta analytic procedures or large scale evidence based summaries.

6.4   School reform

School reform models to change overall achievement levels specifically for students from poorer communities and those from diverse language and cultural groups have had mixed effects internationally [50, 51]. But 2nd generation reform models ([52]) have demonstrated effectiveness in accelerating achievement patterns compared with expected gains or comparison groups. These models focus on a process of collective inquiry using evidence of learning, teaching and achievement patterns. There are very few applications of these in secondary schools.

6.4.1 School reform: primary

A New Zealand model, The Learning Schools Model (LSM) has been tested in urban decile 1 schools (14 schools) with mostly Pasifika and Māori students, and in a cluster of 33 rural and town schools (mixed decile levels) of mostly Pakeha European and Māori students [53]. The LSM uses a school-based research and development process based on evidence from student learning and classroom practices to fine-tune effective programmes with schools using the contextualised evidence. The LSM includes elements of 'cultural responsiveness' as the fine-tuning includes using knowledge of students' backgrounds and cultural and linguistic resources. Accelerated rates of achievement over three years of between six months and one year relative to gains of comparison groups and to nationally expected gains have occurred. Notably the gains in urban schools have been for both Māori and Pasifika students, with Māori students achieving at particularly high levels.

Two provisos apply to this programme. One is that there are unknown longer term outcomes for secondary school engagement and achievement. A second is that there has not been an analysis of success in terms of Ka Hikitia.

6.4.2 School reform: secondary — Te Kotahitanga

Te Kotahitanga is a secondary school programme designed specifically to increase engagement for Year 9 (14 year olds) and Year 10 (15 year olds) Māori students in secondary schools and thereby raise achievement [7]. Te Kotahitanga is a professional

development programme which uses a 'culturally responsive' model for changing effectiveness. It focuses on changing teacher practices specifically through relationships of respect and caring for students as Māori, changing classroom interactions towards being more 'interactive and dialogic' and uses evidence to determine effectiveness (similar to the 2nd generation reform models above). An evaluation study with 12 schools shows increases in measures of engagement from classroom observations and from qualitative analyses using student 'voices'. Achievement data indicate increased percentages of both Māori students and Pasifika students gaining at NCEA level 1 from Te Kotahitanga schools compared with percentage increases for Māori and Pasifika students nationally. The effects on engagement, established in classroom observations have been replicated in an independent evaluation study of 22 schools which showed 75% of the teachers trained developed classroom practices that promoted positive relationships at moderate or high levels [54]. But the NCEA outcomes using comparison schools were mixed, possibly reflecting the state of the databases in schools and methodological difficulties in the design based comparison.

Te Kotahitanga comes closest to demonstrating large effects for Māori secondary students. The success criterion of Ka Hikitia is well met in terms of the cultural dimensions and engagement. One proviso is that there is yet to be demonstrated unequivocal and consistent effects on achievement at higher levels of secondary achievement.

7. Policy implications

These programmes of change suggest the following priorities for policy:

- Increased access to and increased quality of ECE for Māori and Pasifika families/whānau and in low decile communities are needed. This can have detectable long term effects, especially if coordinated with parent programmes. But a coordinated ECE to secondary view of optimising is needed to capitalise on success and ECE should not be seen as an inoculation.

- Programmes that increase families/whānau engagement in specific tutoring coordinated with school components are indicated. From a societal perspective a life span approach to family involvement is needed rather than a piecemeal approach as the effects can be strong and potentially cumulative across age ranges.

- Programmes to provide and promote equitable access to and use of educationally significant resources.

- Programmes which increase both the effectiveness of teaching in core areas and the positiveness of relationships in cultural terms are indicated. Two specific programmes have potential.

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Chapter 8

Adolescents and the media: consequences and policy implications

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Summary

- The predominant form and content of media consumed by most children and young people in New Zealand is violent, sexualised and embedded with advertising for cigarettes and alcohol (among commercialised media).

- High levels of exposure to violent television programs during childhood may contribute to increased aggressive behaviour among susceptible children, during adolescence and in early adulthood.

- Recent studies suggest that children and young people who frequently view sexual content on television/movies may initiate earlier sexual intercourse and may be at greater risk for teenage pregnancy.

- There are few effective interventions for adolescents to minimise the effects of commercialised media on young people's behaviour.

- New Zealand has minimal government regulation of broadcasting standards to protect children and young people from the harms associated with use of commercialised media.

1. Introduction

Over the past fifty years there has been a dramatic increase in the use of electronic media by children and adolescents. Since the introduction of television in New Zealand in 1960, children and young people have also incorporated pay television, home theatres, the internet, gaming, and portable music into their lives to such an extent that the consumption of electronic media is now a normal part of growing up. The media environment is changing rapidly and the current generation of young people can engage with the media more often, more intensely, and more easily than ever before. This is particularly a concern since the predominant form and content of media consumed by the majority of young people in New Zealand is violent, sexualised and embedded with advertising for cigarettes and alcohol. This kind of media use has been associated with

problems of violence, substance use and early initiation of sexual behaviour among some young people. This association raises policy concerns over how to protect children and young people from potentially detrimental effects of media.

2. What is the issue?

Concerns about the possible adverse effects of media, especially for children and adolescents, have been present since the early days of television. From as early as 1952 the US House of Representatives instigated hearings into the impact of television violence on society. Concerns about the potential negative effects of some kinds of media have motivated decades of research on not only on the media effects on violence and aggressive behaviour, but also on outcomes such as empathy, fear, sexual behaviours, eating disorders, obesity and substance use. Most of the concerns are to do with commercialised media, which is violent, sexualised and embedded with advertising [1]. It is important to note that media that is educational and pro-social can sometimes have positive effects on the development and learning of children, but the real value of television as a important source of education has yet to be realised [2-4]. Given the amount of time that many children and adolescents devote to media, developing high quality, education forms of media could reap substantial benefit.

Despite the large amount of research that has examined media use during childhood and adolescence, there continues to be controversy especially, over the impact of violent media [for example see 5]. The study of media effects on an individual's behaviour is difficult and complex; the field is fraught with methodological and measurement issues. Longitudinal studies are often required that can span decades of an individual's life; meanwhile the media environment is constantly changing posing new questions for researchers. Furthermore, the overall effect of media on children and young people is small in comparison with other aspects of their lives, especially family and peer influences. Yet due to the high levels of media use by children and young people, even small effects (that presumably might accumulate and accrue over time) have important public health and policy implications.

3. What is the scale of the problem?

The media environment of today's young people is rapidly changing with technologies becoming more pervasive, portable and interactive. As a result media use by children and young people is at an all-time high with youth spending anywhere from one-third to one-half their waking hours with some form of media [6 p. 8]. Much of this media use is becoming increasingly private through personal media devices and age-specific with the segmenting of target age groups [6]. However, television and DVDs remain the most popular forms of electronic media consumed by New Zealand children in 2010. A recent national study commissioned by the Broadcasting Standards Authority surveyed 604 children aged 6 to 13 years and their caregivers about their media use. They found that virtually all of New Zealand children's homes contain a television (99.5%), cellphone (96%), radio (95%) and DVD player (92%). Almost all children watch television (99%), DVDs (93%), play computer games (84%), listen to the radio (73%) or use the internet (62%).

New Zealand children and adolescents are similar to children and youth in other Western countries in the amount of media they are exposed to. A 2001 study found that that most children in New Zealand watch about up to 2 hours of television a day [7]. In a more recent study of high school students, about one-third of adolescents watch 3 or more hours of

television daily [8]. These findings are similar to a large international study of over 5,000 children from 23 different countries which found that the average 12-year-old spent about 3 hours a day watching television [9]. At the extreme end, 10% of students in New Zealand indicated that they watch 5 hours or more television a day compared to 20% of students in the US [8, 10].

Parental supervision of their children's media use is important; children and youth who have television and other media devices in their bedrooms consume more television and other media [11]. In New Zealand, about 27% of children (6 to 13 years) have a TV in their bedroom which has increased from 18% in 2001 and about one-third of all children watch television after 8:30pm at night during the school week increasing to about one-half in the weekends. Fewer than one-third of parents report that they supervise what their child is watching [12]. These figures suggest that more needs to be done to educate parents on the risks and harms to children and young people from excessive media use. One key issue is that the more time that children and adolescence spend engaged with media, the less time they have for other activities including social contact and exercise.

The numbers of children and young people who use the internet is increasing rapidly. In 2001, approximately 30% of households had access to the internet; by 2006 it had doubled to 60%. Nearly three-quarters (72%) of children now use a computer at home that can connect to the internet [12]. Among adolescents, 85% connect to the internet daily with one in five students using the internet for 3 or more hours each day [8].

4. Why is media use important in the transition to adolescence?

Adolescence is a developmental period characterised by confluence of biological, psychological and social changes that increases the risk of adverse outcomes. Adolescents may be especially vulnerable to the effects of media from biological changes to do with heightened arousal and changes in brain development as well as psycho-social factors specific to this stage of life [13]. Heightened arousal may explain an increase in attraction towards viewing violence and sexualised media [14], while changes in brain development during adolescence may result in less inhibition and greater engagement in behaviours that leads to adverse outcomes [15]. Psychological theories explaining the link between exposure to media violence and later aggression have focused on social learning theory [16], cultivation theory [17] and socialisation theory [18] which all highlight the potential power of media to influence behaviour, through imitation and as a source of shared beliefs and perceived social norms. These factors are especially pertinent during adolescence when increasing autonomy, decreasing parental monitoring and increasing influence of peers means that adolescents may be more susceptible to media influences than other periods of life [19]. Lastly, it should be noted that most media consumed by adolescents is commercially produced and often targeted specifically at adolescents due to their importance as a target market (e.g. music) or future potential as consumers (e.g. cigarettes). Commercialised media has been shown to use a range of strategies that includes violent and sexualised content as well as rapidly changing and innovative tactics that are specifically aimed young people [20, 21].

The effects of mainstream media on children and adolescents are most commonly conceptualised in relationship to three broad topic areas: violence and aggressive behaviours, sexual behaviours (including early onset and attitudinal research) and cigarette and alcohol use related to media exposure. By far the strongest evidence for the detrimental effects of media on children and young people is from studies of cigarette

and alcohol advertising. While studies on media effects have been explored by the type of media (e.g., television, video and film, video games, music, magazines and the internet), this review will concentrate on the effects of mainstream media on violence and aggression, sexual behaviours and alcohol and cigarette use.

4.1   Violence and the media

Violence is widespread in New Zealand television and movies. International figures suggest that the United States airs the highest levels of violence on television [1]. The prevalence of violence on New Zealand TV is likely to be comparable to the US as the majority of programmes on New Zealand television are sourced from the US [1]. A large-scale study of violent content on US television broadcasting, including pay television, found that 60% of all programs contained some form of violence [22]. In 2003 a study of New Zealand television found there were 14 violent incidents per hour during a typical week of broadcasting [1]. Commercialised network programming was associated with more violent content then public broadcasting networks. Furthermore, there were nearly double the number of violent incidents during children's viewing times and on channels aimed at children than adult programs [1]. These findings suggest that the average child in New Zealand views approximately 10–20,000 violent incidents on television each year.

Experimental studies by Bandura and Berkowitz dating back to the 1960s raised concerns that violent media might lead to increased aggressive behaviour and attitudes among some children and young people [e.g. 23, 24]. Subsequent experimental research has examined the effects of violent media on youth and adults, on both males and females, among people who have a tendency to aggression and those who don't, and in laboratory and naturalistic settings [25]. Additional experimental research has examined the effects of cartoon violence on children's aggressive behaviour [26]. In cartoons, for example, violence is often perpetrated by the 'good guys' or superheroes, it is rewarded, goes unpunished, and results in no serious harm or is made to look funny [6]. Of concern is that children's programmes often contain violence that is sanitised and trivialised compared with adult programs [6, 27].

The experimental literature on the relation between viewing violent media and negative outcome has been fraught with difficulty. When effects are seen, they tend to be small, short-lived, and often restricted to groups of participants with aggressive tendencies [28-30]. In some ways, however, it is probably not surprising that limited, discrete exposure to media violence has small (if any) long-term effects. The key question is whether a steady diet of violent media over prolonged periods of development has negative consequences. From this perspective, the most convincing evidence would come from longitudinal studies where the association between viewing violent media during childhood is examined in relation to later adolescent and adult aggressive behaviour [31-33]. The majority of these studies have shown that high levels of exposure to violent television programs during childhood is associated with increased aggressive behaviour in later childhood, adolescence and in early adulthood [34, 35]. Again, however, the interpretation of this association has been controversial. For obvious ethical reasons, participants in these longitudinal studies are not randomly assigned to viewing conditions (i.e., violent vs. non-violent). The lack of random assignment raises the possibility that the correlation between viewing media violence and negative behaviours might be due to some other (unmeasured) variable such a personality characteristics or socioeconomic status [36]. For example, some have argued that this relationship is due to individuals with aggressive traits being more likely to view violent media content [37, 38]. Even so this relationship is likely to be bi-directional,

cumulative and therefore may contribute to a downward spiral of reinforcing effects [39]. Perhaps the most convincing evidence for an association between violent media and aggression has come from a recent study showing that teenagers who were low in initial aggression had increased risk of aggression 12 months later from the effects of viewing violent media [40]. This finding clearly warrants further research and replication.

It is also important to note that most meta-analytic reviews demonstrate only a small to moderate relationship between early viewing of violent media and later-onset of violent and aggressive behaviours; the study by Krahé and Möller, for example, found that violent media usage only accounted for 2% of the variance in aggression 12 months later. While these effect sizes are small they are important given the pervasiveness of media violence and public health implications [41]. Further, these studies are based on the effects of television; the potential cumulative effects of more explicit and pervasive violence and the expansion of media to include DVDs, computer games and the internet is not known. Studies on the use of violent computer games show similar results, but also share the same methodological concerns [42, 43]. Given this, more research is needed to understand the effects of the current media diet of young people in New Zealand.

4.2   Sexual health and the media

In comparison to research on media violence, there are few studies examining the role of sexualised media on behaviour. Recently a series of high quality longitudinal studies have demonstrated a link between watching sexual content on television and earlier initiation of sexual intercourse [44, 45] and teenage pregnancy [46]. The majority of commercial television is highly sexualised and does not place sexual behaviour in context or in relation to consequences with few references to birth control, sexually transmitted infections, or unintended pregnancy [6]. Nevertheless, teenagers consistently cite electronic media as one of the most important sources of information on sexual health topics. The exposure to sexualised media content is likely to influence teenagers' attitudes and expectations of 'normal' sexual behaviour and relationships [6]. This is especially concerning given the recent trend of US broadcasters in programming to 'push the envelope' and the stretching of boundaries of what is acceptable sexual behaviour. It is important to note, however, that the current evidence base does not allow us to conclude that sexualised material causes these negative outcomes. Clearly, more research is needed. In addition, to date, there has been no research exploring the effects of this type of programming on adolescent behaviour or attitudes.

4.3   Cigarettes and alcohol and the media

There is now a clear link between media advertising of cigarettes and alcohol to children and young people and future initiation and misuse of these products [47-49]. Anderson [47] reviewed 13 longitudinal studies and found that in twelve (of the thirteen) there was a causal link between exposure to alcohol advertising and the earlier onset of drinking among non-drinkers and increased levels of consumption among existing drinkers. The only non-significant study did not include mainstream marketing. Wellman [49] examined 51 studies and found that exposure to tobacco marketing and advertising more than doubled the risk of smoking. While the causes of alcohol and tobacco use are complex and multifactorial, it has been estimated that up to one-third of adolescent alcohol and tobacco use is attributable to advertising [6, 50]. As most studies to date have only examined mainstream (television, movies and magazines) advertising, these estimates are likely to underestimate the overall effect of marketing, which includes price promotions,

sponsorship, product placement, packaging, event promotions, and innovative methods such as text-messaging, internet and guerrilla marketing [51]. To put this in perspective, the revenue spent on mass-media alcohol advertising is only one-quarter of the total the industry spends annually on alcohol promotion-related activities [47].

Children and young people are consequently over-exposed to alcohol and cigarette advertising. In New Zealand, the legal age of purchasing of alcohol and cigarettes is restricted to youth over eighteen, yet targeted advertising to children and youth starts much earlier. Studies have shown that children and youth are exposed to higher rates of alcohol advertising than adults [52, 53]. In a US study of alcohol marketing in magazines, young people aged 12 to 20 years were exposed per capita to "48% more beer advertising, 20% more spirits advertising and 92% more advertising for alcopops" than adults of the legal drinking age. Similar results are found for television, movies and radio [54]. The alcohol and tobacco industry also targets children with the use of advertising content such as cartoons and humour [55, 56], use of celebrity endorsements [48, 57] and use of additives to alcohol and tobacco such as sweeteners that make these products more palatable for children to consume [58-60]. These marketing strategies are counter to arguments by the industry that advertising of these products is aimed at brand switching rather than recruitment of new consumers [for example see 61]. In New Zealand progressive deregulation of the marketing of alcohol from the late 1980s has allowed for the promotion of alcohol via sponsorship and direct advertising on commercial television [62] and there is still an considerable amount of tobacco content in television and movies [63, 64].

5. What are the policy/intervention options?

5.1 Legislation versus self-regulation

Much of what is required to meet the challenges posed by the current media exposure to children and young people in New Zealand requires a high-level policy response. At the broadest level, there are three considerations [65]:

- policies designed to assure the adequacy of programming to children;
- policies designed to protect children from adverse effects of exposure to potentially harmful program content; and
- policies designed to protect children from advertising effects.

Concerns about freedom of speech and artistic expression have often been presented as potential barriers towards regulation of media. However there are widely accepted limits on the freedom of expression in public broadcasting especially when it involves children and their viewing habits. In New Zealand, the Broadcasting Act 1989 gives responsibility to the Broadcasting Standards Authority to work with the broadcasting industry to ensure that broadcasters maintain standards consistent with the statutory requirements under the Act. While the Act gives consideration to the first and second policy areas and includes a specific standard to do with children, there is no mention of older children and adolescents and the Act provides little guidance about minimising the exposure to potentially harmful programme content among children and young people. The Broadcasting Standards Authority itself is made up of four members, one of whom is appointed after consultation with the broadcasting industry. It would be fair to say that this body has shown little appetite for providing leadership to the industry either in protecting children from the possible harms from exposure to their programming or improving the

quality of programming to children. This reflects a lack of representation from people with public or child health expertise.

Self-regulation by the media industry as it currently exists in New Zealand is problematic. There are usually no sanctions for breach of codes other than the removal of the offending material and pre-vetting systems are seldom rigorous enough to screen out potentially harmful content [20]. In Australia, the government in 2002 called for the industry to strengthen self-regulation or face government intervention. While it is unclear how regulation would work, given the highly competitive and deregulated media market in New Zealand, experience from overseas suggests that the media industry does not voluntary make changes to their content and/or programming without government pressure or intervention [65].

5.2   Rating systems

One of the most important non-controversial interventions for improving the quality of young people's media experiences is through rating systems. These originated in the US in the 1960s as a result of congressional pressure on the movie industry and rating systems are now standard across the movie, video game, and television industries. However there are several serious problems with the rating systems as they currently exist [66]. Existing rating systems have been shown to be neither reliable nor valid with high levels of violence and/or high-risk sexual content being present in films and television with general audience ratings [67]. Ratings also tend to reflect what adults find offensive rather than what types of content is harmful to children and young people. For example violence that is conducted by attractive heroes and goes without punishment may potentially be more harmful to children than more realistic violence involving blood [67]. Another problem is 'ratings creep' with films that once were PG ratings turning into G ratings and likewise for R ratings becoming PG ratings. This may be in part due to poor box office returns for R rated movies as research has shown that opening-weekend earnings are up to 40% lower among movies that are R-rated [6].

In New Zealand movie ratings are based on the Motion Picture Association of America (MPAA) which is an age-based system of classification. These have been criticised by researchers and parents alike as not providing enough useful information and these groups would like to see rating systems based solely on content. Age-based systems may also encourage children to seek out adult or 'R'-rated media as these are seen by young people as more entertaining [68]. There have been some efforts to provide more information on content of various media for parents. But the current system is fragmented, poorly understood and requires a great deal of parental effort and input to be effective.

5.3   Media education

Teaching young people and their families how to understand and interact positively with media is one potential strategy that may be more politically feasible than approaches that attempt to regulate the content and behaviour of the media industry. These approaches include media literacy curriculum in school-based interventions and targeted anti-violence programs that encourage co-viewing by parents and younger children. To date, evidence of the effectiveness of these media education programmes is limited, especially in regards to preventing poor outcomes [6].

6. Implications for future policy

Given the ubiquity of highly violent, sexualised and commercial media consumed by young people in New Zealand and the increasing evidence demonstrating the poor outcomes associated with exposure to this media, there is a clear case for developing polices that mitigate this harm.

First, parents should have access to more accurate information on the potential detrimental effects of media on children and young people so that they can make informed decisions regarding their family's media use. Parents are the single biggest influence on their young person's wellbeing and their likelihood of engaging in violent and other potentially risky behaviours. Second, there is a need to widen the scope of current broadcasting legislation on programming and advertising to include the protection of children from poor health and social outcomes. Consideration should also be given to have one government body overseeing all media programming and advertising in New Zealand, including new technologies such as the internet and cellphone.

Last, there needs to be a shift away from the currently heavily sexualised and violent content of media programming and advertising consumed by children and young people in New Zealand towards more appropriate content that reflects the values and norms acceptable to most New Zealanders. There are opportunities for the creation of better children and young people's media by the New Zealand industries to produce content that is more appropriate, educational and reflective of the values and vision held by New Zealanders.

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Chapter 9

Adolescents and digital media

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Summary

- Digital media use is pervasive in New Zealand, and adolescents and young adults are high frequency users.

- Digital media use has the potential to enhance learning, development, and well-being.

- Digital media use also entails risks to well-being.

- Good quality research on factors and processes associated with reducing risks and increasing benefits of digital media use is in its early stages.

- We should find ways to support the type of work done by NetSafe in New Zealand and expand the efforts so that cybersafety is commonplace.

1. Introduction

Young people are active and enthusiastic users of digital media. This activity has many benefits, but it also imposes risks. The purpose of this chapter is to explore how adolescents' use of digital media can both enhance and threaten their well-being. Options to manage the negative impact of digital media are outlined, keeping in mind that the goal is for adolescents to mature into safe and competent users of digital media.

2. What is the question?

The digital media that adolescents frequently access include online instant messaging (IM); short message service (SMS) through internet or mobile phone; online social networks such as Facebook, MySpace, and Bebo; email; and the Internet. The most common reason for adolescents to engage with digital media is to communicate with others [1]. Other popular online activities include gaming, information seeking, and entertainment (i.e., YouTube, music and video access).

Young people in Aotearoa New Zealand are exceptionally well-connected to digital media. Most have a cell phone or access to one [2]. New Zealand schools are 100% connected to the Internet, and many children have Internet access through their school. Moreover, over

three-quarters of New Zealand homes had Internet access as of 2006. Most adolescents have access to the Internet through home, school, or a friend's home [3].

Historically, the transition to many new technologies is often met with resistance, fear, and suspicion [4]. The introduction of printed books, radio, television, and computers each resulted in claims that the new technology would weaken the fabric of society or diminish the optimal development of the individual. While young people embrace digital media, others warn of the potential doom such activities might bring. Is there evidence to support these warnings? There is some concern among researchers that the unwarranted focus on risks will bias policy and reduce our ability to harness the positive aspects of digital media to benefit youth and society [5]. Even if risks have been overplayed, are there nonetheless potential hazards that are particularly associated with digital media? To what extent are these hazards offset by potential benefits of digital media use?

In the following section, evidence for particular risks associated with digital media is addressed. These risks include bullying, sexual grooming and predation, exposure to sexually explicit material, internet addiction, and depression. Benefits of digital media are also covered. These include greater social connectedness, linguistic and cognitive development, help-seeking, identity development, perspective taking and increased cultural awareness, and social support for marginalised youth.

3. Why is digital media use important in the transition to adolescence?

3.1 Risk taking in adolescence

Adolescents are more than consumers of digital media; they are actors who use digital media to pursue personal goals [6]. The greater potential anonymity, lack of physical markers of gender, class, and ethnicity, and the greater physical distance between communicators of digital compared to face-to-face communication can lead young people to feel safe within the confines of their home or school while using the Internet or cell phone [7]. Researchers argue that digital communication users become less inhibited online, leading them to disclose more personal information [4, 8]. Given that adolescents have been identified as less risk avoidant than younger children or adults [9, 10], the potential for greater disinhibition when using digital media is of concern [11]. Whereas some researchers interpret online behaviour in terms of greater overall disinhibition and lack of following social norms [12], more recent research overwhelmingly supports the view that online users show great conformity to online social norms and are not more likely to engage in antisocial behaviours online [7, 13]. Nonetheless, adolescents are less likely to perceive risks than are adults, and this may lead to less safe online behaviour. Sonia Livingstone [14] reminds researchers, "The complex relation between opportunity and risk is not distinctive to the internet, rather it is a feature of adolescence" (p.397).

3.2 Potential risks associated with adolescent digital media use

3.2.1 Cyberbullying

Physical, verbal, and social aggression are present in the communities in which adolescents live. Over 60% of primary and secondary students in a recent survey reported being bullied at some point in the past year [15]. Verbal and social aggression are also found within electronic interactions amongst this age group. Although accurate numbers within

New Zealand are unclear, it is likely that at least 15% have been victims of text bullying (i.e., using cell phones) [2] or online bullying (i.e., through instant messaging and social networking sites) [11]. These forms of online aggression are referred to as cyberbullying and include behaviours such as spreading rumours about the target, sending threatening messages, posting photographs or videos online to embarrass the target, and posting content (e.g., through Facebook or on a blog) to damage the reputation or friendships of a targeted individual [11, 16].

3.2.2 Displaying risk behaviours online

One consequence of the tendency to disclose information online is that adolescents might reveal information that could (1) attract the attention of those who wish to sexually exploit them, (2) later be used to damage friendships, and (3) later damage their education and employment opportunities [11]. Most New Zealand parents say that they tell their children not to give out personal information online (88%), not to meet face-to-face with people they have met online (80%), not to talk online with strangers (81%), and not to visit particular websites (75%) [17]. Nonetheless, surveys of young people indicate that their behaviour does not reflect these warnings [18]. Over a third of adolescents surveyed had given out personal information, more than a quarter had sent a photo of themselves to someone, and just over a third had met someone face-to-face that they had met online [3, 18].

3.2.3 Exposure to sexually explicit material

Many Internet users – of almost any age – accidentally or intentionally access sexually explicit material. Male adolescents are more likely than female adolescents to seek out sexually explicit material [19]. A recent study in the Netherlands estimated that 40% of female and 71% of male adolescents had been exposed to some kind to online sexually explicit material in the prior six months [19]. The quantity of sexually explicit material available online makes it extremely difficult to monitor (in terms of filtering software) and avoid. Even innocent web searches can yield surprising results. Surveys of youth Internet use provide some indication of the prevalence of exposure to sexually explicit material. The accuracy of these self-reports is unknown. Moreover, prevalence tells us very little about the precursors, dynamics, and consequences of regularly viewing sexually explicit material. Compounding this problem are the difficulties in adopting a consistent definition of what constitutes sexually explicit material.

3.2.4 Sexual grooming and predation

There is no doubt that sexual predators attempt to interact with adolescent digital media users. The scale of victimisation risk is believed to be exaggerated, however [11]. Some of the reports designed to highlight the perceived risk rely on adolescent reports of agreeing to meet someone who they initially met online. This, by itself, is not necessarily risky behaviour if the person is known by others in the adolescents' social network. Very few such meetings pose an actual risk [20]. Although the frequency of predation might be lower than that publicised in some media, even small numbers of sexual victims are a concern. On the one hand, sexual predators have easier initial access to young people through the internet. On the other hand, potential victims have physical distance and a host of cybersafe practices available that, if used properly, will ensure their safety.

3.2.5 Cognitive development

Research demonstrating a direct negative effect on cognitive development is limited. Indirectly, lengthy periods spent using digital media might limit the time available to spend on study [21] and sleep. Some authors speculate that frequent use of digital media might impact cognitive style and promote "short and shifting attention" [21 p. 565]. These authors argue that when youth engage with digital media, they often multitask and rapidly switch from one task to another. One could argue, however, that attentional control and inhibitory abilities might be heightened when individuals are required to monitor and respond to multiple demands. There is correlational evidence that television viewing is associated with poorer attention [22, 23]. More recently, both television and video game exposure were found to be correlated with poorer ratings of children's attention [24]. It is important to note that these studies do not employ rigorous measures of attention, and the degree of attention deficits reported is not clinically meaningful. To date, there is no clear demonstration of a direct causal link between digital media activity and attention deficits.

3.3 Potential benefits associated with adolescent digital media use

3.3.1 Increased social connectedness and well-being

Adolescents who more frequently use digital media have greater social connections to others. Rather than computer use taking away opportunities to interact socially with friends and family, research repeatedly demonstrates that greater computer use is associated with more contact with family and friends, particularly for those already motivated to maintain social relationships. The majority of adolescents' online socialising is with people already in their social network [25]. Moreover, online communication leads to greater self-disclosure, which in turn enhances relationship quality and well-being [7, 26]. This increased candidness online leads to feelings that online friends know one's 'true self' more than would occur in face-to-face interaction [27]. In fact, when two people meet over the Internet, their liking of one another is enhanced relative to the same people meeting face-to-face [28].

3.3.2 Cognitive development

Adolescent users of digital media are encouraged to think critically [3]. Because they are more comfortable expressing their thoughts online, adolescents within a social network reflect and comment on one another's posts. Thus they are encouraged to defend their views, provide support for their comments, and reason within a safe and socially-supportive environment [29]. Because anyone with Internet access can post information online, young people also have the opportunity to learn that not everything they see, hear, or read is accurate. This is potentially a useful lesson in taking a critical stance when being exposed to new information.

3.3.3 Social development

Online interaction facilitates social development in a number of ways. It promotes an environment in which others' views and perspectives can be understood and tolerated [11], including those of cultural minorities and cultures far away. It provides an opportunity to explore and presents one's own beliefs in a socially appropriate manner within a safe context.

3.3.4 Linguistic development

Although research has not explicitly addressed this question in adolescent populations, the fact that adolescents are regularly engaging one another using written (i.e., typed) text is likely to promote language skills. Online communication is still primarily done using text, and adolescents are motivated to find interesting and effective ways to put their ideas into words. It is unclear whether future communications will continue to be mostly text-based. One advantage to text communication online is that multiple conversations can be maintained at once [30] or while completing another task (such as viewing a website).

3.3.5 Identity development

One of the key tasks of adolescent development in Western societies is to explore and reflect on a sense of identity [5, 31]. This self-definition goal is nicely mirrored in the behaviours found on social networking sites such as Facebook and MySpace. Social networking homepages are constructed by users to create a profile, or a type of online 'identity' [32]. The other identity-creating tool online is the electronic journal, or blog, which functions as an online narrative of the self. By creating these online identities, adolescents can potentially foster reflection upon who they are and how they fit into the larger social structure; they also receive reflected impressions of themselves from others within their digital social network. There is some evidence that adolescents view their online and cell phone activities as "their space" separate from the space of adults in their lives [33].

3.3.6 Health information

Both adults and adolescents use the Internet to gather health information. Best estimates are that ten years ago, over 40% of adults had accessed the Internet seeking health-related information [34]. Similar estimates have been made of adolescents' access of health-related information on the Internet [34]. Topics mentioned being sought by adolescents included diseases such as cancer, diet and nutrition, sexual health, mental health, alcohol and drug abuse, violence, and abuse. The availability of accurate information about health is of particular importance to adolescents. This group often lacks the full autonomy to seek health information from practitioners directly without parental involvement, and parental involvement might not be desired by young people in many cases. If parents are medically ignorant, or the health issue concerned is stigmatised, young people may be left with concerns that they feel powerless to address. It is also likely that accessing health information via the Internet may be the first stage towards seeking more direct adult help and involvement (i.e., visiting a medical practitioner) [35].

3.3.7 Support for marginalised youth

Although less well documented, it is likely that youth from marginalised groups might benefit more than others from digital media. Without the physical cues of ethnicity, gender, and perceptual or motor abilities, individuals believe that they have the freedom to interact through digital media without the stigmatisation or social inferences normally based on their physical characteristics. In addition, the large numbers of social groups organised through the Internet allow youths from minority groups to seek and find others like themselves for friendship and support [7]. These groups might be organised around a mental health issue, physical disability, or sexual orientation, for example. In many instances they can exert positive influences, although there is some evidence that groups organised around self-injurious behaviour might negatively influence behaviours [36].

4. What is the scale of the problem?

It is difficult to gauge the real extent of the influence of digital media use on adolescent well-being in New Zealand. Although some statistics may be similar, it cannot be assumed that New Zealand youth engage in the same technologies with the same frequency as do youth in other parts of the world. For example, text messaging appears to be more prevalent in New Zealand than the US, and group chat is popular in Germany whereas instant messaging is not. A further limitation of the available research is that technologies change and quickly become out-of-date. Chat rooms, where much of the reported sexual solicitation of youth has occurred, are less popular with youth this decade. Perhaps the popularity of social networking sites such as Facebook, and the relative ease of instant messaging through applications such as Facebook and Skype, has made chat rooms less attractive [5].

5. What does research tell us about causative factors?

There is a lack of high quality data to inform researchers and policy makers about many of the issues raised in this report. The quantity and quality of digital media-related research is improving, although much of the focus has been on problem behaviours and risks rather than more positive aspects of development [5]. What the research tells us is that adolescents behave like adolescents both online and offline. They are deeply interested in and motivated to maintain strong social networks; they desire physical and cyber space away from the influence of adults; they are more likely to focus on perceived benefits rather than risks when making decisions, and some are prone to greater risk taking.

Research that takes a developmental perspective – that includes young people and adults across a larger age span – will contribute much needed information about the potential influence of digital media during adolescence. It is unclear whether the lure of anonymity, greater social conformity, or seeking self-definition and identity are substantially different during adolescence than during later periods of adulthood.

6. Prevention, treatment and management of digital media difficulties in adolescence

Changing behaviour is seldom easy, but it is influenced by some very basic principles. Information alone is not enough to generate comprehensive change. Not only do parents and teachers need to understand how to safely use digital technologies, but young people need to be encouraged to take responsibility for the safety of themselves and their friends.

Tynes [37] recommends three strategies to help youth learn cybersafety and make safe decisions online. First, adults should maintain open and honest dialogue between themselves and youth. Research shows that girls who discuss Internet safety with teachers are less likely to agree to meet in person with a stranger encountered online [29]. Second, adults should actively help youths to protect their own privacy online. This means that adults might need to upscale their knowledge of safety measures and applications. Ideally, this help is offered in a way that encourages youth autonomy and ability to help themselves. Finally, adults should work with youth to develop exit strategies for when youth encounter unsafe or uncomfortable situations. They key point in these strategies is that the adolescent learns to do these things for her or himself.

Most researchers do not advocate restricting adolescents' access to digital media. Many, however, recommend that access to the Internet is in a shared family space rather than the young person's bedroom [5]. Many parents and their children need greater understanding of how to make themselves cybersafe. Unwanted texts, cell phone calls, and online posts to social networking sites can now be easily blocked, and most social networking sites have multiple privacy options.

Increasing adolescent knowledge alone is not an adequate intervention [38, 39]. As has been shown with the ineffectiveness of drug education programmes (such as DARE), knowledge does not necessarily lead to action. The most effective means of changing behaviour is to practice the behaviour and create a culture where that behaviour is expected. An example of effective practice in promoting healthy behaviour in youth is the "Keepin' It REAL" programme [40].

Anti-bullying programmes that are implemented across all levels of the school hierarchy can be effective means of reducing the acceptance of bullying and increasing awareness when bullying behaviour occurs. These can easily incorporate online behaviours as well as those offline.

7. Where is policy/intervention currently focused?

New Zealand is fortunate to have NetSafe, an independent, non-profit organisation specialising in educating the public about cybersafety practices. NetSafe appears to have good working relationships with the Ministry of Education, New Zealand Police, the Judiciary, and educators throughout New Zealand schools. NetSafe staff collaborate with international researchers to advance knowledge on Internet risk and risk management. Through NetSafe, all New Zealand schools have access to tools to promote safe behaviour for users of digital technology.

8. Implications for future policy

Future policy should ensure that all New Zealand children learn safe behaviours to use with digital technology. Cybersafety is an essential lifeskill.

Bullying behaviour within schools and workplaces needs to be addressed. Education alone is inadequate, but recognition of the wide range of behaviours that constitute aggression is an important beginning. A culture of intolerance for aggression within the home, school, and workplace needs to be promoted to reduce the high rate of bullying – online and offline – in New Zealand. It is also important for agencies and individuals to recognise that aggression is not limited by ethnicity, class, or gender.

Related topics not covered here, but of significant importance for young people, include how best to use digital technologies to enhance learning both within and outside of school [41], identity theft, copyright infringement, and e-commerce security.

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Chapter 10

Sexually healthy young people

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Summary

- The sexual health of young people in New Zealand is poor in terms of rates of teenage pregnancy and sexually transmitted infection.

- The aetiology of this lies in a variety of factors.

- The solution may lie more in the way we, as a society, treat young people than in any specific programmes, but there are education programmes that have been found to be successful.

- Programmes that have been evaluated and found to be helpful are mostly overseas, address multiple factors, and provide a clear message that addresses specific behaviours.

1. Introduction

The WHO definition of sexual health is: "Sexual health is a state of physical, emotional, mental, and social wellbeing in relation to sexuality; it is not merely the absence of disease, dysfunction, or infirmity." Although this tries to be a positive definition, sexual health in practice, as applied to young people, is often defined by the presence/absence of disease and being pregnant at an early age.

Concepts of sexuality are affected by culture. Some consider sexuality to be equivalent to sexual behaviour/orientation; some an expression of one's total being. For some it is life-long, for others it is limited to reproductive years or 'adulthood'. Some consider sexuality as being expressed within relationships [1]. Healthy sexuality could be defined as healthy, committed relationships, in which people feel comfortable in their identity.

All agree that sexually transmitted infection (STI) is a mark of sexual ill health, and also, that forcing sexual activity of any kind on anyone else is abusive, and that sexual intercourse should be delayed to adulthood. The problem comes with the definition of adulthood. Young women are able to reproduce and thus are biologically adults at puberty. The average age at menarche in girls is now 12 years and has been decreasing over the last 200 years when it was at an all time high during the industrial revolution. This is probably mostly influenced by nutrition as much as any other factor and it may continue to fall to

about 10 years of age, which may have been normal for our species when it first began [2, 3].

We are now learning that brain development has a second surge beginning at puberty and does not finish until much later – maybe up to 25 years. A question is raised as to whether adulthood should be said to have been reached only when cognitive development is finished. However, Steinberg and Eckersley advocate some caution in applying neuroscientific research in this area directly to the policy area [4].

A definition of adulthood in New Zealand might be helpful when determining policy about sexual behaviour. It seems that when it comes to sexual activity, Western culture is not willing to accept that puberty is 'old enough' to be involved in sexual activity, even though this age is deemed 'old enough' to be convicted of criminal behaviour. It is of course difficult to relate chronological age to a biological phenomenon such as cognitive development which has inherent biological variability. In New Zealand, chronological age is used to decide on when young people can do things and the law is used to define this. There is, however, no cultural acceptance of what constitutes adulthood [5].

Cultures throughout history have rules about sexual activity; often they are coded in religious mores. In New Zealand the law we have was written to protect young women under 16 years, so that it is illegal for young women to have sex before 16. Many cultures separate the sexes around puberty, and do not allow sex before marriage, but then marriage is early and often arranged. In most Western cultures the age at marriage and birth of the first child is getting older. In New Zealand the average age for first child is 29.9 years [6]. There is a long period of time between 12 and 30 in which young people need to learn how to control their reproduction.

2. What is the question?

The challenge for society then is how should young people be encouraged to control their sexual behaviour between biological readiness for sexual intercourse and what is deemed to be adulthood, when there is no marker for adulthood. How is a smooth transition from puberty into healthy sexual relationships defined and facilitated?

3. Why is it important for the transition from adolescence to adulthood?

Young people who have positive experiences of sex and sexuality are more likely to have positive relationships. These will usually contribute to more cohesive families which will in turn give rise to better environments for the next generation to grow up in. It has been well shown that children and young people who experience abuse of any kind, but in particular sexual and physical abuse, tend to have poor mental health and have difficulty in achieving stable relationships [7, 8].

It has also been well shown that young people under 18 who get pregnant and are unsupported do not complete their education and remain in a low socioeconomic group who may not do well as adults [9]. This means that not only do more children grow up in poverty and are in turn more likely to become pregnant early, but it also costs the taxpayer. In the US between 1991 and 2000 public costs of teen childbearing was $161 billion dollars [10].

Adolescents who can successfully control their sexual behaviour by delaying the start of sex, using condoms, and limiting their number of partners, are also less likely to be

infected by an STI. This will therefore avoid suffering of the negative consequences of infertility, ongoing pain and in the case of HIV premature death.

4. What is the scale of the problem?

In New Zealand the Youth 07 study found that 36% of students at school had ever had sexual intercourse, and this had increased only slightly from 31% in 2001 [11]. The percentage of those always using contraception, those using condoms at last intercourse and those who are same sex-attracted had not changed between surveys either. The same Youth 2000 study was undertaken with students at Alternative Education (AE) Schools in Auckland in 2001 [12]. In comparison to the high school students the percentage ever having had sexual intercourse was markedly higher (Table 10.1).

The AE students were also more likely to indulge in cigarette smoking, regular cannabis and alcohol use and be involved in violence and physical injury. They were more likely to come from a low socioeconomic background and be of Māori heritage than the high school students.

The adolescent fertility rate (births per 1,000 women aged 15-19 years) was 23.9 in 2006 and has reduced to 22.1 in 2008 as compared to 3.8 in the Netherlands. The number of abortions in New Zealand in the 11-24 years age group in 2008 was 9,576 compared to 5,776 in 1991. In the last 20 years the proportion in each age group has not changed much, with 0.5% in the 11-14 years group, 23% 15-19 years and 30% 20-24 years. The latter has always been the age group carrying the largest numbers of abortions [13].

It is fairly widely agreed that pregnancy in young women under 20, but especially under 14, is not to be encouraged because of the physiological risks during pregnancy such as low birth weight and prematurity, although risks are probably higher for older women having a first pregnancy [14-17]. The main morbidity lies in the increased risks of harm to the child because of lack of parenting skills. Where young mothers are well supported and can continue with their education they are less likely to become part of the poverty cycle. Many of the young mothers in Larkins' study and those from the Kimihia parent college talked about "falling pregnant" and it "just happening". However, once they were pregnant they became determined to be a good mother and found the experience life transforming in a positive way in spite of the challenges, when they had support [18-21].

Table 10.1. Sexual behaviours in New Zealand young people [11,12]

Sexual behaviours	Male % (95% CI)		Female % (95% CI)	
	Alternative education	Secondary schools	Alternative education	Secondary schools
Ever had sexual intercourse?	84.7‡ (± 4.8)	28.8‡ (± 6.8)	85.7‡ (± 7.4)	22.1‡ (± 5.2)
Currently sexually active?	72.9‡ (± 6.5)	18.1‡ (± 4.9)	71.4‡ (± 10.1)	14.1‡ (± 3.9)
Condom use during previous sexual intercourse?	61.5 (± 9.0)	74.9 (± 7.6)	40.4‡ (± 11.7)	59.6‡ (± 7.2)
Have had a sexually transmitted infection?	3.6 (± 3.0)	0.5 (± 0.4)	12.0‡ (± 9.8)	0.8‡ (± 0.4)
Have been pregnant or got someone pregnant?	23.6‡ (± 9.4)	2.2‡ (± 1.6)	27.3‡ (± 13.2)	3.3‡ (± 1.2)

‡ Non-overlapping confidence intervals between the AE and secondary school students

This was well illustrated by a follow up study by Barbara Collins from the Ministry of Social Development [22].

In New Zealand much has been made of the fact that we have high rates of STIs, although we do not have a reliable method of estimating national prevalence [23, 24]. There are similarly high rates in the US, Australia, UK and Canada, and much of the underdeveloped world has high rates. European countries have the lowest rates and many have tried to work out why. Some Norwegian researchers claim that much of the reason for their low teenage pregnancy and STI rates is their homogenous society, which contained little socioeconomic or cultural differences. Now that immigration is rising they wonder if their rates will remain low. All these statistics reveal that in New Zealand we are not doing too well at helping our young people control their sexual behaviour so that they remain sexually healthy [25, 26].

5. What research tells us about causative factors

The National Campaign to Prevent Teen Pregnancy in the US, which has the highest rate of teen pregnancy in the developed world, has identified many reasons for early pregnancy in the US including low socioeconomic families with low academic achievement, being the daughter or son of a mother who was pregnant as a teenager, having first sexual intercourse (SI) at an early age, not using contraception at first SI, having been sexually abused, having multiple partners, and also being involved in other high risk behaviour such as alcohol and other drug use, driving fast and being a member of a gang. The influence of society's attitudes towards gender was particularly important in boys who were more likely to prove their masculinity by having sex and being more troubled by their virginity [27]. Studies in New Zealand include a similar range of factors especially those from the two major longitudinal studies in Christchurch and Dunedin [28]. Allen in his comments on the UK national strategy to prevent teenage pregnancy suggested that the evidence they based their strategy on should have examined the evidence of longitudinal studies more carefully when developing the policy [29].

The role of **self esteem** in sexual behaviour was thought to have been important, but Boden et al and McGee and Williams have shown with a longitudinal design that self esteem as a risk factor probably has more to do with underlying family socioeconomic circumstances, family dysfunction, parental adjustment problems, exposure to child abuse and childhood behavioural adjustment [30, 31].

The effect of **single parenting** was also found to be mitigated through psycho-social, economic, and environmental contextual factors rather than the issue of being raised by one parent [32].

In many of the studies it is hard to tease out the affects of **socioeconomic, cultural and developmental factors**. Males suggests that it is the gap between rich and poor that creates many of the inequitable health outcomes especially for young women [33]. Young women suffer from the double influences of a culture that tells them that their real problem lies in their youth therefore they are to 'blame', or in the influence of their friends. In fact they suffer from the behaviour of older males who often take young women as partners, and the power imbalance that occurs in a country with a wide socioeconomic gap.

There is much debate about the **influence of alcohol and other drugs** on sexual behaviour. Studies have shown a variable effect [34]. Most agree that the disinhibiting effect of alcohol often leads to having sex, not using condoms and having numerous partners. Some maintain that young people use alcohol in order to gain the confidence to have sex,

which then is often unprotected. Studies have also linked early tobacco use to early age at first intercourse, and young people with conduct disorder and ADHD may also initiate sex early [35-37].

The **influence of the community** and in particular the media has been examined. A study in Kenya showed that teen pregnancy was linked with lack of education, lack of access to contraception and a complex interaction between the ability of parents to educate their children about healthy sexual behaviour and the cultural taboos inhibiting such discussions [38]. Smith found that living in a deprived area enhanced the effect of family deprivation resulting in earlier age of first intercourse. Similar factors have been observed in New Zealand [39].

Studies have examined the **role of the media** in influencing sexual behaviour. Chandra et al and Potera have recently found from their longitudinal study that girls exposed to high levels of sexual content on television, had a 3 times greater likelihood of becoming pregnant under 20 within the next 3 years [40, 41]. This was after controlling for all other variables, but could be mitigated if watching was supervised by a parent. Previous studies have not found such a marked affect. A recent review by Escbar-Chaves et al did not find any very generalisable studies and suggests the need for more robust research on the influence of the media on sexual behaviours [42].

An additional factor found by the Canterbury cohort study showed that **absent fathers** may be a factor in an increased risk for teenage pregnancy [43]. It is not clear why this may be, but it may be linked to earlier onset of puberty. The Otago longitudinal study also seemed to show an increased risk of teenage pregnancy when the young woman was bought up in a household without the presence of her birth father. They showed a link between childhood antisocial behaviour between 5 and 11 and early sexual debut and risky sexual behaviour. Some of this was explained by delinquent peers, and poor relationship with parents [44].

Sexual abuse is another factor that studies have found to be common in the stories of young people who are sexually active early, have multiple partners and are at increased risk of teenage pregnancy [45].

Most of these studies have been amongst heterosexual young people. The Youth '07 study figures of **homosexual youth** show that rates of STIs and mental health problems were raised amongst this group, with increased rates of suicide to as much as five times that of the heterosexual group [46].

Young people with **disability or chronic illness** still need to negotiate their developmental milestones including sexual identity, beginning of personal relationships and sexual activity. Berman et al found in their qualitative study that young people with disabilities depend heavily on their parents and healthcare professionals for information and advice [47]. There has been little research on how young people with disabilities experience their sexual development.

6. *What research tells us about prevention programmes that work*

Some of the epidemiological factors point the way towards how to intervene and prevent some of the poor sexual health, and how to ensure healthy sexual development. From the discussion of the many factors involved in the origins of good and bad sexual health above, it is obvious that prevention and early intervention programmes to promote sexual health must address multiple issues to be successful. These include developmental, family, culture, spiritual, socioeconomic, media, school, sexual abuse, alcohol and other drug use

and education. The Gatehouse Project took a whole-of-school approach and focused on relationships, connectedness to school and individual skills and knowledge at the various levels of school functioning. Outcome measures focused on mental health issues rather than sexual behaviour, but did show a small effect on improved mental health [48].

A review by Peters et al synthesised five areas that are effective for influencing behaviour in the domains of substance abuse, sexual behaviour and nutrition. These were: use of theory; addressing social influences, especially social norms; addressing cognitive-behavioural skills; training of facilitators; and multiple components. Parent involvement and a large number of school sessions were also somewhat influential [49]. Another review by Guillamos-Ramos et al found that correlations between risk behaviour domains were stronger for younger adolescents, so it may be that multiple component programmes may be more effective for this group [50].

6.1   Sex education

The more conventional approach to preventing teen pregnancy and risk behaviour is sex education in schools. There is no research that shows that sex education increases the risk of early sexual activity, despite the fears of some. One of the major differences between developed countries with low rates and those with higher rates is that they have early education which is balanced and comprehensive, easy access to sexual health services and contraception, and acceptance in the community of adolescent sexual relationships with high expectations around avoiding pregnancy. Several reviews of studies of sex education programmes have recently been published [51-53], and the features of the most effective programmes are summarised in Table 10.2.

Some studies have provided insight from young people themselves on the effect of sex education on behaviour and attitude [54-56]. Often fear of being made a fool of, and pressure to conform, have the biggest effect on behaviour. Pressure to conform comes both from within, to fulfill the need to fit in, and from without, to fulfill the need to please peers.

7. What research tells us about treatment and management programmes that work

A review of one-to-one interventions around attracting young people to services showed that this was effective in improving sexual health in the short term. They seemed to be more effective for boys, and they were better if they included a cultural component [57]. European countries with low teenage pregnancy rates have free access to health services which are focused on youth friendly environments, well trained staff, and normalising testing to overcome the fear of stigma [58]. A recent review of 'One Stop Shops/Community Youth Health Centres' in New Zealand has shown that providing as many health and development services as possible on one site is an effective approach for attracting young people to be involved in early intervention [59].

Auslander et al outline what individual practitioners can do in their review and suggest that continuity of care to form trusting relationships between young people and health care practitioners is essential in assisting with information on sexually healthy development [60].

Postnatal visiting to help to ameliorate the problems teen parents have with their new babies and to help to influence breast feeding and vaccination were not helpful except to improve the use of contraception [61]. However, a family support programme in

Table 10.2. Features of the most effective school sex education programmes

As part of the process of developing the curriculum/programme:

- Involve multiple people with expertise in theory, research, and sex and STD/HIV education to develop the curriculum

- Assess relevant needs and assets of the target group

- Use a logic model approach that specifies the health goals, the types of behaviour affecting those goals, the risk and protective factors affecting those types of behaviour, and activities to change those risk and protective factors at multiple levels

- Design activities consistent with community values and available resources (e.g., staff time, staff skills, facility space and supplies)

- Pilot-test the program

The content of the curriculum/programme should:

- Focus on clear health goals—the prevention of STD/HIV, pregnancy, or both

- Focus narrowly on specific types of behaviour leading to these health goals (e.g., abstaining from sex or using condoms or other contraceptives), give clear messages about these types of behaviour, and address situations that might lead to them and how to encourage them

- Address sexual psychosocial risk and protective factors that affect sexual behaviour (e.g., knowledge, perceived risks, values, attitudes, perceived norms, and self-efficacy) and change them using activities and teaching methodologies

- Create a safe social environment for young people to participate

- Include multiple activities to change each of the targeted risk and protective factors

- Employ instructionally sound teaching methods that actively involve participants, that help them personalise the information, and that are designed to change the targeted risk and protective factors

- Employ activities, instructional methods, and behavioural messages that are appropriate to the teens' culture, developmental age, and sexual experience

- Cover topics in a logical sequence

The process of implementing the curriculum/programme should:

- Secure support from appropriate authorities, such as Ministries of Health, Education, school trust boards, and community organisations

- Select educators with desired characteristics (whenever possible), train them, and provide monitoring, supervision, and support

- If needed, implement activities to recruit and retain teens and overcome barriers to their involvement (e.g. publicise the program, offer food or obtain consent)

- Implement virtually all activities with reasonable fidelity

Christchurch, known as Early Start, was shown to make good improvements in the well being of children in high needs families [62].

8. Interventions for which evidence of efficacy is limited or lacking

8.1 Single focus education

Most seem to be agreed that a standard biology lesson as an approach to education is not effective. Many young people in a variety of studies have been reported as feeling that their sex education is inadequate and too focused on reducing negative outcomes rather than teaching them how to be sexually healthy. Aten et al have suggested that sex education is ineffective if delivered after sexual activity had begun [63].

It may be that the messenger is more important than the message and Bleakely et al found that parents and grandparents were more effective than teachers or peers [64]. A few studies have looked at increasing the skills and knowledge of adults and parents but the research has not really shown that they have any lasting effects [65]. It has been

suggested that this approach to upskill parents and whanau may be particularly effective for Māori students, however this has not been assessed [66]. Variations on classroom education have been tried including peer education to try to overcome peer pressure. There does not seem to be any good evidence that these are effective apart from a good effect on the peer educators themselves. Stephenson et al found peer-led education to be only marginally effective and then only for girls. He suggested that the young people might benefit from single sex education groups [67].

8.2 Abstinence

Abstinence has been widely promoted in the US but most research now has found that it is not a useful approach, especially when it is the only approach [68]. Masters et al showed that talking to young people about abstinence did not increase the likelihood of abstaining from sex [69]. A programme involving teens looking after toddlers has been trialled in the UK and initial findings show some limited success. There has been no very convincing evidence that using drama is effective but there have been calls for more research on this.

8.3 Youth development programmes

Results from youth development programmes that address sexual behaviours have not been as effective as was hoped. A multi-dimensional programme including careers counselling, recreation, education and sexual health services in the US (the Carreras programme), claimed a delay in first sexual intercourse, increased use of contraception and decrease in pregnancy rates but this was not effective with boys. This has not been able to be reproduced widely [70]. In Britain an attempt was made to evaluate a similar youth development programme but no evidence was found for any difference between the intervention and control groups. It may be that the aims were not specific enough or that control groups were not sufficiently similar to the intervention groups [71].

It is not known which parts of a multi-dimensional programme are essential and which are not. Pinkleton et al found that teaching young people to be critical of the media messages they receive about sex was helpful in sexual decision making [72].

9. Where is policy/intervention currently focused?

Currently there is little policy focus on sexual and reproductive or youth health and very little investment. Schools provide sexuality education in an inconsistent manner and although the health curriculum is a guide it is only delivered for a limited number of sessions and most programmes delivered do not carry the hallmarks of effective education that the research has shown to be necessary.

10. Gaps – directions for future research

One of the major gaps in research in New Zealand is the effect of culture on youth sexual health as different from the effect of low socioeconomic status. A second gap is that the use of the youth development approach, with its emphasis on balancing decreasing risk factors and increasing resilience or protective factors, has not been well implemented or evaluated. Thirdly the importance of good mental health in young people including the use of alcohol and other drugs and its effect on good sexual health needs to be included in future research and policy.

11. Implications for future policy

With a longer gap between biological and social adulthood, should policy change to acknowledge that young people are sexual beings?

Policy may need to recommend that giving young people the knowledge and tools to be able to keep themselves sexually safe is a priority. Based on research that has been done, this means:

- help for low socioeconomic families;
- early and sequential, holistic sexuality education of the sort that has been shown to be effective, throughout schooling, that provide a clear message for specific behaviours;
- free access to services providing contraception and screening for infections;
- youth friendly, specifically trained clinical staff that provide accessible and appropriate services, and education that is interactive and personalised;
- ensuring that schools are more effective at engaging young people;
- good access to career and employment advice; and
- free access to primary mental health care for young people.

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Chapter 11

Adolescent development for Māori

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Summary

- Māori are young, diverse and culturally eclectic. Māori have a different pattern of childbirth and child-rearing.

- Participation rates in pre- and post-compulsory education are much lower than for non-Māori, and risk-taking behaviours result in compromised health outcomes.

- Whānau structures have strengths, supports and resiliency features which are advantageous for adolescent development, yet access to whānau is not universal.

- Māori concepts of adolescence are different than mainstream; the terms taiohi, taitamariki and rangatahi approximate but do not match the term 'adolescent'.

- Interventions to support development must be culturally responsive, yet aggressively managed and monitored.

1. Introduction

(At least) Three models explaining differential (and poorer) outcomes for Māori exist:

- a **determinants** model – whereby differences in the distribution of underlying risk factors or risk markers are reflected/reproduced in health, education and developmental outcomes (often criticised as a social deficit model);

- a **cultural deficit/cultural difference** model where the incongruence between Māori cultural norms and the mainstream is seen as a cause of poorer outcomes (sometimes included in a determinants model); and

- a **colonisation and/or racism model** whereby historical and, some would argue, on-going insults are believed to manifest in poorer contemporary outcomes requiring major organisational and system change to address.

While there is much scholarship around these issues, including rich descriptive research, there is little research which demonstrates the design and implementation of effective interventions.

Approaches for intervention and contemporary developments typically fall into one of two models:

- a **Māori Advancement** model – whereby there is specific inclusion of Māori philosophies, responsive policies and practices within the general or universal provision of services in New Zealand (closing the gaps, reducing inequalities); or

- a **Māori Development** model – based on Māori-specific principles and a high degree of Māori control, culturally-centric and generally acknowledging the historical impacts of colonisation, urbanisation and institutional bias (Kohanga Reo, Matua Whangai, Kura Kaupapa Māori)

Both models acknowledge the fundamental desire by Māori to continue to live and flourish in Aotearoa/New Zealand as Māori.

This brief paper summarises three themes:

- a description of the position of Māori adolescents;

- the major theories which account for differential and poorer outcomes for Māori (and other indigenous peoples); and

- the broad approaches within which progress *for* Māori, or *by* Māori, or on Māori *terms*, is best thought to be made.

2. Māori adolescents – taiohi, taitamariki and rangatahi Māori

Several terms approximate to the Western definition of 'adolescent': taiohi[1], taitamariki[2] and rangatahi[3] Māori [1]. None of these terms exactly match the western definition, and imprecise use of non-equivalent Māori words can cause misinterpretation.

Māori are proportionately young, the median age was 23 years in 2006 [2] with 35% of the Māori population aged 15 years or younger. For Māori the fertility rate has fallen dramatically from historical rates of over 6 per woman in the 1960s to a rate of 2.7 per woman in 2008 [3] with the median age of Māori mothers being 25 years. These data compare with a fertility rate of 1.96 and median age of 29 years for all New Zealand women [3]. The major change in Māori fertility is that fewer older Māori women are having babies, while first time Māori mothers are significantly younger than non-Māori mothers. This relatively youthful profile for Māori mothers means that the types of support services and advice needed is markedly different than for older, non-Māori mothers. Māori families, whānau and households are bigger, on average.

Social stratification is associated with diverse outcomes, and stratification by ethnicity tends to follow this trend, with outcomes for Māori being systematically poorer than for comparable non-Māori (non-Pasifika) populations in New Zealand [4, 5]. These trends are systematic, persistent and increasingly diverse (Table 11.1).

Most analyses suggest that similar drivers of poorer and diverse outcomes exist for Māori as for other populations [6]. Yet most analyses typically still identify a residual effect [7-9] (the so-called Māori effect) which may not be accounted for by traditional markers of risk.

Confounding many analyses are the co-occurrence of risk factors and/or risk markers within the Māori population [10]. Low socio-economic circumstances, poorer parental education, greater unemployment, geographic location, larger families, single parent households, reliance on rental accommodation and many other factors aggregate within Māori communities.

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[1] Youth.

[2] Young person, male or female: taitama = young man, taitamahine = young woman.

[3] Literally 'fishing net', popularly used to mean young people.

Table 11.1. Educational, health and justice outcomes for young Māori

Educational development	Health development	Youth justice
In general Māori educational outcomes lag behind those of other New Zealanders. The overall academic achievement levels of Māori students is low. Rates of suspension from school are three times higher, Māori are over-represented in special education programmes for behavioural issues, enrol in pre-school programmes in lower proportions, leave school earlier with fewer qualifications and enrol in tertiary education in lower proportions [11].	Almost every indicator of health shows disparities for Māori in comparison with non-Māori New Zealanders. At a gross level, life expectancy shows a significant gap of 6-8 years, and this gap has persisted for some decades (although life expectancy has increased in absolute terms for both Māori and non-Māori). Contributions to this gap are made across the lifecourse, and child and adolescent development in many ways determines the ultimate pathway.	Māori youth offenders make up around 50% of all youth offenders but in some Youth Courts the figure is as high as 80% or 90%—despite Māori being only about a quarter of the New Zealand population under 17 years of age [12].
Te Kohanga Reo and Māori immersion mainstream education are both well established in New Zealand. Current publicly available evaluations of the outcomes from a broad range of such initiatives provide little indication of the success factors or challenges.	For adolescent Māori poorer outcomes are associated with risk taking behaviours. Injuries, teen pregnancy, youth suicide, mental health conditions are each areas of concern. Earlier, unsupported parenthood can result in the transmission of disadvantage to the next generation.	Young Māori are more likely than other young New Zealanders to receive severe outcomes such as orders for supervision either in the community or a youth justice residence. Researchers concluded these more severe outcomes were due to "increased vigilance" by the public and the police with regard to Māori youth. Further, Māori youth are more likely to be dealt with in the Youth Court, where more severe sentences are meted out, than by Family Group Conference [13]. These more severe outcomes may result from Māori being brought to the attention of the youth justice system more frequently.

Māori ethnicity may be little more than a proxy for aggregated risk. Yet, precise measurement of outcomes at a population level is fraught with difficulty as categories for ethnicity are hard to define and to reproduce [14]. Changes over time may reflect measurement changes rather than changes in the outcomes of interest [15].

3. Diverse Māori realities (Ngā matatini Māori)

Māori experience diverse realities [16] and are increasingly culturally eclectic. Fifty years ago the degree of homogeneity in the Māori population was greater than in 2010, and 'Māori' was a convenient proxy measure of disadvantage.

The Māori cultural renaissance (since the 1980s) has been important for many, but there is far from universal (Māori) access to these developments. Variable access to Te Ao Māori (the Māori world) may well result in variable outcomes. Māori resources include financial, social and cultural resources. Access to the institutions of the Māori world – such as Māori language, Māori culture, marae, whānau, hapū and iwi and Māori-medium education – has improved over recent decades, yet again universal access is far from realised for many. However most Māori parents are strongly supportive of increased access to Te Ao Māori for their children [17].

Many research studies have sought to quantify and qualify the characteristics of the Māori population which are associated with a range of outcomes, both positive and negative [10]. Researchers frequently identify associations between cultural identity, socioeconomic disadvantage and educational and health outcomes. Studies have shown that students whose ethnic identification is Māori have lower levels of educational achievement when compared to non-Māori. In addition, those of Māori ethnic identification are typically

Table 11.2. Models attempting to explain patterns of disadvantage for Māori

Determinants model	Cultural-deficit cultural-difference model	Colonisation/racism model
Social determinants are the economic and social conditions under which people live which determine their health and wellbeing. Virtually all major diseases are primarily determined by a network of interacting exposures that increase or decrease the risk for the disease. Social determinants [of health] are the primary determinants of whether individuals stay healthy or become ill. Social determinants also determine the extent to which a person possesses the physical, social, and personal resources to identify and achieve personal aspirations, satisfy needs, and cope with the environment. Social determinants are about the quantity and quality of a variety of resources that a society makes available to its members.	The **cultural deficit** model, with its related ethnic stereotypes in the media and in professional environments, remains the "hidden theory" of choice at many primary and secondary schools, teachers' colleges, University education departments, and settings where the topic of Māori educational inequality is discussed. The **cultural difference** theory is that the social organisation, learning formats and expectations, communication patterns, and sociolinguistic environment of schools are incongruent with the cultural patterns of Māori, and therefore limit the opportunities for Māori student success.	Still continuing today, colonisation historically has followed standard processes whereby control over spirituality, land, law, language and education, health and family structures, and finally culture itself pass from the indigenous people to the colonisers [19]. The outcome for Māori has been poor health, social disruption, low educational achievement, and suppression of culture, language and spirit. Three forms of racism underpin colonisation: **personal racism**, where an individual's negative stereotypes and attitudes towards other racial groups cause him or her to discriminate against those groups; **institutionalised racism** or structural racism, where the policies and practices of organisations deny members from an oppressed group access to resources and power; and **ethnocentrism** or cultural racism, where the values, beliefs and ideas that are embedded in social representations endorse the superiority of one group over the other [20].

exposed to significantly greater levels of socioeconomic disadvantage in childhood. When the analysis controls for socioeconomic factors the associations between cultural identity and educational outcomes reduce to statistical non-significance suggesting that educational underachievement amongst Māori can be largely explained by disparities in socioeconomic status during childhood [18].

Some features of the Māori population which are thought to drive disparity are **not** modifiable, such as the more youthful profile of Māori or larger Māori families/whānau. Further, some features cluster within the Māori population and while these are characteristic of Māori they are not defining features of Māori people.

4. Explaining differential (poorer) outcomes

(At least) three major models are theorised, each attempting to explain the patterns of disadvantage which exist, and persist, for Māori (Table 11.2).

5. Māori and whānau development

Since the early 1980s, Māori development has been seen as a preferred pathway to address the poorer and differential outcomes for Māori. Māori development cannot be a memorial to the past, it must embrace contemporary methods and aspirations. Current strategies

have emphasised Whānau Ora [21, 22] as a priority pathway to support adolescent (and other) development, theorising benefits for both the collective and the individual members. A current government strategy [23] endorses the following key elements:

- **Whānau action and engagement:** an environment will be created where whānau strengths are endorsed, whānau ownership of solutions and actions is encouraged, and partnerships between whānau and providers are the norm. Whānau should have the opportunity to extend their own resources and expertise while also addressing the needs of individual members.
- **Whānau-centred design and delivery of services:** the design and delivery of services will place whānau at the centre and build on the strengths and capabilities already present in whānau. Building whānau capability to prevent crises, manage problems, and invest in their futures, should underpin whānau interventions.

When emphasising Māori collectives the whānau [21, 23-29] is considered by many to be the practical expression of collectivity, having withstood the effects of both colonisation and urbanisation. Yet while all Māori are members of whānau by definition, access to whānau is not universally enjoyed by all, and there is a strong diversity of whānau types and abilities to support or cope.

6. Contemporary Māori orthodoxy

Many Māori scholars have written on the subject of differential Māori outcomes and their analyses include the following features (see Table 11.3):

- criticism of a *deficit model*, whereby deficits in the individual or their environment explain differences in outcomes, and the associated *deficit stereotyping* whereby poorer outcomes are preferentially explained by underlying deficits and other causes are not investigated [5, 11];
- support of culturally relevant and by Māori for Māori approaches where synergies between the underlying cultural philosophies and members of that culture are emphasised;
- support for a Kaupapa Māori [30, 31] approach – where solutions are 'located' within Māori ways of knowing;
- acknowledgement of the diverse realities of contemporary Māori – cultural eclecticism and choice for Māori and whānau; and
- colonisation and racism are prominent in Māori explanations for disparities but have received scant attention for official monitoring. In a society that protects against racism by law, there may be a high level of denial that ethnicity is important or indeed that racism exists [32]. Decolonisation strategies are also seen as fundamental to ensuring progress.

7. Main-streaming and Māori-streaming

While opportunities exist for immersion Māori language education, through Kura Kaupapa Māori and bilingual units, the majority of rangatahi are educated through mainstream schools. In Kura, any interventions which might be imported are necessarily translated in language and cultural terms. However, in mainstream settings, exotic interventions can be imported without a sense of cultural translation in a New Zealand sense, let alone in a Māori sense. Care must be taken when introducing interventions to ensure culturally

Table 11.3. Approaches to address differential outcomes for Māori

Māori advancement [33-35]	Māori development [33-35]	Decolonisation and Māori development
This approach accepts a determinants model as fundamental and attempts to reduce inequities in social determinants. Formal government programmes such as 'Closing the Gaps', 'Reducing Inequalities' and addressing the needs of 'vulnerable' populations all fall under this umbrella. Criticised by some as being a colour-blind approach which yields too much to dominant or majority groups.	This approach is premised on the idea that identifying and progressing a Māori-specific agenda, without particular reference to any comparison group (no concept of 'gap'), is sufficient rationale for action. A high degree of Māori control with programmes located within a Māori worldview are key elements. Māori practitioners and Māori cultural practices are key tools to development.	Sometimes also known as Kaupapa Māori, this approach relies on leveraging Māori ways of knowing and doing. It privileges Māori philosophy, ethics [36] and pedagogy. A necessary element is an acknowledgement of the impact of colonisation and, further, an approach which deconstructs the coloniser's worldview. Considered politically extreme by some, this approach demands fundamental organisational reform as a prerequisite.

responsive implementation. Further, where interventions are untested in a Māori-immersion or a mainstream setting for Māori, monitoring and evaluation must occur at the same time as implementation. There should be aggressive management and monitoring of all interventions.

The environment is critical for rangatahi development, culturally relevant interventions are strongly indicated [37-40] and culturally dissonant learning environments should be identified and eliminated [41, 42].

8. Conclusion

Most Māori are born healthy but into environments with a greater distribution of known risk factors for poor outcomes. While there is much descriptive research on outcomes for Māori and Māori adolescents, evidence for effective interventions is scant, with few robustly designed trials for education, health or social development initiatives. Further, many statistical analyses present simplistic explanations to describe the observed patterns [43].

There are many models, theories and hypotheses which attempt to explain differential development for indigenous peoples. And the likelihood is that some combination of these theories operate at various times and across the population. Three different developmental models have emerged, yet while there is much rigorous assertion [44] there is a scant literature on effective interventions in education, health, justice or social development.

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Chapter 12

Pasifika child and youth well-being: roots and wings

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Summary

- Gaining a far greater understanding of resiliency factors is an important part of the scientific endeavour aimed at improving social policy formulation. Resiliency as individuals and resiliency as families and communities should therefore feature as a central focus in the scientific literature on Pacific peoples [1]. Investment in resiliency-oriented research on early, middle and later adolescence of Pacific youth is needed to clearly identify the psychosocial strengths and socio-cultural factors which decrease harms and increase pro-social behaviours and social capital. Investment strategies that evaluate Pasifika initiatives are needed.

- Culturally appropriate evaluations [2] of programmes and services for Pasifika children, parents and youth are lacking. There are significant implications for policy formulation if Pasifika child and youth research is not seen as a priority area for investment. Pasifika children and youth are too precious to be left to the political whim or 'tacit' expertise in policy formulation and policy implementation processes.

- In the last 15 years an increasing body of social science and other literature on Pacific peoples has emerged. Although Pacific focused research is growing, there is still a considerable paucity of psychosocial research in many specific areas, such as resiliency and positive youth development from a Pasifika perspective despite consistent Pacific policy exhorting the importance of strong and vibrant Pacific families [3] and positive youth development [4]. The emerging literature identifies intergenerational challenges for Pacific young people born and raised in New Zealand who are part of the contemporary youth culture. The literature clearly identifies that developing a secure identity is much broader than just ethnic association. Further, many first, second and third generation Pasifika peoples are also of mixed-ethnic heritage.

- The research landscape on child and adolescent development and Pacific peoples in New Zealand is sparse, from the point of view of a paucity of randomised controlled trials (RCTs). Nevertheless we do have specific Pacific policy in New Zealand which is informed by the emerging literature. This includes significant epidemiological information which raises considerable concern about mental health and general health

disparities. Access to and quality of services for Pasifika people are considered a major part of the challenges to achieving optimal health and wellbeing.

- The Pacific population is youthful with 38% (100,344 people) aged under 15 years. The median age is 21.1 years compared to 35.9 years for the New Zealand population overall. In 15–20 years 1 in 5 New Zealand children will be Pacific. In the younger (15–19 years) workforce, Pacific people will be 1 in 8. Pasifika people tend to have lower household incomes than European New Zealanders, are working in lower paid jobs [5], live in more crowded home environments, and many face cultural and systemic barriers to access and utilisation of services [6, 7]. Intergenerational and transgenerational dynamics continue to raise some concern for the psychosocial development of New Zealand born and/or raised first-, second- and third-generation Pacific children and young people [8]. Compared to European New Zealanders, Pacific peoples' mental health and general health [9] are much poorer [10].

- More Pacific peoples are born in New Zealand than overseas, which means that Pacific peoples can no longer be considered an immigrant population. The majority of Pasifika children and young people share a similar demographic profile, with higher proportions living in areas of relative socioeconomic deprivation. Pacific babies are much more likely to be born in NZ Deprivation Decile 8–10 areas.

- The population ethnic classification literature identifies more than 20 distinctive ethnicities in New Zealand.[1] Statistics New Zealand collects information on six groups: Cook Islands, Niue, Tokelau, Samoa, Tonga, and Fiji. Since the late 1990s, Pacific research and Pacific policy have consistently commented on the importance of considering the heterogeneity of Pacific peoples[2] in New Zealand [11-15]. Anae et al. [11, p. 7] write:

  "There is no generic 'Pacific community' but rather Pacific peoples who align themselves variously, and at different times, along ethnic, geographic, church, family, school, age/gender-based, youth/elders, island-born/NZ-born occupational lines, or a mix of these. Therefore it is important that these various contexts of 'Pacific communities' are clearly defined and demarcated in the research process."

- Specific focus on cross-cultural contexts and intergenerational issues is needed to identify the strengths [16] and also particular challenges and risks which impact on individual psycho-social wellbeing and enhance family well-being. The Pacific Island Family study [17] provides valuable insight into parenting styles, nurturance and discipline across cultures and suggests acculturation theory [18] is a useful framework for considering the diverse family structures and social dynamics that influence families who have immigrated to New Zealand.

- Intergenerational and transgenerational dynamics continue to raise some concern for the psychosocial development of New Zealand-born and/or raised first-, second- and third-generation Pacific children and young people [8, 19]. Gaining a sense of belonging is about much more than ethnic affiliation, particularly in a pluralistic multi-

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[1] There is discrepancy in the literature on the exact 'number' of different ethnic groups. The Pacific Health Chart Book 2004, Tupu ola moui suggests the Pacific population comprises more than 20 different ethnic communities. The Ministry of Pacific Island Affairs suggests 13 different cultures and language groups are represented (http://www.minpac.govt.nz/pacific-peoples-in-new-zealand/).

[2] The term 'Pacific peoples' (implying ethnic plurality) is preferred in this chapter. Statistics New Zealand uses the term 'Pacific people'.

cultural social networking environment. There is greater interest in critiquing cultural uniqueness and ubiquity which has begun to be explored in the development of clinical and therapeutic research on cultural diversity and competency. However, much of this literature only alludes to Pasifika youth development in generalist terms.

- There are some valuable insights in the limited research available that parenting styles for those born and raised in New Zealand is different from those of their parents in the Pacific Islands [17]. Nurturance and discipline appear different across diverse Pacific cultural groups among Island-born parents. In the late 1990s concern over disciplinarian practices became more evident in emerging research on domestic violence among Pasifika peoples. Parenting styles and programmes, particularly in the social work literature, referred to three styles: authoritarian, authoritative and neglectful. Authoritarian styles were often identified by first-generation New Zealand-born as their experience as children growing up [17]. In cultures where respectful behaviour and 'obedience' to elders is highly valued, changing some communication styles presents particular challenges. New Zealand Europeans are perceived to be too liberal and Pacific Islanders too authoritarian. The complex issues around appropriate discipline have raised considerable debate in Pacific community settings. Ensuring that checks and balances are in place between what parents perceive is 'good' for their children and where the state should intervene in cases of harsh domestic violence still requires considerable effort.

- Pasifika educators have only recently become involved in parent education programmes such as Incredible Years which aim to improve parent-child interaction [17]. Given the high rate of young Pasifika pregnancies, programmes which are cognisant of New Zealand-born and raised family and intergenerational dynamics are needed. In short, parenting programmes, like other services, should be culturally responsive.

- There are several common themes in the Pacific research literature which can guide future research and policy formulation. This includes a common emphasis on a bio-psycho-social-spiritual worldview [6, 20-23, 36, 42] and a congruence of pro-social values which are articulated within Pacific cultural competency frameworks [23-25]. These are underpinned by 'perspective'-based research [25] and consultation processes involving Pacific health professionals and consumers/tangata whaiora, patients, clients [23]. The term bio-psycho-social-cultural is sometimes used in the literature with a clear understanding that culture is implicitly inclusive of spirituality within Pasifika contexts [26].

- Pacific Cultural Competency frameworks have been developed in recent years in the health sector [20]. These all emphasise holistic paradigms as underpinning best practice [21]. These have been developed to address various inadequacies in the provision of services to Pasifika peoples. The workforce intention has largely been to improve competencies within specific professions and also improve organisational responsiveness. Barriers to access and utilisation of health services [19] have been a perennial concern in health policy for Pasifika peoples and require continued effort to ensure quality of care is provided [43].

- Teuila Percival and Elizabeth Craig [6] speaking from an integrated health perspective comment that:

    "Effective and sustained changes for Pacific children and young people will also only be realised if their families, extended families, caregivers and respective communities

are an integral part of the mix. Collective ownership will ensure optimum care and responsibility for the wellbeing of this important group. The ongoing advocacy and support of Pacific leaders, health professionals, and those working with Pacific children and young people at the community, District Health Board and Government Ministry level is also critical, if we are to achieve the shared vision of every Pacific child and young person in New Zealand growing up to reach their full potential."

The same could be said for wider public sector responsiveness to Pasifika peoples. The policy rhetoric of whole-of-government approaches affirms the ideal above.

1. Introduction

The very act of living presents people with mental, physical, emotional, and 'spiritual' challenges and risks. Successfully learning how to manage these challenges is a developmental process which is more likely to produce positive outcomes when the right kinds of supports are in place. This discussion is premised on an 'ideal' that the transition into adulthood ought to be one which is filled with character building, competency enhancing, and emotionally enriching experiences. Another reality underpins this ideal – problems and suffering are built into the experience. Besides the physiological transitions over the lifespan, personal growth and emotional development includes gaining wisdom, experiencing failures and coping with stressors from external circumstances. This discussion will be a broad brush stroke commentary on the dynamic psycho-social landscape focused on Pacific peoples' child and youth development in Aotearoa New Zealand. It is premised on the overwhelming affirmation in the Pasifika literature concerning beliefs about the efficacy of holistic paradigms and practice.

The discussion draws from an emerging and multidisciplinary literature on Pasifika health and wellbeing. The discussion lightly traverses the main epidemiological data on Pacific peoples. Those data are not presented here in detail and the reader is advised to refer to references for more detailed information [6, 10, 27-29]. The 'problem' areas are now well captured in epidemiological data.

A far greater understanding of resiliency factors is an important part of the scientific endeavour aimed at improving social policy formulation. Resiliency as individuals and resiliency as families and communities should therefore feature as a central focus in the scientific literature on Pacific peoples. As yet it does not. We do however know there are significant problems from epidemiological data and other social science literature to address. Some of this is briefly identified to present the scale of concern. Karlo Mila-Schaaf's comments in the Ministry of Health 2008 report *The health of Pacific children and young people in New Zealand* are pertinent:

"In broad terms, the findings from this report reinforce that for Pacific young people, positive participation in education and employment is connected to health and wellbeing. The findings suggest that strengthening educational and employment outcomes for Pacific young people may be valid pathways (or viable medium to long-term strategies) towards improving health outcomes. This potentially lends support to unconventionally holistic and radically intersectoral approaches to improving health outcomes for Pacific young people. Exploration of intersectoral relationships (and solutions) is particularly compelling in a context whereby Pacific health disparities parallel considerable socio-economic, educational and employment inequities."

2. What are the questions?

How do Pasifika parents give their children 'roots and wings'? Roots in their sense of belonging, psychosocial anchors to weather the vicissitudes of difficult circumstances, and wings in their personal aspirations and skill development for life. What factors improve the likelihood that children and young people and families will thrive (not just survive) in the current social milieu? What does nurturance and discipline look like for diverse Pacific cultures? Why do the majority of Pasifika peoples appear to not experience severe conduct problems? How do we intervene in culturally appropriate and effective ways with the minority who do? What are the protective factors in Pasifika communities that build social competency and social capital? How are the myriad of social influences on Pasifika families, children, young people shaping and influencing 'identity' and development? What are the resiliency and protective factors which contribute to young Pacific peoples' experience of growing up well in New Zealand in relative social-economic disadvantage and within wider social environment that has significantly changed from that of their parents? How are social networking technologies impacting on Pasifika young peoples' psychosocial wellbeing? These fundamental questions are confounded by a paucity of robust research [30].

It is a commonly expressed aspiration in the Pacific policy literature that Pacific peoples desire in the broadest sense what other New Zealanders do, namely 'a good life' over the lifespan. This does not imply a life without emotional and mental challenges. It does imply providing the social and environmental conditions which are more likely to influence positive psychosocial development. In developmental terms it means strengthening resilience, enhancing social competence, emotional intelligence and self-control, and supporting families to provide the kind of nurturing and discipline, guidance and wisdom which is the intention of strong, vibrant, family and positive youth development policy [31]. There is general agreement across the youth development literature [16] that psychosocial interventions should aim to provide youth with:

- a sense of contributing something of value to society;
- a feeling of connectedness to others and to society;
- a belief that they have choices about their future; and
- a feeling of being positive and comfortable with their own identity.

The ubiquity of the above four assertions for Pasifika peoples is supported in the literature. Over the last decade in particular, Pacific social policy has generally exhorted two overarching objectives: (1) strengthening Pacific families in order to mitigate the risks often associated with socio-economic disadvantage and potential conduct problems; and (2) prevention programmes/strategies and interventions should be designed and delivered with a holistic worldview underpinning whatever models of care are being implemented. Pacific policy themes have revolved around notions of self-determination, by Pacific for Pacific, and aspirational social themes of building leadership and prosperity and of strengthening partnerships by "cultivating an ethos fostering industry, achievement, equity, unity and all that leads to social, cultural and spiritual wellbeing" [3].

A Ministry of Health [7] paper on Pacific youth reports that:

"Pacific youth face more challenges to achieving and maintaining good health and wellbeing than most other young New Zealanders. The majority demonstrate considerable resiliency and where possible the health system should be looking to support and strengthen protective factors for all young Pacific people. Continuing to address risk factors and develop effective interventions for Pacific youth at risk of

poor health outcomes needs to be considered a worthwhile investment in the future of the nation."

The report also notes, citing Watson [32], that in the field of youth health:

"The most significant and problematic youth health issues are behavioural. These concerning behaviours evolve from a complex interplay of bio-psycho-social and cultural factors within a particular developmental context."

The evidence is clear that multi-factorial issues impact on the degree of severity of problems experienced during infancy, childhood and adolescence including socio-economic status and 'social class and social capital'. In Chapter 4 of this report, Fergusson et al. comment:

"There is a substantial body of research which shows that the nature and quality of the child's family environment plays an important role in the development and maintenance of conduct problems. In particular, children reared in homes characterised by multiple sources of adversity including family violence, child abuse, inconsistent discipline practices, multiple changes of parents and similar factors emerge as being at substantially increased risks of developing significant levels of conduct problems."

And the chapter points outs:

"... conduct problems are the end point of an accumulation of factors that combine to encourage and sustain the development of antisocial behaviours."

However, it appears the majority of Pacific young people do not experience severe conduct problems but do live in economically disadvantaged circumstances. We do not have enough research on the prevalence of conduct problems among Pasifika peoples to state with confidence that this is actually the case. Nevertheless, it suggests that strength-based and resiliency-oriented research is needed on the psycho-social-cultural dynamics which significantly influence this. To take a leaf from the field of positive psychology research [33-35], robust future Pacific child and adolescent research should focus on both 'alleviating suffering and increasing happiness' [36]. Seligman et al. [35, p. 410] describe Positive Psychology as:

"[...] an umbrella term for the study of positive emotions, positive character traits, and enabling institutions. Research findings from positive psychology are intended to supplement, not remotely to replace, what is known about human suffering, weakness, and disorder. The intent is to have a more complete and balanced scientific understanding of the human experience – the peaks, the valleys, and everything in between."

What may be particularly fruitful for Pasifika resiliency-oriented research is Positive Psychology's construction and validation of character strengths. The list of character strengths is congruent [35] with pro-social values education and expands the articulation of value/virtues which are implicit in Pasifika social values. A 'good life' is, after all, made up of quality relationships which are not possible without social competence, self-control and emotional intelligence. Ken Ginsberg [37], an associate professor of pediatrics at the University of Pennsylvania School of Medicine, captures the sentiment in the title of his book *A parent's guide to building resilience in children and teens: giving your child roots and wings*. The quality and nature of Pasifika parents' relationship with their children and young people has received very little research attention. Ginsberg suggests that positive youth development is about competence, confidence, connection, character, contribution, coping, and control. For him, as with many others in the positive youth development field, several desirable outcomes for young people would include the competency to:

Table 12.1. Developmental domains

Recreational activity domain	Therapeutic domain

• Relationship building activities: sports, community projects
• 'Team culture' activities
• Fun and 'challenging' components of programme (challenge/support)
• Positive use of leisure time-sports etc.
• Local community involvement
• Social competency development
	(Healing dimension)
	  • Brief interventions
	  • Needs assessment/screening and/or comprehensive assessment
	  • Counselling
	  • Whānau involvement in solutions to identified problem areas
	  • Physical health (youth health checks etc.)

Educational domain	**Motivational domain**

(Insight and cognitive competency development)
  • Knowledge – cognitive skill
  • Age-appropriate goal setting
  • Working with young people and families to set goals together
  • Tools (self-awareness) communication skills
  • Vocational values education
	(Insight – meaningful engagement)
	  • Inspirational speakers and role models, mentors
	  • Personal values exploration
	  • Encouraging self efficacy and self control
	  • Identifying personal strengths (as well as limitations)
	  • Leadership through character development
	  • Age-appropriate goal setting

- make wise decisions;
- recognise and build on their natural strengths;
- deal effectively with stress;
- foster hope and optimism;
- develop skills to navigate a complex world;
- avoid risky behaviours; and
- take care of their emotions and their bodies.

Most youth prevention and intervention services and programmes will assert they address some area within four developmental domains shown in Table 12.1.

2.1   Evaluation

Unfortunately, there is a dearth of evaluation information on services and programmes working with Pasifika youth. This does not mean that interventions are not effective. It does however mean the formal validation of effectiveness is difficult to assess and inform the social policy domain on what works best. Culturally appropriate evaluations [2] of programmes and services for Pasifika children, parents and youth are needed. Pacific capacity and capability building policy have included admonitions to build evaluation into Pacific provider programmes and services [25]. Evaluations have largely been process-oriented, and there is a lack of outcome or impact evaluation data. Evaluation methodology and implementation in community-based programmes is confounded by the realities that many are under-resourced or lack capacity. Consideration of appropriate engagement with Pasifika groups should factor these as critical design components if Pasifika communities and participants are to benefit from the evaluation process.

Tiatia's [25] research on cultural competency also suggests that evaluation on the efficacy of cultural competency approaches is needed [23]. Tiatia recommended that:

"Pacific cultural competencies should be considered integral to the definition of quality of care to move towards quality outcomes. This could best be included in accreditation tools, regulatory criteria and national surveys. Quality indicators are required to identify, define, track, evaluate and improve culturally competent practices and services."

Current cultural competency frameworks do not present models of effectively working with Pacific youth, although they do identify in generalist terms the importance of considering the different needs of New Zealand-born and or raised Pacific young people. Emerging in the Pacific youth literature are some critical indicators of social change. In recent years the 'voice' of Pacific young people has come increasingly to the fore in the literature but there are few studies that go beyond the 'perspectives'-based research.

2.2 Acculturation and adaption

Kingi [31, p. 52] comments that:

"Pacific families are redefining themselves, although these changes may not always be accepted, or be seen as appropriate. While families are usually stratified by generation, and relationships are often determined by genealogical seniority, the current contextual changes and adaptations of today may be eroding some of these structures."

The literature presents common inter-cultural value statements which express the social ideals of Pacific peoples [13]. There is a significant gap in the research on the behavioural nuances and the rich traditional rationale for certain customs and practices which make up the social fabric of community relationships. The research literature is thin on describing cultural practices which are peculiarly or uniquely a part of the diverse Pasifika communities.

An appreciation of divergent family structures is important when considering policy development. Acculturation theory has been utilised in some research to describe different Pasifika families' experiences in the New Zealand context [17]. Acculturation is the dynamic change process that occurs when one culture encounters another over time. Essentially acculturation distinguishes four relational dynamics of migrant families and individuals with varying effect on wellbeing. The Pacific Island Families study refers

Table 12.2. Acculturation concepts (adapted from Cowley-Malcolm et al. [17])

Separation	**Integrationist**
High Pacific/Low New Zealand	*High Pacific/High New Zealand*
Separation refers to self-imposed withdrawal from the larger society (high Pacific/low New Zealand), and marginalisation refers to losing the essential features of one's culture, but not replacing them by entering the larger society (low Pacific/low New Zealand).	Integration involves maintenance of cultural integrity but also the movement towards becoming an integral part of the larger society (high New Zealand/high Pacific Island).
Assimilation	**Marginalisation**
High New Zealand/Low Pacific	*Low Pacific/Low New Zealand*
Assimilation, cultural identity are relinquished and the individual moves into the larger society. High New Zealand identification and low Pacific identification.	Marginalisation refers to losing the essential features of one's culture, but not replacing them by entering the larger society.

to Berry's [18] acculturation concepts of social integration, separation, marginalisation and assimilation (Table 12.2) as a useful explanatory framework when considering Pacific peoples' adaption in New Zealand.

Diverse Pasifika families may experience aspects of all these, relative to their social historical family of origin journeys. More Pacific peoples are born in New Zealand than overseas which means that Pacific peoples are no longer be considered an immigrant population. Growing up in New Zealand with Pacific heritage for New Zealand-born and/ or raised children, young people and their families is not a homogeneous experience. The contemporary social milieu is multicultural, technologically dynamic and culturally changing. Cultural diversity and complexity are part of the psychosocial landscape and one which needs further exploration. Population trends indicate increasing cross-cultural marriages and partnerships and multiple ethnic heritage will feature significantly. Identity and ethno-cultural markers are shifting. Something of this 'shift' is expressed in the following notion:

> *"Pasifika is pan-Pacific ... and the reason I say that is that the idea of being a Pacific Islander—rather than a Samoan—is one that's evolved here [in New Zealand] as well. Despite the ructions between different Pacific groups in the early days, most second- or third-generation PIs have more in common with each other than they do with their own ethnic group in the islands. What connects us as PIs are the common experiences of being PI in New Zealand."* Tapu Misa, cited by Perrott [38].

2.3   Family: nurturance and discipline

What is the relevance of this on parenting styles, family values, and norms with respect to raising children and young people? More specifically, what are the social norms about family, the roles and responsibilities of parents, grandparents, elders, siblings, teenagers, children and the particular socio-cultural dynamics which enforce different parenting styles, beliefs about 'nurturance' and appropriate disciplinary practices?

Significantly, research on parenting practices has highlighted that there are differences in parenting practices between Island-born and New Zealand-born and raised parents as well as differences across different Pacific ethnic groups [17]. The Pacific Island Families study is an ongoing longitudinal study of Pacific children. Part of study aimed to determine: (1) the prevalence of disciplinary and nurturing parenting practices used with the child at 12 months of age, and (2) the demographic, maternal and lifestyle factors associated with parenting practices with Pasifika mothers from diverse ethnic backgrounds. The study reports that:

> *"High nurturance was significantly associated with Samoan ethnicity and post school qualifications, and low nurturance was significantly associated with post-natal depression, alcohol consumption and gambling. At the univariate level, high discipline scores were significantly associated with gambling, postnatal depression and lack of alignment to either Pacific or to European traditions. However the strongest association with discipline was the ethnicity variable with Tongan mothers reporting significantly higher disciplinary behaviours than all other ethnicities."*

Of interest is the study also showed that the majority of Pacific mothers nurtured their child and did not yell, hit or tell their 12-month-old child they are bad. There is much more research needed on parent-child interaction in Pasifika communities, particularly considering the youthful demographic and the generation growing up with Pacific heritage whose family of origins are rooted in a multicultural environment.

2.4   Mental health concerns

Significant epidemiological data [10] present a concerning picture of disparity and inequalities. Key findings of the Te Rau Hinengaro survey reveal a concerning snapshot of prevalence of mental health disorders and Pasifika peoples in New Zealand. A recent perspective based study *Talking therapies for Pasifika peoples: best and promising practice guide for mental health and addiction services* (2010) presents a summary of the key findings of Te Rau Hinengaro [40]:

- Pasifika people experienced higher rates of mental disorder (25%) compared with the general Aotearoa/New Zealand population (20.7%).
- The most commonly reported lifetime disorders were anxiety disorders (16.2%), mood disorders (8.6%) and substance use disorders (5.3%).
- Pasifika people have a higher 12-month prevalence of suicidal ideation (4.5%) and suicide attempts (1.2%) than the general population.
- Younger Pasifika peoples (aged 16 to 24 years) have higher rates of mental disorder than their older Pasifika cohort.
- Males have higher rates of substance use disorders and females have higher rates of anxiety and mood disorders.
- Although there are proportionally more non-drinkers in Pasifika communities than in the general population, those who do drink tend to do so to harmful levels [39].
- Pasifika peoples have higher rates of alcohol abuse than the general population. Pasifika peoples report higher incidents of violence and injury from other people's drinking.
- Pasifika drinkers report more problems from violence and serious arguments as a result of their own drinking compared with the general Aotearoa/New Zealand population.
- In general, the use of drug and alcohol services by Pasifika peoples is very low, at 27% less than the national average [28].
- However, Pasifika youth (aged 15 to 19 years) appear to use these services as frequently as any other New Zealand young people.
- The Pasifika population has been identified as being the most at-risk ethnic group in Aotearoa/New Zealand for developing problem or pathological gambling behaviours. A 1991 study reported Pasifika peoples made up to 14% of pathological and problem gamblers in Aotearoa/New Zealand.
- People's age at migration was significant. Those who migrated to Aotearoa/New Zealand before 18 years of age had a lower prevalence of mental health disorders [10].

2.5   Therapeutic concerns

The *Talking therapies* study identified that:

"Extensive evidence exists on the effectiveness of talking therapies for many mental health and addiction disorders. However, to date there is a paucity of research both nationally and internationally on evidence-based treatments for Pasifika peoples. Studies have generally omitted descriptions and analyses of cultural, spiritual and ethnic data. In addition, due to a lack of minority group representation, studies have

been unable to produce sufficient statistical power to demonstrate the interventions' effectiveness with minority populations." [40]

It further notes that:

"Most psychotherapies are based on Western philosophical frameworks, which are individualistic in focus and in fundamental discord with the Pasifika worldview. The Pasifika view is based on a holistic collective approach grounded in notions of spirituality, connectedness and a complex set of inter-relationships between individuals, their families and their communities. This discrepancy in theoretical frameworks presents a challenge for the acceptability and applicability of the evidence based talking therapies for Pasifika peoples. This study also highlighted the importance of building rapport and developing a positive therapeutic alliance."

There is considerable congruence of socio-ethno-cultural themes across this broad range of literature. There are currently several Pacific models of health on conceptualisations of health beliefs which now have some currency in the heath and other sectors. The predominant models in mental health and addiction sector are the Fonofale model [23], the Matalafi Matrix [41], and Seitapu cultural competency frameworks. The centrality of holistic worldviews in the Pacific literature has significant implications across education health and justice sectors. In 1998 the New Zealand's Ministry of Health [14] presented a policy statement as: "Health is a state of physical, social, psychological and spiritual wellbeing." This is also consistent with a much larger body of international research on indigenous worldviews. Within the New Zealand Pacific literature, spirituality primarily refers to the socio-cultural and historical connections that Pacific peoples have to various forms of Christianity and also to pre-Christian cosmological traditions [22, 26, 42]. Within the Pacific cultural competency frameworks an understanding of 'spirituality' is considered a matter of both clinical and cultural competency.

In short, interventions should balance/consider four domains of wellbeing: biological, psychological, social, and spiritual considerations when working with Pasifika families and young people. This appreciation of spirituality is not captured adequately within euro-centric epistemological secular based models of personhood. In this sense, comparable with Māori models of health and wellbeing, ethical research would factor this worldview into the design and implementation of strategies. It is also notable that a distinctive point of difference among young Pacific students and non-Pacific students is that 'place of worship and spirituality' factor more highly in importance for Pasifika students than non-Pacific others [8]. Pasifika worldviews in the literature commonly assert notions of social interdependence, interconnectedness and collectivist values. Kingi [31] captures this succinctly, suggesting that:

"Historically, analyses of Pacific health have often had inherent problems with how health differences are conceptualised and constructed. These narratives have often been instituted within Papa'alagi health systems and institutions and contested through constructs such as race, power and hegemony. Pacific history is replete with cases, patients and services managed by those with deep-seated beliefs drawn from dominant frameworks, and this persists today. However, through the ongoing efforts of Pacific health leaders, community workers and professionals, this debate has expanded and now gives credence to Pacific worldviews. As a result, Pacific paradigms and frameworks can be utilised for the maximum development of Pacific communities. For example, effective strategies can be designed, and targeted resources invested in a way which allows Pacific communities to participate in an inclusive, collaborative and empowering manner."

2.6   Workforce

At the turn of the millennium, Pacific capacity and capability policy marked a watershed in New Zealand's public policy focused on inter-sectoral collaboration to address the social inequality and health disparity gaps. While 'closing the gaps' rhetoric may have lost political flavour for successive governments, the socioeconomic and health disparities and inequalities have not 'closed' [30]. The last decade saw social policy for Pasifika emphasising aspirations for building the social capital of Pasifika communities through improving educational attainment and economic status. The theory of social advancement has been underpinned by a principle of self-determination and the notion that building Pasifika providers and targeted services to meet the needs would impact positively on engagement, access to services, service utilisation and treatment outcomes.

A significant workforce development issue concerns organisational responsiveness and quality of care [45]. In the last decade, an emerging Pacific literature exploring cultural competency has developed in the health and social service sector [20, 22, 24, 41, 43, 44]. Pacific Cultural Competency frameworks [22-24, 46] have recently been developed in the Mental Health and Addictions [41] field and workforce training in these competencies has been evolving over the last several years. Training has to date focused on the professional development of individuals. The intention is to improve recovery outcomes through better cross-cultural engagement and therapeutic practice.

Research on cultural diversity management within our health and social service sector is lacking. Mariner's research is the first Pacific health research in New Zealand to begin to tackle this complex area [47]. Mariner's study explores key attributes that are considered to be desirable by Pacific health managers for the effective management of Pacific health services in New Zealand. It is based on Phase I of the study undertaken by Boldy, Chen and Jain [48]. That study affirms that: (i) underlying cultural values do differentially inform perceptions about what constitutes an effective manager, and (ii) perceptual similarity or difference in describing the desirable attributes of effective managers is also related to cultural distance. Growing Pacific leadership and management capacity and capability have been an important focus of Pasifika leadership programmes in health and the public sector, as have been scholarship programmes provided under various funding regimes since the early 2000s.

> "It is also critical that Pacific cultural identities and worldviews are fully incorporated into policy development and that the political agenda of the day does not interfere with long-term political commitment to resourcing and operationalising clear strategic priorities for Pacific children and young people." [6]

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Chapter 13

'Asian' and immigrant minority youth in Aotearoa/New Zealand

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Summary

- The following recommendations are directed to Government agencies, policy makers, researchers and others with a commitment to the health and wellbeing of all youth in Aotearoa/New Zealand.

- Recognise the increasing diversity of the nation's young people and the wide range of ethnic groups, cultures, countries of birth and migration experiences among those characterised as 'Asian' and immigrant minority youth.

- Develop approaches to represent this diversity in databases, information sources, and statistics, including explicit consideration of country of birth data.

- Identify the sources of resilience and protective factors that contribute to the comparatively low levels of risky behaviours among most young New Zealanders of Asian and immigrant minority communities.

- Identify the issues related to high-risk behaviours among young people of these diverse communities who are also at increased risk of being marginalised and discriminated against and of experiencing difficulties in accessing care.

- Fund and conduct research to examine how migration and affiliation with 'Asian' and immigrant minority groups influence the wellbeing of youth, and identify approaches to overcome adverse outcomes and address unmet needs in this population.

- Provide resources, programmes and strategies that enable the healthy development of young people of 'Asian' and immigrant minority communities particularly including refugees and new migrants.

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- Enable the full and meaningful participation of youth of 'Asian' and immigrant minority groups at all levels of New Zealand society.

1. Introduction

The issues addressed in this report are pertinent to all young people living in Aotearoa/New Zealand. However, the diversity of experiences and challenges involved are particularly salient for youth of 'Asian' and immigrant backgrounds – not least because of the multiple axes of transition involved and the relative invisibility of these population groups in the policy agenda.

Patterns of immigration in recent decades have resulted in major changes to the demographic landscape of our country, with substantial increases in the proportions of young people born overseas and those identifying with Asian ethnic groups [1]. At the 2006 census, 22% of the total youth population were 'overseas-born', compared with 17% in 2001 [2]. Young people identifying with an Asian ethnic group comprised 10% of those aged 10-19 years in 2006 compared with 8% in 2001 [3]. People of Asian ethnic origins are also one of the fastest growing segments in New Zealand society. They comprised 3% of the total population in 1991 and are projected to account for 14.5% by 2021 [3].

This increasing diversity, in terms of both ethnicity and country of birth, engenders a range of benefits at a societal level, but a more complex set of issues characterise and impact on the health and wellbeing of 'Asian' and immigrant minority youth in New Zealand. These can be summarised in terms of our understandings about who these young people are; their health and wellbeing; the particular strengths and sources of vulnerability that influence the lives of these youth; their family, peer, school and community interactions; and the local research evidence and data available to inform approaches to optimise their transitions to adulthood. From among the range of issues that are pertinent to this context, we highlight a few that are particularly noteworthy.

2. Definition and reporting

'Asian' and 'immigrant minority' young people are distinct, yet highly heterogeneous, groups who variously comprise:

- those born in New Zealand and those born overseas;
- those who migrated when they were children and those who migrated when they were transitioning into adolescence and adulthood;
- those who speak English as their first language and those who speak another first language;
- those whose family and neighbourhood socio-economic indicators reflect a wide range in levels of deprivation; and
- those who are accomplished academically or achieve accordingly and those whose talents lie elsewhere.

As commented elsewhere [4], the use of the term 'Asian' in demographic and other health data refers to a politically constructed ethnic category, and is not an ethnic group in itself. This category relates to a highly heterogeneous composite of ethnic groups, each of which has distinct places of origin, language, culture, traditions, settlement history and health needs. Using a single 'Asian' category submerges their separate ethnic identities and averages out their differences [5]. It could be argued that including the ethnic origins of

half the peoples of the world under this single term is no more meaningful than classifying all the rest as 'non-Asian'.

In the vast majority of reports currently available, information relating to most immigrant minority youth is either not considered at all or subsumed within the ubiquitous category called 'other', the composition of which is neither explicit nor meaningful, being defined only by what it is not. Not surprisingly, the distinction between migrant status and ethnic groups and the interactions between these are rarely addressed.

Thus, multiple sources of variance and obfuscation relating to the definition and reporting of information about these young people challenge efforts to get an overarching impression of the wellbeing of this rapidly increasing segment of New Zealand's youth population.

3. Concepts and paradoxes

For the reasons noted, it is of arguable value or meaning to ascribe a single model of health and wellbeing that would be salient to all immigrant communities. However, one particularly unhelpful response to this complex set of issues is the stereotyping of immigrant groups as the 'model minority'. The subject of a considerable body of research overseas [6-8], this only serves to make invisible the considerable diversity in health, developmental and educational outcomes of these youth.

Another phenomenon that has drawn considerable attention in the published literature is the so-called 'immigrant paradox' [9]. This refers to the seemingly counter-intuitive finding that people of immigrant backgrounds have better outcomes in health, education, development and other spheres, relative to what may be expected based on other socio-demographic characteristics. For example, immigrant youth in the United States are reported to be less likely to smoke, drink or use drugs compared with their non-immigrant peers [10]. However, there are many exceptions to this observation, and where the phenomenon is apparent, it is most evident in more recent migrants, suggesting that any advantage decreases over time or period of residence in the host country, and across generations.

Many factors have been proposed as explanations underlying these findings [9]. Foremost among these are the 'healthy migrant effect' (e.g., due to the selection criteria applied during the process of immigration), 'acculturation' including the adoption of less healthy behaviours that are more prevalent in the host country, protective factors and sources of resilience within families and immigrant communities, and exposure to a broad range of social determinants that could influence the trajectories of health and other developmental outcomes among immigrant youth. While a critical overview of this literature is beyond the scope of this commentary, it is important to acknowledge that many sources of resilience inherent in the family, peer- and community-relationships of these young people could be harnessed to promote the health and wellbeing of migrant youth. This requires a greater understanding of how these factors operate within the multiple communities involved as well as their interactions with the 'mainstream' population of New Zealand.

4. Health and wellbeing of 'Asian' and immigrant minority youth

Published population-based data on the health and wellbeing of immigrant minority youth in New Zealand are remarkably sparse, a situation challenged by current data collection and reporting practices of routine health databases where information on country of birth and migration experiences is rarely encountered. However, the Youth2000 surveys

have provided contemporary insights regarding the health of youth identifying with Asian ethnic groups who are at mainstream secondary schools [11]. Key findings from the 2007 survey include the following.

- While most 'Asian' students reported positive family, home and school environments, and positive relationships with adults at home and school, Chinese and Indian students were more likely than New Zealand European students to experience family adversity or hardships (changing homes more often, overcrowding and unemployment among parents).

- The majority of 'Asian' students reported good health, but when health care was needed these students reported commonly facing barriers to accessing it, including a lack of knowledge of the healthcare system, cost of care and lack of transport. It was previously noted that Asian students who had been in New Zealand for 5 or fewer years and those who did not speak English at home were significantly less likely to have a usual source of health care, a finding consistent with the most recent survey [12].

- Chinese and Indian students were more likely than New Zealand European students to report not using contraception. While the proportion of Chinese students using contraception has remained unchanged since the 2001 survey, the equivalent proportion among Indian students has declined.

- Mental health problems were of particular concern in this population, especially among female students. Among Chinese and Indian students 18% of females and 7-8% of males showed significant depressive symptoms – proportions unchanged since the 2001 survey. In general, 'Asian' youth also reported higher levels of depressive symptoms than New Zealand European students [13].

While a comprehensive population-based profile of the health of non-Pacific immigrant youth in New Zealand is not currently available, reports from other regions of the world suggest the likelihood of substantial variability and inequities in health as well as access to health care within this group. As identified in a recent WHO report, differences from the majority population vary "according to the specific group studied, the health problems or services involved, and the country concerned" [14].

5. Social acceptance, discrimination and related outcomes

At a broader societal level, previous studies in New Zealand have identified an array of issues relating to the inclusion and social acceptance of young people of 'Asian' and immigrant minority groups [15-18]. In a qualitative study of key informants who work with migrant and refugee youth, it was reported that these youth are subjected to various forms of racism, prejudice and discrimination on the basis of ethnic and national origin [16]. In addition, pressure to conform to 'host' community expectations was identified as an issue, which could be considered an aspect of discrimination. The Human Rights Commission has already observed that migrant and refugee children and young people, amongst other groups of young people, are unable to fully realise their rights. These observations have recently been supported by the conclusions of the UN Committee on the Rights of the Child, who have called for Aotearoa/New Zealand to acknowledge discrimination directed at migrant children and young people, amongst other groups of children and young people [19].

6. Implications for policy

The Human Rights Commission's annual Review of Race Relations in New Zealand – Tūi Tūi Tuituiā released in March 2011 recognises that "entrenched racial inequalities in health, education, employment, justice and housing ... impact most of all on New Zealand's children and young people" [20]. Three of the top 10 priority areas for action in the coming year recommended by this report are particularly relevant to this commentary:

- monitor the impact of the new Immigration Act 2009 on migrants and refugees;
- promote public discussion and input into New Zealand's 2010 report to the United Nations Committee on the Elimination of Racial Discrimination; and
- ensure that the transitional arrangements of the Auckland Council to provide for cultural diversity, inclusion, and responsive services for diverse communities are confirmed and enhanced.

It is important to note that the issues of concern are neither unique nor specific to any particular region of the country. The Department of Labour's revised Settlement National Action Plan, adopted in 2007 required a range of government agencies to work towards ensuring successful settlement outcomes for recent migrants. Whilst not containing an explicit focus on the determinants of health or health outcomes, the strategy maintains a strong 'human capital' focus, across domains such as education, training and access to information, to facilitate successful settlement [21]. These developments in settlement policy were, however, preceded by a burgeoning interest in immigrant health and wellbeing in a number of social policy documents post-2000, including *Youth Health: A Guide to Action*, which mandated, for instance, "a stronger focus on the mental health needs of refugee and migrant young populations" [22].

There is a critical need for greater awareness of the sources of resilience and risk among immigrant communities in New Zealand. Many factors can counteract even relatively positive states of health among new migrants, with the risk of preventable adverse outcomes being of particular concern. Salient issues in this regard include:

- declines in socioeconomic status following immigration (e.g. as a result of unemployment or under-employment);
- barriers to services because of language and cultural issues;
- changes in the dynamics of family structure and social support systems;
- discrimination, racism and invisibility; and
- difficulties in navigating systems in the host country.

These influences have received considerable attention overseas [23] but are yet to be comprehensively explored in New Zealand. The need for more nuanced analyses of both the determinants and enablers of positive youth development in New Zealand and an action plan that includes a particular focus on people of immigrant minority backgrounds are obvious and urgent.

Most importantly, policy and decision makers as well as all those concerned with the wellbeing of New Zealand youth would benefit greatly from providing more opportunities for young people to engage with and contribute to this discourse as the ultimate stakeholders. Their talent, energy and vested interest are vital to promoting the necessary dialogue, respect and understanding among people of different backgrounds. As recognised by the UN Alliance of Civilizations (UNAOC), "throughout history, young people have played an active role in shaping major social and political advancements".

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Chapter 14

Families and children: a focus on parental separation, domestic violence and child maltreatment

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Summary

- Inter-parental conflict, separation-divorce, domestic violence and child maltreatment have a significant economic impact on society.

- Developing policies aimed at early identification and assessment of both psychological and physical risk to children in 'risky family settings' would significantly reduce the long-term societal impacts of family-based trauma on children (and the next generation of families).

- The development of risk assessment procedures and improved standards of training for family and child welfare professionals would significantly advance the early identification of family-based risk for children.

- Population norms for New Zealand need to be established in order to assess the state of children's mental health in relation to exposure to inter-parental conflict, parental separation-divorce and domestic violence.

1. Introduction

Strong families are the bedrock of society and a foundation for children's healthy development. Recent developments internationally recognise not only the importance of the family unit as an important site of policy application, support and intervention but – increasingly – as a context whereby supports targeted early may pay dividends in relation to long-term positive outcomes for children, families and society at large [1].

2. The landscape of family policy in New Zealand

The well-being of the family is inextricably linked to a wide range of public policies, including the ability of all families to seek and engage in the services they need.

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A myriad of family policies exist internationally and within New Zealand aimed at improving the welfare and well-being of families and the individuals that comprise them. New Zealand is unique in its recognition of the family as a key ingredient of a healthy society. The Families Commission (one of the few Commissions of its type in the world) signifies the importance accorded to the concept of 'family-whānau' and the importance of engaging evidence-guided policies of benefit to New Zealand families in particular. In recent years, the formation and composition of the family in New Zealand has changed considerably, in ways that impact policy.

Some of these changes include an increased average age of women at marriage and childbirth, delaying the formation of new families and overall fewer childbirths with an increase in the number that take place outside of marriage. There has also been an increase in non-marriage cohabitation and marital dissolution. In addition, ethnic variation also exists where Māori women are more likely than non-Māori women to enter unions in their teens, to cohabitate and to have children at a younger age.

These changes have resulted in a significant transformation of New Zealand family structures, with the percentage of nuclear families decreasing and the percentage of sole-parent, couple-only, step-families and blended families increasing. Public policy needs to be responsive to the differential needs and impacts of diverse family types through understanding the factors that place a family at risk for disadvantage, the early and accurate identification of such families and the effective delivery of services to help ameliorate risk.

In Māori society, the whānau, or extended family, is the primary social grouping. Government agencies and Māori (Hui Taumata) regard a strong whānau as fundamental to improving Māori well-being. This is evident in strategies, such as He Korowai Oranga/ the Māori Health Strategy (Ministry of Health), the Māori Potential Framework (Te Puni Kōkiri), Hapu Development (Department of Internal Affairs), the Ministry of Education's Statement of Intent and Māori Education Strategy and the Ministry of Social Development's Statement of Intent for Families and Communities, which are focused on facilitating the well-being of whānau and families. There is a demand for measures of whānau and their well-being to be developed in order to evaluate and monitor the effectiveness of these strategies [2].

3. Family influences on children

The well-being of children is heavily influenced by the healthy functioning of families, with the family recognised as the primary social context from within which variation in children's adaptive and maladaptive behaviours develop [3]. Historically, models of family influence suggest that variation in children's emotional and behavioural development may be explained by predisposing genetic factors [4], adverse family experiences [5] and the interplay between the two [6]. While genes undoubtedly play an important role in aetiology, recent molecular and behavioural genetic studies suggest that specific dimensions of family experience interact with genetic factors to put a child at greater or reduced risk for negative outcomes [7, 8]. Studies that allow the relative effects of genetic and environmental factors to be effectively disentangled, further suggest that environmental factors unique to children's family experiences place them at elevated risk for mental health problems (e.g. harsh parenting, inter-parental conflict) [9, 10]. Therefore, identifying the specific conditions within families that put children at increased

risk for adverse psychological outcomes is essential if we are to effectively identify families in need of support services.

Children are at increased risk for negative psychological outcomes (anxiety, depression, aggression and antisocial behaviour) from within a family context when they are exposed to acute or chronic economic strain [11], parental psychopathology (e.g. depression, antisocial behaviour) [12], inter-parental conflict [13, 14], negative parent-child relations [15], parental separation-divorce and remarriage [16], or child maltreatment [17].

Research, however, has progressed from examining simple associations between these and other indices of family experience and children's psychological adaptation, to identifying the social, emotional and cognitive processes that underlie the family stress-child development link [18]. For example, in considering the impact of parental separation and divorce on children, it is now recognised that children's adaptation to marital transition may be determined more by the level of conflict that occurs between parents before, during and after the break-up of the marital relationship than the actual break-up itself [19]. Indeed, in relation to each of the other family factors mentioned (economic stress, parent depression, negative parenting, for example), conflict occurring between parents has been recognised as a factor common to all in accounting for adverse outcomes for children [11, 12, 20].

4. Contextualising the effects of family conflict on children

Children's experience of parental separation and divorce, particularly within the adversarial context of UK and New Zealand common law, as well as their exposure to parental domestic violence and child maltreatment constitute areas of significant scientific, policy and social concern. While numerous studies have been conducted looking at what happens (i.e., the outcomes) when children are exposed to domestic violence, child maltreatment or when they experience the separation and divorce of their parents, few studies have considered the processes through which children are adversely affected by these experiences. Conversely, in the context of non-violent inter-parental conflict there is not only a long and established literature highlighting the link between conflict in the couple relationship and children's psychological development [21-25], there is also an expansive body of research highlighting the processes through which inter-parental conflict affects children. This body of research explicitly aims to explain why some children show little or no signs of psychological distress in the context of conflict marked as frequent, intense, poorly resolved and child related while others go on to develop long-term, clinically significant emotional and behavioural problems [26].

Recently, intervention programmes have targeted the inter-parental relationship with a view to remediating negative developmental outcomes for children living in households marked by high levels of inter-parental conflict and discord [27]. Because of the evidenced role of the inter-parental relationship, in particular the management of conflict between married, cohabiting and residential parents and the pivotal role of the quality of the couple relationship in accounting for adverse outcomes for children across a variety of family contexts (e.g. family economic pressure, negative parenting, parent mental health), we focus on the dynamic nature of this relationship and implications for children in the contexts of parental separation-divorce, domestic violence and child maltreatment with associated policy implications and examples of recent policy applications also considered.

5. Inter-parental conflict and children's psychological development

Children of all ages have been shown to be adversely affected by conflict between parents that is frequent, intense and poorly resolved [26]. Children as young as 6 months show evidence of physiological distress such as elevated heart rate in response to overt, hostile exchanges between their parents when compared to similar exchanges between non-parental adults [28]. Children up to the age of 5 years (infancy and early childhood) show signs of distress by crying, acting out, freezing and sleep disturbance [29]. Children between the ages of 6 and 12 years (middle childhood) and 13 and 17 years (adolescence) also show signs of emotional and behavioural distress [30], with recent research highlighting the adverse effects of inter-parental conflict on children's academic attainment [31]. It is important to note, however, that periodic conflict between parents is a natural and normal part of family life. Indeed, it is expected that most children will be exposed to conflict between their parents at some point in their lives without experiencing adverse effects. With this in mind, researchers have turned to identifying the processes that explain why some children remain relatively unaffected by discord between parents while others go on to develop long-term, serious emotional and behavioural problems. Two primary theoretical perspectives have emerged. First, individual differences in children's adaptation to inter-parental conflict are explained by the impact that conflict between parents has on the quality and consistency of parenting that children receive. Second, the way children perceive and interpret the occurrence and management of conflicts between their parents explains individual differences in their psychological adaptation.

5.1   Disruptions in the parent-child relationship

A number of researchers have suggested that parents embroiled in a hostile and distressed marital relationship are typically also more hostile and aggressive toward their children and less sensitive and emotionally responsive to their needs. The effects of inter-parental conflict on children are deemed to occur indirectly through a 'spillover' of emotion from the couple relationship to the parent-child relationship. In support of this view, there is a robust association between emotion expressed in the marital relationship and emotion expressed in the parent-child relationship [15]. However, if conflict between parents only affected children via disruptions in the parent-child relationship, children would be affected by such disruption irrespective of whether or not they actually witnessed conflict occurring between their parents. Research evidence suggests that this is not the case [25].

5.2   Children's emotions, cognitions and representations of family relationships

Research has shown that overt inter-parental conflict to which children are exposed has a greater impact on child distress than covert conflict to which children are not exposed [26]. This finding has led researchers to consider the underlying cognitive and emotional processes engendered in children who live in households marked by hostile inter-parental relations. Several theoretical perspectives focus on the role of the child's own perspective when explaining the effects of inter-parental conflict on children's psychological well-being. The corpus of research in this area indicates the significance of children's own understanding of the causes and consequences of conflicts between adults, suggesting that the way children interpret and respond to the occurrence and management of inter-parental conflict explains why some children respond negatively, while others show little or no adverse effects [13, 20]. The attributions that children assign to conflict occurring in the marital relationship therefore orient their expectations and representations of

conflict in the parent-child relationship, which in turn affects their long-term psychological development.

Collectively, this corpus of research emphasises the significance of children's own understanding of the causes and consequences of conflicts between adults, suggesting that the way children interpret and respond to the occurrence and management of inter-parental conflict explains why some children respond negatively, while others show little or no adverse effects.

6. Parental separation and divorce

Research conducted over the past 50 years suggests that qualitative differences in psychological adaptation exist between children from divorced or separated parents, and those with continuously married parents. For example, children from the former perform consistently poorer than the latter on measures of academic achievement, general conduct, psychological adjustment and social relations [32, 33]. Recent evidence suggests that it is the level of conflict present between parents before, during, and after the breakdown, which determines the level of impact on the child. Moreover, for many children, separated or divorced parents will not be the only major family change they experience as it is likely that their parents will live with new partners or remarry.

Approximately one-third of all marriages end in divorce in New Zealand. In 2008, 43% of dissolved marriages involved families with children under the age of 17 years and there were 11.3 divorces for every 1000 existing marriages. In addition, 33% of all marriages were remarriages with 22% of men and 20% of women having been previously divorced. In 2006, 26% of children (under 18) lived in single-parent families and a 1995 survey indicated that 20% of children lived in a blended family before they reached age 17 [2, 34].

> *"The evidence indicates unequivocally that those children whose parents separate are at significantly greater risk than those whose parents remain together for a wide range of outcomes in social, psychological, and physical development. Furthermore, the risks are evident across generations and geographical regions and persist into adulthood….however… levels of behaviour and educational difficulties are higher in children whose parents later separate than in those who do not. In other words poor outcomes are in place before separation, suggesting other or additional causes of long-term disadvantage."* [35]

Thus, it is important to identify what it is about children's experience of family breakdown that explains individual differences in their mental health adaptation [32].

7. Domestic violence

Despite the availability of a considerable amount of research into the respective areas of spousal violence and child maltreatment, researchers have only recently begun to study the effects of domestic violence on children. Most research in this area, however, has been directed toward identifying child outcomes associated with living in a violent home rather than on the processes that explain why some children appear resilient to the trauma associated with exposure to domestic violence while others go on to develop serious and enduring mental health problems [36].

7.1 Domestic violence and outcomes for children

According to recent estimates, more than 275 million children worldwide are exposed to violence between their parents each year [37]. Children who have experienced domestic violence are at increased risk for an array of emotional and behavioural problems, 40% of children from families characterised as "domestically violent" exhibit clinically significant behavioural problems (vs. 10% of children from families not considered domestically violent [36]. Such children are at increased risk for internalising symptoms [38], externalising problems [39], decreased cognitive functioning, including IQ deficits, decreased social competence [40, 41], and are at elevated risk for post-traumatic stress disorder [42].

In 2005, 49% of all secondary students in New Zealand reported witnessing conflict and violence in their home in the past 12 months (yell or swear) and 16% of children report experiencing adults in their home hitting or physically hurting a child. Rates of domestic violence have been found to vary by ethnic group, with 21% of Māori, 28% of Pasifika people, 13% of Asians, 13% of New Zealand Europeans, and 14% of other ethnic backgrounds reporting witnessing an adult hitting or hurting a child [34].

8. Child maltreatment

Child maltreatment describes a range of behaviours perpetrated by an adult that result in physical and/or emotional harm to a child [43]. Child maltreatment and domestic violence both are forms of family violence. Children are direct victims in child maltreatment whereas domestic violence includes spousal conflict and abuse. There is a strong overlap in households where domestic violence and child maltreatment exist, both leading to negative psychological, social and behavioural problems [44].

Specifically, child abuse incorporates acts of physical, sexual and/or psychological abuse, as well as child neglect. Physical abuse is the non-accidental, intentional physical injury or the harsh physical discipline of a child. Sexual abuse refers to any sexual activity involving a child. Psychological maltreatment includes psychological abuse, where a child is subjected to behaviours that have a negative impact on their mental health as well as neglect, the failure to meet a child's emotional needs or provide a child with the minimum requirement of care. Maltreatment also includes child mortality caused by physical abuse or child neglect.

Maltreatment is detrimental to children's social, emotional and cognitive development [45, 46]. Children who experience maltreatment not only exhibit developmental problems early in life, but also often have later economic problems, exhibit criminal behaviour and have mental disorders later in life [47]. Without intervention, 20-30% of abused children grow up continuing the cycle of violence, in turn becoming abusers [43]. Maltreatment-associated outcomes such as premature death, family welfare and involvement in the criminal and juvenile justice system, have a direct economic cost on society [43]. In extreme cases maltreatment can lead to child death [43].

Data relating to rates of child maltreatment in New Zealand come from a variety of agencies and research institutions. At present, no standardised measure of child maltreatment prevalence exists in New Zealand. In 2003, there was a substantiated child abuse rate of 7.4/1000 (including physical, sexual or psychological maltreatment, or neglect). The rate for Māori children was 11.9/1000 compared with 5.9/1000 for non-Māori [48]. As a result of physical maltreatment, over a four year period (1998-2002) 590 children were hospitalised as a result of assault and 46 children died [49, 50]. The estimated prevalence rates of sexual abuse of girls in New Zealand range from 18-32%, with Māori women

retrospectively reporting experiencing child sexual abuse nearly twice as often as non-Māori [51-55].

New Zealand has one of the highest rates of child death from maltreatment among OECD countries. New Zealand has 1.2 child deaths as a result of child maltreatment per 100,000 children annually, 4-6 times higher than the average for leading industrial countries. Children in their first year of life have the highest rates of all age groups for death from assault and Māori children have twice the risk of death by assault as non-Māori [34].

Such statistics present a snapshot of recorded maltreatment. However, a general consensus exists that such statistics are merely the 'tip-of-the-iceberg', particularly for child mortality rates. It has been estimated that for every child death as a result of maltreatment there will be 150 substantiated cases of physical abuse and 600 substantiated cases of sexual and emotional abuse and neglect [56].

9. Risk factors for child maltreatment

Risk factors for maltreatment rarely occur in isolation and are often inter-related. It is the accumulation of these risk factors rather than the presence of individual factors that increase the risk of child maltreatment.

9.1 Child factors

Very young children are at greater risk of being killed as a result of maltreatment [57]. Sex differences exist where girls are more likely to be the victims of sexual abuse and infanticide whereas boys are more likely to be the victims of physical abuse in the form of harsh physical punishment [58]. By ethnicity, Māori are relatively over-represented in the statistics [2, 57, 59, 60]. High needs children such as premature babies, twins and children with a disability have a higher risk of being abused or neglected [58, 60-62].

9.2 Parent/caregiver/family factors

Child maltreatment occurs primarily within proximal (nuclear) and distal (extended/blended) family contexts, particularly among families experiencing poverty, extreme stress and who receive limited support [2]. There are a number of parental risk factors for maltreatment: low levels of parental education, an intergenerational history of abuse, mental illness, drug and alcohol abuse, single parenthood, unwanted or unintended pregnancies, large family size, household overcrowding, domestic violence, parental conflict, lack of parent-child attachment, lack of family support, the presence of non-biological caregivers and criminality [2, 58, 60, 62-64].

9.3 Community and societal factors

Rates of maltreatment are greater in areas characterised by poverty and high unemployment with fewer resources and social infrastructures, less social capital and a lack of adequate housing and family support services [58, 64]. Communities and societies with social norms that perpetuate or tolerate violence and diminish the status of children, and those which have policies that lead to deprivation, inequality and poor standards of living are also associated with an increased risk of child maltreatment [64].

10. Child outcomes of maltreatment

Child maltreatment impacts cognitive, emotional, social and biological aspects of children's lives [17]. Physical, sexual and psychological maltreatment are associated with a range of emotional and behavioural problems including anxiety, post-traumatic stress disorder, antisocial behaviour, suicide, eating disorders, substance abuse, criminal behaviour, aggression and teen pregnancy [17, 65-67], as well as developmental delays in self-esteem, social skills, language skills and academic ability [67-69]. Physical and emotional maltreatment occurring early in a child's life are especially harmful, leading to greater externalising problems such as aggression and antisocial behaviour, whereas early neglect leads to internalising behaviour such as depression and anxiety [70]. The World Health Organization estimates that physical maltreatment accounts for 155,000 child deaths a year due to maltreatment, most often in infancy [71].

In addition to deficits during childhood, maltreatment is also associated with long-term problems in adulthood. One study found the likelihood of mental disorder, including anxiety, depression, personality disorder, substance dependence and suicide was 2.4 times higher for those who experienced sexual abuse and 1.5 times higher for physical abuse [72].

Research also indicates an increased likelihood of abused children growing into abusive adults, with 20-30% of abused individuals continuing the cycle of violence [73-76]. This is most often the case when children are exposed to aggression, physical maltreatment, coercion and domestic violence in the household [67, 69, 77-80].

11. Practice-policy implications and recommendations

Inter-parental conflict, separation-divorce, domestic violence and child maltreatment have a significant economic impact on society in terms of "direct medical costs, lost earning and tax revenue to premature death, special education, psychological and welfare services, protective services, foster care, preventative services and adult criminality and subsequent incarceration" [64 pp. 12-13].

Research relating to the effects of inter-parental conflict, parental separation-divorce, domestic violence and child maltreatment offers significant opportunity to inform policy and practice applications. Developing policies aimed at early identification and assessment of both psychological and physical risk to children in 'risky family settings' would significantly reduce the long-term societal impacts of family-based trauma on children (and the next generation of families).

With this core objective in mind, the development of risk assessment procedures (consistent with several recent examples in the UK) and improved standards of training for family and child welfare professionals would significantly advance the early identification of family-based risk for children. Attaining such an objective would empower and equip practitioners with the skills and resources to proficiently allocate service support and provision to children and families in order to prevent the long-term negative mental health impacts of coercive family experiences for children, and would contribute to a reduction in the inter-generational transmission of coercive behaviours and negative psychological outcomes from today's generation of children to tomorrow's generation of parents.

An important precursor to locating the degree of need among children living in New Zealand who are exposed to harsh family experiences is to establish population-wide mental health norms (a standard resource in most OECD countries). Population norms

for children across all estimable ages of risk assessment (4-16 years) do not exist in New Zealand. Data are being collected as part of the B4 School Check, but only at this younger age. In order to assess the state of children's mental health in relation to exposure to inter-parental conflict, parental separation-divorce and domestic violence, establishment of population norms for New Zealand is necessary in order to objectively examine mental health and well-being among New Zealand youth and to identify those children most in need of support and service. Within this context, attention to Māori culture and well-being is needed to specialise development and application of risk assessment protocols and intervention services.

These steps would allow implementation of a variety of evidence-based intervention and prevention programmes in New Zealand aimed at improving outcomes for children exposed to harsh family experiences.

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Chapter 15

Depression in young people

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Summary

- Depressive disorder is common, affecting at least a fifth of young people by the age of 18 years.

- It is one of the most expensive illnesses faced by our society, ahead of heart disease, diabetes and stroke.

- Depressive disorder is the leading risk factor for suicide, and New Zealand has the highest youth suicide rate in the OECD.

- Depressive disorder mostly starts in adolescence with prevalence rates rising steeply between the ages of 15 and 18 years.

- It is an important factor in many other problems including school failure, substance abuse and teenage pregnancy.

- Three quarters of young people with depression get no treatment.

- There are effective treatments available.

- To increase the number of young people accessing treatment there is a need to (i) increase recognition of depression and (ii) provide greater access to evidence-based interventions.

- Providing greater access to interventions will require (i) training more therapists, (ii) funding mental health services for children and adolescents equitably, and (iii) considering the use of computers and the internet to deliver therapy.

1. Introduction

Everyone is unhappy from time to time, but some people suffer from a low mood that has a major impact on the person's ability to carry out day to day activities. When this is

persistent, lasting at least 2 weeks or longer, pervasive, and affecting the person most days and in most settings, then it is termed depressive disorder. Clearly lowered mood is on a continuum and the exact point at which unhappiness becomes depressive disorder is a matter of judgment. Current diagnostic systems use a cut-off at which the overall impact on the person's life is substantial; however, a lowered mood that falls short of depressive disorder also has a negative impact.

Depressive disorder is common, affecting at least a fifth of young people by the age of 18 years and is one of the most expensive illnesses faced by our society. It is the leading risk factor for suicide and New Zealand has the highest youth suicide rate in the OECD countries. It is a recurrent condition that is common in adults but mostly starts in adolescence with the number of young people affected rising steeply between the ages of 15 and 18 years. It is an important factor in many problems including school failure, substance abuse and teenage pregnancy. There are effective treatments available, but three quarters of young people with depression get no treatment.

2. What is the question?

Given that depressive disorder has a major impact on those who suffer from it, that it is expensive directly, and indirectly through its relationship to suicide and self-harm, to substance abuse, to teenage pregnancy, and that it is a recurring disorder that is mostly untreated, the challenge is to provide effective interventions to prevent its onset, to intervene early and to provide ongoing therapy and to ensure that young people access these interventions.

3. Why is depression important in the transition to adulthood?

Depressive disorder is a serious illness which affects every facet of life in those who are affected and those around them. In young people it is particularly harmful as it has its impact at the time that they are laying the foundations for a future career and developing social skills that will allow them to function as adults in society. At a time when they should be becoming increasingly autonomous, it serves to increase their dependence on those around them. Depression is associated with poor academic achievement, social dysfunction, teenage pregnancy and substance abuse. It is also closely linked to attempted and completed suicide [1-4].

Recurrence of depressive disorder is the norm and there is 70% chance of a further episode of depressive disorder within 5 years. It is believed that there is a 'kindling effect' so that each depressive episode increases the probability of a further episode. Up to half of those with major depressive disorder will develop another psychiatric disorder [2, 5, 6] and 20 to 30% of young people with depression in their teens develop bipolar affective disorder within 5 years [5].

4. What is the scale of the problem?

Depressive disorder usually starts in adolescence with a steep rise in depression from 5% to 17% between the ages of 15 and 18 years [7-10]. Over this period there is a striking gender difference: before puberty rates of depression are approximately equal between boys and girls, but by the age of 18 twice as many girls than boys have depressive disorder. By the age of 19, between a fifth and a quarter of young people have suffered from a depressive disorder [11, 12]. Of the 445,550 young people between the ages of 13 and

19 in New Zealand, between 50,000 and 55,000 young people have depressive symptoms that warrant intervention and over 80% of these are untreated.

Less than a fifth of young people with depressive disorder have had any treatment [13-15]. Young people, and their families, may not recognise that they have depressive disorder and may accept symptoms as part of the usual experience of adolescents. When they do recognise there is something wrong, young people are often reluctant to seek help, particularly if this is from a mental health professional and finally, although there are effective treatments available, it is hard to access these.

Depression is one of the most expensive illnesses to society internationally. It is second in the cause of disability, which makes it more expensive than heart disease and many other conditions (see Appendix 1 for details of the cost burden).

5. What does research tell us about causative factors?

Depressive disorder results from a complex interplay of risk factors that include individual characteristics (biological and psychological), environmental factors, and the cumulative effect of experiences over time. For clarity, these have been divided into subsections, but all are interwoven.

5.1 Genes, families and social factors

A vulnerability to depression can clearly be inherited. Young people who have depressive disorder have more relatives with the disorder than those who do not. Children whose parents have depression are six times more likely to have depression themselves. Studies of identical and non-identical twins show that there is a clear genetic component with an estimate that genetics accounts for 40% of the risk and environmental effects accounting for the remaining 60%.

There is also an environmental impact from growing up in a home in which parents are depressed. Depressed parents are less able to be responsive to their children and there is some evidence that stress during pregnancy may impact negatively on the developing fetus.

It is thought that an individual who is already vulnerable because of factors such as genetic predisposition or early adversity is more likely to develop a depressive disorder in response to adverse social circumstances, the so-called 'Stress-Vulnerability' model [16]. The adversity may be long-standing such as poverty or family discord, or may consist of a single stressful event. Major depressive episodes in young people often occur in a background of long-standing psychosocial difficulties including family discord and disruption, domestic violence and abuse, and school difficulties including bullying [17-19].

Research from the Dunedin longitudinal study has shown that children with a short form of a particular gene and who were maltreated as children (i.e. experienced physical abuse, sexual abuse or who had harsh or rejecting parents) have a high likelihood of developing depressive disorder as adults, while those who do not have this short form have a low likelihood of depression, even if they were maltreated.

5.2 Psychological factors

There are a number of individual psychological styles associated with depression. Individuals prone to depression have an enduring pattern of interpreting events and circumstances through a negative filter determined by a negative view of the self, the

world and the future. This leads to cognitive distortions in which information is processed in such a way that positive cues are misread or ignored and negative cues are given undue attention [20]. This is linked to a negative 'attributional style', proposed by Abrahamson [21], in turn following from the concept of 'learned helplessness', a phenomenon of withdrawal and depression that follows a failure to control aversive events [21-23].

An associated idea is that of negative self-schema. Those who believe that they are incompetent or that people do not like them are more likely to suffer from depression. Rumination, considered a form of emotion-focused coping, and an avoidant coping style have been linked to depression in adults and children [24-26] while those who take an active approach to solving problems, and who deal with life's adversities by distracting themselves and keeping themselves occupied, appear to be less at risk for depression. This style of approaching problems is more typical of boys than girls and it is thought that these differences may partially explain the higher rate of depression in girls than boys that emerges during adolescence [25].

5.3 Biological factors

Adolescence is critical or sensitive period during which the different parts of the brain mature at different rates, and connections between key areas in the brain are fine-tuned. It is a time of risk as well as of opportunity. Key areas in the brain implicated in depression are the hippocampus, which is associated with emotion, and the pre-frontal cortex, which is associated with judgment and reasoning, and provides some cognitive control of emotion. The volume of both these areas is reduced with long-standing depression.

The surge in rates of depression in adolescence is striking and is likely to be related to biological changes, with the disproportionate increase in depression in girls likely to be related to menarche. Adolescents are vulnerable to developing depression for a number of reasons. As the brain matures there is a period of overproduction of synapses (the links between brain cells) followed by a period of synaptic pruning. This rapid development and pruning is a sensitive period in which there is an increased susceptibility to environmental stresses, and is likely to be a time when predisposition to depression is unmasked.

There is evidence that oestrogen may reduce the overproduction or enhance the pruning of the synapses, particularly in the regions of the brain linked to emotional modulation (the hippocampus and the prefrontal cortex), thus possibly explaining the gender difference that emerge in adolescence.

Stress may also impact adversely on this process of neurodevelopment and cortisol, the hormone released in chronic stress, has been shown to reduce the production of nerve cells in the hippocampus, which is part of the emotional system in the brain, and which is reduced in size in people suffering from ongoing depression. It has been suggested that exposure to childhood stress may have an adverse effect on the hippocampus, while exposure to stress in adolescence may affect the prefrontal cortex, both key areas in emotion and its modulation.

The implication of all this is that adolescence is a time of increased vulnerability for developing depression, particularly for girls, and particularly for those exposed to stress. It could also be a time of opportunity to prevent biological changes that set up a life-long vulnerability to depressive disorder.

6. Prevention, treatment and management of depression in adolescence

6.1 Treatment of depression

The mainstays of treatment are:

- support, psycho-education and stress reduction, including the reduction of family discord;
- psychological therapies, especially cognitive behavioural therapy (CBT) and interpersonal therapy (IPT); and
- antidepressants.

Cognitive behavioural therapy and interpersonal therapy are effective treatments for depressive disorder in children and adolescents [19, 27-30]. These can be delivered as individual or as group therapy and a course typically runs for 8-12 sessions. They are recommended in guidelines for the treatment of depression in children and adolescents [19, 31]. However, there are practical difficulties in providing treatment in New Zealand. There is a general shortage of child and adolescent mental health practitioners, few have training in CBT or IPT and, until recently, there has been little or no training in CBT or IPT specifically for children and adolescents available in New Zealand, although training is now available for CBT at the University of Auckland and for for IPT at the University of Otago.

There is evidence that cognitive behavioural therapy delivered by computers (CCBT) is effective [32-34] particularly in adults [32-36]. CCBT for adults has been recommended for use and successfully implemented in primary or secondary care settings in Britain [37]. The most widely known resources are 'Beating the Blues' [36, 38], 'MoodGYM' [39-41] and 'ODIN' [42]. All three interventions have evidence of effectiveness in adults.

Surprisingly little has been done using CCBT for depression in adolescents and, when MoodGYM was tested with teenagers, few completed the modules, probably because the resource is text heavy and does not take advantage of the many appealing features available in computerised resources. However, a pilot study conducted in New Zealand tested the effectiveness of 'The Journey' in a randomised placebo controlled trial with 34 participants and showed a good engagement of the resource and a significant reduction in depressive symptoms [43]. The Ministry of Health has funded further development of a 3D fantasy based 'game' following on from Stasiak's work and a randomised controlled trial of this resource (called 'SPARX') is underway, with results from this study due early in 2011.

There is some evidence that 'bibliotherapy', (i.e. the use of self-help books or manuals to deliver therapy) can be as effective as therapy delivered by therapists [35], although actual engagement with and completion of a manualised treatment may be problematic.

The use of antidepressants in children and adolescents has resulted in controversy over the last decade. Experts are agreed that fluoxetine is clearly effective in reducing symptoms of depression, although actual cure rates are modest, and the risk of using antidepressants in adolescents has probably been over-stated [44-46]. It is generally recommended that a child and adolescent psychiatrist is involved in decisions regarding the use of antidepressants in young people, and that this care should be delivered with support from the Child and Adolescent Mental Health Services [19, 44, 47].

6.2   Prevention of depression

There have been extensive efforts to develop programmes to prevent the onset of depression. Until recently there has been insufficient evidence to promote this as a practical way forward [48, 49]. However, a recent review of all the evidence shows for the first time that depression prevention programmes probably do reduce depressive disorder and refining and enhancing the most effective of interventions should be considered. The 'Coping with Stress' course [50] has been shown to reduce the number of depressive episodes over a year compared with no intervention and this study has recently been replicated [51]. The targeted approach in these two studies would be too unwieldy as a public health intervention but could probably be adapted for widespread roll-out. Effectiveness would have to be confirmed. There has been a study of depression prevention delivered in schools in New Zealand, the 'Resourceful Adolescent Programme' (RAP) Kiwi programme [52]. Although there was evidence of effectiveness, there was concern about the ability to be able to maintain fidelity if the programme was rolled out as is. A study, funded by the Health Research Council, investigating the delivery of this programme by mobile phone is underway with results due in mid-2011. 'Travellers' is a programme with evidence of efficacy in a small, open-label trial [53]. Despite the lack of evidence this is being used widely in secondary schools and is popular with teachers and students. A more robust evaluation to ensure effectiveness is warranted.

7. Where is policy/intervention currently focused?

7.1   Mental health services

The Blueprint for Mental Health Services has provided guidance for the development of publicly funded mental healthcare in New Zealand since 1998. The benchmark for Child and Adolescent Mental Health Services was that they should reach the 5.5% of adolescents with the most severe mental illness including depression, anxiety, behavioural problems, psychosis, eating disorders and other disorders. With 13% of secondary school students depressed at any one time [54] most young people with depressive disorder will never reach specialist mental health services. Most primary care service providers and school guidance counsellors do not have training in the specific psychological therapies known to be effective for young people. There are too few private psychologists and they are too expensive for most of the population. Access to treatment is particularly difficult in rural areas. The funding of the mental health service disadvantages children and adolescents (aged 0-19 years) who get approximately 11% of the mental health funding [55] even though they make up 28% of the population [56] and most mental illnesses have their onset in childhood or adolescence.

7.2   The National Depression Initiative

The National Depression Initiative was launched in October 2006 and aims to reduce the impact of depression on the lives of New Zealanders, by aiding early recognition and appropriate treatment for and recovery from depression. It was funded by the Ministry of Health to improve mental health in New Zealand and as part of an attempt to reduce suicide. It has a number of components. The media including television, radio and the internet have been used to raise awareness about depression and to direct people where to find care. Resources have been developed to help people with depression. Specific initiatives for young people include 'TheLowDown' website. The NDI also supports

primary mental health service development and the implementation of guidelines for GPs on mental health issues including depression. The need for a specific focus on young people was recognised.

Guidelines to support primary healthcare providers to recognise common mental health problems and to provide effective care for depression were developed and published in July 2008.

The National Depression Initiative has been a major advance in New Zealand and is a good example of a multi-faceted intervention which is informed by the evidence.

7.3   E-therapy

The Ministry of Health has funded the development and robust evaluation of a self-help computer based intervention, SPARX, designed specifically for young people aged 13 – 18 years with mild to moderate depressive disorder. It has been developed to appeal to all young people and particular care has been taken to ensure that it is acceptable to Māori young people and their whānau. Results for this initiative will be available early in 2011.

8. Implications for future policy

8.1   Focus on adolescents

We should take a strategic national approach to reducing depression in adolescence. The New Zealand strategies to decrease depressive disorder have started with adults. As most depressive disorder starts in adolescents this is too late. The cost of developing depression in adolescence is cumulative and later interventions are generally less cost effective, as outlined by Knudsen and shown in Figure 15.1 [57]. The negative impact on school and social function will reduce an individual's productive capacity for years to come. To maximise the impact on the burden of depression on the New Zealand society we cannot afford to leave interventions to the adult years.

The following strategies could be used.

8.2   Improve detection

Current depression awareness campaigns focus on adults. We should aim to increase recognition by adolescents themselves, by their parents, their teachers and other school personnel and by general practitioners.

8.3   Improve access to effective treatments

We should improve access to effective therapies through primary care. This can be done in the following ways.

8.3.1 Developing services that young people will attend

Young people are reluctant to seek care for mental health problems. Providing services that are youth friendly and accessible, through schools or youth one stop shops, particularly if these are not specifically targeted at mental health problems, is likely to improve access.

8.3.2 Training more therapists in CBT and/or IPT

Workforce shortages in child and adolescent mental health have been an ongoing problem. However, there has always been interest in training in CBT and in IPT and in New Zealand

we are fortunate to have accredited trainers in both. Generally up to 20 people can attend one course which means that 100 extra therapists could be trained in 2½ years. Each therapist could see approximately 90 young people a year so this would provide access for 9000 young people. The economic case for this approach is compelling and has been argued successfully in Britain [58].

8.3.3 Funding CBT and IPT through primary care providers

The cost of a course of CBT or IPT is likely to be about NZ$ 2000 per person (assuming NZ$ 150 per hour and 12 sessions). Each depressive episode lasts 6-9 months if untreated; the risk of a second depressive episode having had one episode of depression is 70% over 5 years. CBT, and probably IPT, reduce the risk of relapse. The cost of therapy would be more than offset by the savings in the cost of depression.

8.3.4 Improving screening for depression

The United States Preventive Taskforce has recommended routine screening for depression in adolescents aged 12–18 years if treatment options are available. A review of the scientific evidence available in 2009 showed that there are screening instruments available that are suitable for use in primary care, that they correctly identify adolescents with depressive disorder, and that treatment can improve outcomes [59]. One of the measures identified is the PHQ-A, an adolescent version of the PHQ-9 which is being used by primary care physicians in New Zealand, and which is recommended in the New Zealand guidelines for the detection of common mental illnesses and management of depression [60].
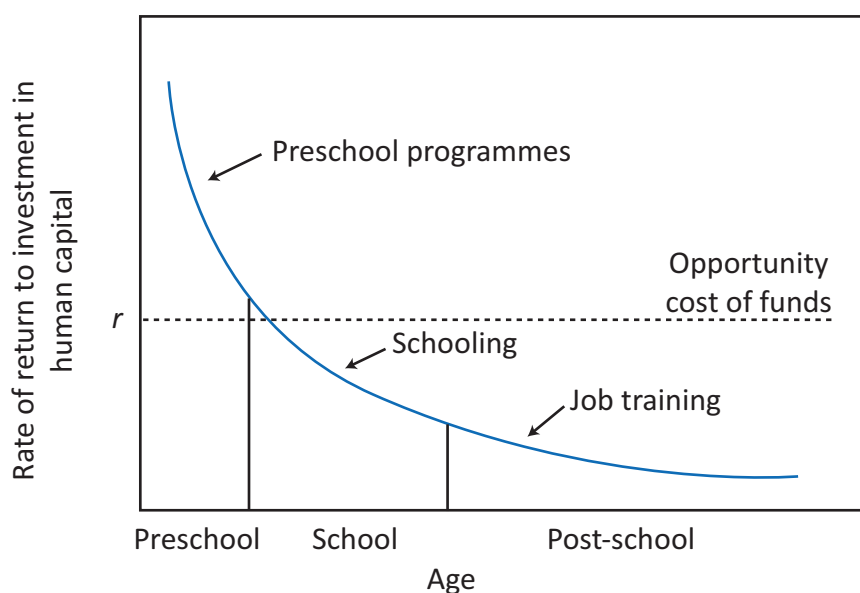
Figure 15.1. Rates of return to investment in human capital as function of age when the investment was initiated.

The data were derived from a life cycle model of dynamic human capital accumulation with multiple periods and credit constraints. Investments were initially set to be equal across all ages. *r* represents the cost of the funds. Figure and caption from Cunha F, Heckman J, Lochner L, Masterov D. Interpreting the evidence on life cycle skill formation. Amsterdam: North Holland; 2005, with permission.

Screening is available in some schools and a coordinated approach to detect and manage depression in adolescence has the potential to improve the transition to adulthood for a substantial group of young people who are not accessing help currently. If screening were to be put in place then access to therapy would be important. Given the concerns about possibility that antidepressants can increase the risk of self-harm, increasing access to psychological therapies for young people would be important.

8.3.5 Providing psychological therapy through e-therapy and bibliotherapy

Self-help treatment has several advantages over traditional therapist-administered interventions in that it is self-paced, less costly, easily accessible, and may not carry the stigma often associated with seeking mental health treatment. There is potential for delivering care across the country including to rural areas, which are typically poorly served. There are two main ways of delivering self-help resources, one is using computer technology (e-therapy) and the other is using books.

New Zealand researchers are at the forefront of the research in e-therapy for depression in teenagers. SPARX, which delivers CBT through an interactive 3D fantasy game, has been developed and an evaluation is underway. Young people who have tested the programme are enthusiastic about it, as are primary care providers. If effective, as is expected, this resource could be refined and distributed through primary care providers, on the web or through the production of CD-ROMs/DVDs. There is also potential to distribute the resource internationally.

There are self-help books available for children with depression and/or anxiety disorders. There is evidence of effectiveness of the resources for anxiety [61]. There are no books that are suitable for adolescents that we know of. A resource could be developed locally with relative ease and would be easy to distribute.

8.4 Measure the impact of interventions

The computer based survey method used to collect data in Youth 2000 and Youth 07 [62, 63] could be used to measure change in depression in successive cohorts of secondary school students. Valid and reliable methods for measuring depression in New Zealand adolescents have been developed [64]. We are able to track change in depressive symptoms, suicidal ideation and attempts and to collect data on overall well-being of students. This will allow us to track progress in tackling the important problem of depression.

8.5 Implement an active research programme

There remain many questions and avenues requiring further research.

8.5.1 Screening for depression

Shaffer, an internationally renowned researcher in this area, has been investigating the effectiveness of screening for depression with early results indicating positive effects. Research into the impact of screening for depression in schools in New Zealand should be conducted [65].

8.5.2 Role of social networking

It may be possible to use social networking (e.g. Facebook, Bebo, Twitter etc) to support interventions, but the exact methods and implications are unknown.

8.5.3 Families and depression

Although we know that a loving and well functioning family is a key factor that protects against depression while family discord is a risk factor, the best way to involve parents and families in interventions is surprisingly unclear.

8.5.4 Ensure effectiveness before funding

Because of the concern about depression internationally there has been considerable interest in implementing depression prevention programmes despite the lack of evidence. The example of the 'Resourceful Adolescent Programme' is salutary. There are three trials investigating the efficacy and effectiveness: the first, a cohort study, showed that the intervention was effective [66], the second study of RAP-Kiwi is discussed above, and a third trial confirmed that there was no effect when tested with a large sample in a real world setting [29]. Despite this, over 55000 Australian students have received the intervention (Shochet, personal communication). There is a large placebo effect in depressive disorder which can be as high as 70%, so it is important to ensure that scarce public money is not wasted on interventions that are essentially placebos [67].

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Appendix 1: More information on depressive disorder

Genetic and family factors

There is a two-fold increase in prevalence of depressive disorder in first-degree relatives of depressed children and adolescents [68] and a six-fold increase of depression in children whose parents are depressed [68], with additional risk if both parents are affected [69]. Both heredity and early experiences are important, with an estimate that genetics accounts for 40% of the risk and environmental effects account for the remaining 60% in adolescent female twins. Low levels of parental support and warmth are associated with depressive disorder [70]. Depressed mothers show less emotional responsiveness to their infants which is thought to impact on attachment and disrupt emotional regulation [69, 71]. Impact on the offspring may also be mediated through high levels of cortisol during pregnancy [18].

Work from the Dunedin longitudinal study has shown how genes and the environment interact to determine vulnerability to depression. A gene that affects the transport of serotonin, one of the neurotransmitters shown to be depleted in depressive disorder, can be inherited in two forms, one with a short allele and one with a long allele. Two thirds of those who have two short alleles (one from each parent) and who were maltreated as children (i.e. experienced physical abuse, sexual abuse or who had harsh or rejecting parents) go on to develop depressive disorder as adults. Those with two long alleles have a very low risk of depressive disorder while those with one of each allele have a risk that falls in between.

Biological theories

Major depressive disorder has been associated with a number of neurobiological changes. The brain systems that have received the most attention to date are the monoaminergic neurotransmitter systems. Interest in these systems followed the discovery that medications that appeared effective in treating depressive disorder increased levels of serotonin and noradrenaline in the synaptic cleft, and anti-hypertensive medications which precipitated depressive disorder depleted these chemicals. Abnormalities in the function of serotonin 1A receptors in people with depressive disorder have been demonstrated in a variety of studies, while findings related to the serotonin 2A receptors are less consistent. The differential maturation of the serotonergic and noradrenergic systems, with the serotonergic system maturing first, has been postulated as a possible reason for the failure to show effectiveness of tricyclic antidepressants in young people. Increased activity in the hypothalamic-pituitary-adrenal axis with elevated levels of cortisol, hypertrophy of the adrenal and pituitary glands, and an exaggerated response to stimulation by adrenocorticotropic hormone, has been identified in people with major depressive disorder [72]. High cortisol levels have been shown to precede the onset of depression and impair brain functions, including those related to serotonin [18].

There are a number of neuro-anatomical and neuro-pathological findings associated with depressive disorders. These findings are not consistent across different populations of people with depressive disorder, probably because depressive disorders are hetergeneous. Regional blood flow and glucose metabolism have been shown to be increased in the amygdala, the orbital cortex and the medial thalamus while they are decreased in parts of the pre-frontal cortex, the corpus callosum and anterior cingulate cortex [72]. It is postulated that the changes in the amygdala, which is involved in the memory of affect-laden events, may relate to the tendency of depressed people to ruminate. Reduction of

glial cells in the amygdala, the striatum and parts of the orbital and prefrontal cortex has been demonstrated with magnetic resonance imaging and/or in post-mortem studies of people with depression. This finding is interesting because the function of the glial cells in regulating synaptic function is increasingly recognised [72].

Hippocampal atrophy has been reported in patients with major depression, particularly older patients. It has been hypothesised that elevations of cortisol may be associated with damage to the hippocampus and that this finding may be a consequence rather than a cause of disorder. Intriguingly, neurogenesis in the hippocampus has been found in animals following treatment with antidepressants, electroconvulsive therapy and as a result of positive handling of the animals and exposure to an enriched environment [72].

It has been proposed that early events may have long-term biochemical effects that increase vulnerability to depression following the finding that adolescents with no apparent current difficulties, but whose mothers suffered from postnatal depression, had higher circulating levels of cortisol [73].

Summary of evidence of effective treatments

For a detailed review of effective treatments see [19].

Cost of depression

The Global Burden of Disease study, initiated in 1992 at the request of the World Bank and supported by the World Health Organization, was a landmark study involving over 100 scientists from more than 20 countries. It ranked depressive disorder fourth in the estimate of disease burden, ahead of ischaemic heart disease, cerebrovascular disease and tuberculosis [74]. The authors predicted depression would be second in the cause of disability by the year 2020 [75, 76] and in 2002 their predictions were supported with depressive disorders ranked second in developed countries, and first in developing countries with low mortality [77]. Other studies have confirmed high costs of the depressive disorder. In the United States, an economic impact study estimated the annual cost of depression at US$ 53 billion in the early 1990s [78], with the main contributors being reduced productivity (US$ 33 billion), treatment costs (US$ 12 billion) and increased mortality (US$ 8 billion). In 2000, the estimate grew to US$ 83.1 billion [79]. In 2004 in Europe, the total annual cost of depression was estimated at Euro (€) 118 billion, which corresponds to a cost of €253 per inhabitant [80]. This also makes up 1% of the total economy of Europe (Gross Domestic Product), making depression the most costly mental health disorder in Europe. A review of cost-of-illness studies of depression worldwide found that depression is associated with a substantial increase of direct and indirect costs estimated annually from approximately US$ 3200 to US$ 6600 per person (adjusted to the year 2003) depending on the country and methodology used [81].

Cost benefits of effective treatments for the treatment of depression

By 2030, depressive disorder will be in top three leading causes of the burden of disease [82]. By intervening during the adolescent years we have the potential to reduce the burden of disease on New Zealand by providing effective interventions for young people and helping them stay in education programmes. There are many studies showing a cost-benefit from providing effective interventions for depression in adults [83-87]. Lord Layard has been a proponent of the use of psychological therapies in Britain and has argued the case for cost effectiveness of interventions most persuasively [58]. A similar case can be argued here.

Chapter 16

Youth suicide

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Summary

- About 100 young people below the age of 25 die by suicide annually in New Zealand (accounting for a quarter of all deaths in this age group).

- Although youth suicide has almost halved in the last 10 years, New Zealand rates remain double those of Australia. There has been no decline in the high suicide rates of young Māori.

- Youth suicide is a complex problem with a low base-rate and many risk factors, including psychiatric disorder and social disadvantage. Clear-cut evidence for effective suicide prevention is difficult to establish. Nevertheless, there is increasing international evidence supporting an integrated approach covering many areas ranging from the mental health of the individual to the family, school and whole community.

- Like a number of other countries, New Zealand has an all-ages suicide prevention strategy. A report on the first year of progress in implementing the action plan was released in 2009. Evaluation will be crucial.

- Issues with regard to youth suicide prevention in New Zealand include: the piecemeal nature of some interventions designed to support families, a lack of focus on the high-risk group of adolescents with psychiatric disorders, variable levels of assessment and aftercare for those making suicide attempts, the failure to reduce suicide among Māori youth, and the opportunity to prevent some suicides by reducing access to alcohol.

- Some approaches that have been proposed for suicide prevention, such as increasing media coverage about suicide, are known to be potentially harmful.

1. Introduction

The aim is to provide a broad overview of youth suicide in New Zealand, focusing on risk factors and prevention strategies. Suicide is not a disorder in itself, but is an outcome strongly linked with psychiatric disorder, particularly depression, alcohol and drug abuse and disruptive behaviour disorders. Suicide in young people is also associated with family, social and educational disadvantage. Strengths and weaknesses of the current New Zealand Suicide Prevention Strategy will be assessed from the perspective of youth suicide with reference to evidence both from New Zealand and internationally.

2. *What is the question?*

The key question is how we can prevent youth suicide with its tragic loss of human potential. Some other questions are: how does completed suicide relate to non-fatal suicidal behaviour, what are the known risk factors for suicide, and what can we learn from the changing pattern of youth suicide rates in New Zealand in recent years in relation to those of other countries?

3. *Why is it important for the transition to adolescence?*

Youth suicide represents the ultimate failure of the transition from childhood to adulthood. Suicide is extremely rare before puberty. In New Zealand this changes rapidly as children reach adolescence. By ages 10-14 years suicide accounts for 10% of deaths, and it accounts for a quarter of all deaths in the 15-24 year age group. For males, suicide rates are higher among those aged 20-24 than in the 15-19 years age group. Some of the precursors to suicide, for example depressive illness, are also rare before puberty. Other underlying risk factors, especially those relating to social and family disadvantage, will have already have developed during childhood. Adolescence then brings a host of new challenges, particularly in a permissive society.

4. *What is the scale of the problem?*

Internationally the term "youth suicide" generally refers to the 15-24 year age group, going beyond adolescence into early adulthood when the brain is still maturing. In New Zealand in 2008 (the most recent year available) there were 497 suicides, among whom were 118 below the age of 25 years (82 males and 36 females) [1]. These deaths come at enormous cost. Not only does each leave a potentially damaging emotional legacy, but also there is the economic cost to New Zealand. This has been estimated at approximately $450,000 per suicide, not including the non-economic costs of loss of life-years [2].

The most common method for suicide in young New Zealanders is hanging, for both male and female. This is in contrast to attempted suicide (or self-harm) for which overdosing and cutting are by far the most common methods. In 2008 there were 774 young people below the age of 25 hospitalised for self-harm (224 males and 550 females) [1]. If self-harm in young people in the community that does not lead to hospital admission is also included, there are probably about a hundred cases for every death by suicide [3].

The good news is that although New Zealand youth suicide rates are still very high by OECD standards, they have almost halved in the last 10 years. Unfortunately the decline has occurred only in non-Māori youth suicide. Māori account for roughly half of suicides aged 10-14 years and one third of those aged 15- 24 years [1, 4].

Non-fatal, self-inflicted harm is often called "attempted suicide", although in the majority of cases there is little or no suicidal intent [5]. Yet the broad group of adolescents who have self-harmed are at greatly increased risk of suicide. Although many of these behaviours are medically trivial, they can be indicators of underlying treatable psychiatric disorders, just as with completed suicide. They are often used as a way of coping with emotional pain but this is risky and maladaptive.

5. What does research tell us about risk factors for suicide?

Most risk factors are the same for both completed suicide and self-harm [6, 7]. Where the risk factors differ for self-harm, this will be mentioned.

5.1 Demographic profile

As described above, males predominate (in contrast, self-harm occurs more commonly in females). About a third are of Māori ethnicity. Both youth suicide and self-harm are associated with low socio-economic status and lack of educational qualifications.

5.2 Social and family factors

Young people who die by suicide are more likely than others to come from a troubled family background. This includes having parents who are no longer together or have a poor relationship or a history of psychiatric disorder. In a study of suicides under the age of 15, the picture was of "a disadvantaged, vulnerable and distressed group of adolescents growing up in extremely difficult circumstances" [4]. A family history of completed or attempted suicide is also a risk factor.

Young people dealing with same-sex attraction are vulnerable to self-harm, but evidence is hard to gather in relation to completed suicide. Childhood physical, emotional and sexual abuse are linked with self-harm, perhaps indirectly [8]. Being bullied in childhood is a risk factor for later suicide among females. Insecure cultural identity may increase risk for young Māori. Social connectedness is protective for young people.

5.3 Psychiatric disorders

Most youth suicide involves psychiatric disorder, particularly depression, substance abuse or disruptive behaviour disorders. A combination of depression and either of the other two may be particularly risky. In very young suicides diagnosable disorder is less likely and the suicide may appear to be an impulsive reaction to circumstances.

5.4 Psychological aspects

A tendency to become aggressive when provoked or frustrated predisposes to suicidal behaviour, and appears to be biologically based. Some behavioural patterns may be genetically transmitted and involve a biochemical system in the brain.

Adolescents are often impulsive, may struggle to cope with distressing emotional states and may be so desperate to escape from their feelings that they become suicidal [9]. A sense of hopelessness also contributes. Problem-solving skills are often poor in those who self-harm.

5.5 Previous suicidal behaviours

Previous self-harm is one of the strongest predictors of suicide. The connection may be partly because the adolescent loses the sense of a barrier to suicide once the line has been crossed [10] and also because repeated suicide attempters usually have more severe psychiatric problems.

5.6 Situational factors

The final trigger to suicide is often an adverse life event, particularly a relationship loss or problem or a disciplinary or legal crisis. Even quite minor arguments have triggered

impulsive suicide in young adolescents, but usually this has been in the context of serious home or school problems and very fragile support systems.

Youth are particularly vulnerable to contagion, either through knowing of family or friends with suicidal behaviour or through media coverage of suicides [11].

Being placed in custody is risky – a quarter of all suicides in young Māori occur in this setting [12]. Ready availability of means of suicide is a risk factor that is difficult to control in New Zealand, where hanging is the most common method, but hanging in institutions can be reduced by ensuring that there are no sturdy points which a person could use in hanging themselves.

Intoxication may render the adolescent more vulnerable to acting on suicidal thoughts.

The ultimate pathway to suicide typically involves a combination of factors—for example, a young man of 20 might have difficulty in controlling sudden feelings of anger, lose his job, develop depression but not recognise this, be 'dumped' by his girlfriend (his only confidante), try to drown his sorrows with binge drinking, and then impulsively hang himself after hearing that his cousin had done the same thing. Trying to prevent youth suicide means tackling as many of the known underlying factors as possible, while basing strategies wherever possible on evidence of effectiveness.

6. The pattern of youth suicide in New Zealand

Why did youth suicide rates increase so much during the 1980s, and why did the rates for non-Māori subsequently decline substantially? If the answers were clear-cut we would be in a better position to prevent young suicides. Many other Western countries also experienced rising rates in the young at about the same time as New Zealand. This was generally attributed to societal changes, including less stable family structures, as well as increased use of alcohol and other substances, and perhaps also to a higher prevalence of depression among recent generations of young people.

Such factors could partly explain our increasing rates in the 1980s but if so, why did our youth suicide rates continue to rise for at least five years after the Australian rates began to fall, and why are our rates still double theirs? Australia introduced a youth suicide prevention strategy three years before New Zealand. With multi-faceted suicide prevention strategies, it is always difficult to be sure exactly how they made a difference. The New Zealand Youth Suicide Prevention Strategy launched in 1999 provided a national framework for a number of interventions that might have been helpful. At about the same time, however, the legal age for drinking alcohol was lowered to 18 years, and this may have undermined reductions in suicides related to adolescent drinking problems.

 Some of the excess youth suicide in New Zealand can be accounted for by suicides among Māori youth, which have not fallen in parallel with non-Māori suicides. If we are to achieve the Australian rates, it will be important to find ways to reduce suicide among young Māori and also to understand what aspects of Australian society or of the mental health of their adolescents might explain their lower youth suicide rates.

7. Strategies for suicide prevention

Before describing current work towards suicide prevention, it could be helpful to explain some of the rationale behind national suicide prevention strategies. They typically consist of a mixture of two approaches, those that focus on a range of high risk groups (e.g. those who have attempted suicide), and those that are aimed at the whole population in the hope

of reducing suicide within it (e.g. national campaigns to raise awareness of depression). They usually include many initiatives that could be described as 'suicide-inclusive' rather than 'suicide-specific' [13]. An advantage of these suicide-inclusive strategies is that they may produce other tangible benefits even if it cannot be proved that they have reduced suicide. For example, an effective strategy for helping dysfunctional families might lead to improvements in youth offending and education as well as a reduction in youth suicide. Targeting some of the precursors of youth suicide such as alcohol misuse and antisocial behaviour could achieve several positive outcomes including suicide prevention. A disadvantage is that a huge array of well-meaning activities could be mounted, none of which might actually reduce suicide, and this could potentially deflect resources from activities more directly related to suicide. When suicide prevention strategies are designed, a balance has to be achieved to maximise the chances of success. Evaluation is clearly crucial, and this will be discussed later.

It is generally accepted that effective suicide prevention requires an integrated approach covering many different areas, ranging from the individual to the family, school and whole community [14].

8. Suicide prevention in New Zealand

There has always been informal suicide prevention in New Zealand, for example within health services and by the efforts of concerned citizens. In 1999 the Youth Suicide Prevention Strategy was introduced. This gave way to an all-age suicide prevention strategy in 2006, reflecting the fact that 80% of suicides occur in those aged over 25 years. Both strategies were multi-pronged, as is usual for national suicide prevention strategies.

Under the youth strategy, guidelines were developed for media and schools, and efforts were made to improve care provided by Child, Youth and Family (CYF), mental health services for youth, emergency departments and general practitioners [15]. A suicide information centre was set up [16] and culturally specific programmes were provided for young Māori.

It is important that the focus on youth is not overlooked as action is taken on the goals of the 2006 all-age New Zealand Suicide Prevention Strategy. The current strategy has seven goals and it offers a helpful framework for observing where youth suicide is receiving attention.

9. Summary of actions relevant to youth that are being taken under the seven goals of the Suicide Prevention Strategy

Goal 1: Promote mental health and wellbeing, and prevent mental health problems. A report on the first year of the Action Plan [17] identified seven areas, all relevant to youth. Activities address the areas of: childhood and family (e.g. family support programmes); alcohol and drugs (e.g. review of the regulatory framework for the sale and supply of liquor); life stress and trauma (e.g. school-based programmes); socioeconomic inequalities (e.g. the Youth Transition Services programme to ensure 15-19 year olds are in employment, education or training); social cohesion and support (e.g. Kia Piki te Ora community development); cultural identity (e.g. Māori Language Week); and lastly discrimination (e.g. the Like Minds programme). Since the publication of the report on Year One of the Action Plan [17], a resource for Māori, Te Whakauruora, has been released [18].

Goal 2: Improve the care of people who are experiencing mental disorders associated with suicidal behaviour. Four key areas identified are: population-based initiatives, community-based initiatives, improvements in mental health services including Māori models of health, and mental health programmes within institutional settings. The population-based National Depression Initiative does include a youth element, but the community and mental health service initiatives are not youth-focused. In fact the current mental health and addiction plan list of 10 leading challenges lacks any mention of either suicide or youth. There is some youth focus in the area of primary care (e.g. school-based youth health services), and in view of the youthfulness of the Māori population, work on Māori mental health is likely to be relevant to young Māori. The fourth key area, that of institutional settings, has a strong youth focus, with sections on educational settings, CYFs, corrections facilities and police custody all relevant to youth.

Goal 3: Improving the care of people who make non-fatal suicide attempts. Since the young are over-represented here, this goal is very relevant. Key areas identified involve improving both acute management (e.g. targets for 14 participating District Health Boards (DHBs) to achieve in relation to assessment of those who have self-harmed) and longer-term management of those who make a suicide attempt. Research has been funded to evaluate the effectiveness of interventions following a suicide attempt. The third area, management of suicide attempts in institutional settings, is largely addressed under Goal 2.

Goal 4: Reduce access to the means of suicide. For hanging, there is a focus on ensuring that institutions meet guidelines for prevention. Reviews have commenced in settings relevant to youth (e.g. CYF care). Vehicle exhaust gas is the second most common method used by young people, and is considered under this goal. New emission controls for cars entering New Zealand were introduced in 2007, but it is not clear whether anything more is planned to remove older vehicles (which are likely to be owned by young people) from the fleet.

Goal 5: Promote the safe reporting and portrayal of suicidal behaviour by the media. This is highly relevant to youth, who are particularly susceptible to being influenced towards suicide by media stories. A seminar series on the role of the media in suicide prevention was provided in 2008, involving an Australian expert. A study into reporting of suicide in the New Zealand media was supported to inform plans for revising existing media guidelines. It is concerning that the need for caution in this area has recently been undermined by some who appear unaware of the firm evidence in favour of this aspect of suicide prevention.

Goal 6: Support families/whanau, friends and others affected by a suicide or suicide attempt. Like Goal 5, this is also very relevant for youth since contagious suicidal behaviour and the development of clusters occur particularly in this age group. Work on this appears to be at an early stage, with seven DHBs introducing an Initial Response Service and Specialist Counselling Service and the Ministry of Education working on traumatic incident management in schools.

Goal 7: Expand the evidence about rates, causes and effective interventions. As well as work on improving suicide data, a Suicide Prevention Research Fund was set up and this is supporting a number of studies relating to adolescence. The Health Research Council is also funding some projects relevant to young people. The suicide prevention information service, SPINZ [16], is developing new ways to make its information available to a diverse audience. Youth are not separately identified, but there is a link to "the Lowdown" website

which offers support for young people with depression, and a section for media to access for information and advice.

Another initiative that grew from the 2006 all-age New Zealand Suicide Prevention Strategy was the establishment of Regional Suicide Prevention Coordinators within five DHBs. These positions were based in Planning & Funding departments and their role was to facilitate the implementation of the national strategy at the local level by developing local Suicide Prevention Action Plans. Subsequent to the establishment of these roles at least three other DHBs created similar positions.

In summary, many actions are underway under the umbrella of the all-ages Suicide Prevention Strategy that aim to reduce suicide in youth. The strategy appropriately involves a range of activities, and has largely targeted areas for which there is reason to believe an intervention might be effective.

10.   The need for evaluation

Although evaluation is frequently mentioned in the Report on Progress on the Action Plan [17], it is often not at all clear how this will be achieved. No project should be designed without an evaluation component that goes beyond measures of consumer satisfaction or a mere description of what was done. The Towards Wellbeing programme (TWB) of CYF is a good example of a project for which evidence of effectiveness in reducing both suicide and attempted suicide has been provided. Only programmes tackling very high-risk groups at a national level are likely to be able to demonstrate any reduction in actual suicide. Hence a proxy measure, such as suicide attempts or a measure of a known suicide precursor such as antisocial behaviour, might often need to be used. Activities should be conducted with sufficient numbers involved to have adequate statistical power to assess the outcome wherever possible.

Some particular problems in evaluating the success of a suicide prevention strategy are as follows:

- Some youth suicide prevention efforts, such as those that involve working with disadvantaged families, might need to be in place for at least 15 years before the young children covered would be old enough to reach the at-risk ages for suicide.

- With a multi-pronged approach, even if youth suicide falls, it may be impossible to determine which particular interventions were responsible unless each project has included some meaningful outcome measures.

- In a small country such as New Zealand, the low absolute numbers of young suicides annually make it difficult to be sure whether small rises and falls are significant or just random fluctuations. This is a particular problem when a specific ethnic group such as Māori is being considered.

11.   Some limitations of current New Zealand approaches

Some interventions designed to support families or at-risk youth seem very piecemeal (Goal 1). The impression gained is of a variety of governmental and non-governmental agencies all trying to improve the lot of children and young people, but without overall coordination. Probably many fall between the cracks. This could perhaps be improved by either of two approaches. The first would be to have more integration, with fewer interventions being made for larger numbers of participants over longer periods, so that effectiveness could be better measured. An alternative approach could be to ensure that

all areas of New Zealand receive funding to help troubled youth and families, but with the way in which funds are spent devolved to the local level, with the proviso that the effect of local activities must be assessed after several years on previously agreed criteria.

Although Goal 2 addresses the care of people experiencing mental disorders, there is no real focus on the high-risk group of adolescents with actual psychiatric disorders. The Mental Health and Addiction Plan challenges do not mention suicide or youth mental health services. In the section on Educational settings, there is an impression of variable provision and no clarity about what the role of a school counsellor should entail. If we are to provide effective help for youth with depression, alcohol/drug abuse or disruptive behaviour disorders, serious attention should be given to a system which facilitates early detection at the school or primary care level. This needs to be integrated with well-resourced child and adolescent mental health services, so that primary health workers can be supported and be able to refer patients appropriately [19, 20].

In Goal 3 the focus is on care of people who make suicide attempts. Given the wide international consensus about the wisdom of ensuring that all who self-harm receive assessment and aftercare [20], it is puzzling that the Ministry of Health has chosen to recruit only 14 DHBs rather than all DHBs into its system to improve care for those who have self-harmed (Whakawhanaungatanga: The Self Harm and Suicide Prevention Collaborative).

The potential of Regional Suicide Prevention Coordinators appears to have been limited in two ways. First, these positions have been established in only a third of DHBs. Secondly, at times some aspects of their roles have overlapped with other initiatives funded by the Ministry of Health.

Although consideration has been given to Māori issues throughout the Action Plan, a concerted drive to reduce suicide among young Māori is lacking as a specific target. Ten years of youth suicide prevention efforts have so far failed this group. Two new Māori initiatives have been launched—Whanau Ora, to support families, and a Māori suicide resource, Te Whakauruora [18]. Devolution of suicide prevention initiatives to iwi or other community groups may have potential, as local solutions can be effective [21]. It will be important to evaluate the impact of these strategies and to ensure that communities are adequately resourced.

With alcohol abuse featuring strongly as a risk factor for youth suicide, legislation to limit access to, and the affordability of, alcohol could make a real difference. If the opportunity to reduce drinking by implementing recommendations of the Review of the Regulatory Framework for the Sale and Supply of Liquor is missed, many young lives may be lost that could otherwise have been saved. This has the potential to impact particularly on young Māori, who have even higher rates of problem drinking than non-Māori.

12.   Pitfalls in relation to suicide prevention

It is a waste of resources to engage in programmes whose effectiveness cannot be evaluated, unless strong international evidence of benefit already exists. As described above, evaluation is often difficult, but this is not a reason not to attempt it. Proxy measures may be a solution, particularly with suicide-inclusive strategies, for which outcome measures that are far more common than suicide may be helpfully used.

Beware of naïve claims by 'instant experts' – everybody has an opinion about suicide prevention, and some proposals can be potentially harmful, no matter how intuitive they may sound [20]. The recent suggestion that increased coverage of suicide in the media will

reduce suicide is a good example. There is no evidence at all to support this theory, and much evidence that it would actually do harm [11].

13. Implications for future policy

The current all-ages New Zealand Suicide Prevention Strategy is accompanied by the Suicide Prevention Action Plan 2008-2012 [22]. Goals are long-term: a report was produced in 2009 on the first year of progress [17]. Many actions are yet to be implemented. A major change in direction at this point would be unwise. Youth suicide needs to be kept in mind, particularly suicide among young Māori, in whom there has not yet been any reduction in high suicide rates. Adequate resourcing and meaningful evaluation of interventions with scope to reduce suicide in this group will be important.

Since the factors underlying suicide are so complex and often interact with one another, care needs to be taken that policy intended to achieve a different goal does not undermine suicide prevention. The lowering of the drinking age to 18 years in 1999 would be a prime example. Perhaps any policy affecting youth and families should be scrutinised for possible unintended effects on youth suicide.

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Chapter 17

Bullying in adolescence

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Summary

- The use of aggression in interpersonal conflict – including bullying – is a concern in New Zealand society, and internationally.

- Bullying has direct and indirect long-term costs to individuals and society.

- Researchers have identified significant factors associated with children who bully, children who are bullied, and children who are both bullies and victims.

- The role of the bystander in supporting or potentially thwarting bullying is a potentially fruitful avenue for future research and intervention.

- The most effective programmes to combat bullying target behaviour and attitudes on multiple levels within a school community.

1. Introduction

Bullying is a form of aggressive behaviour that generally involves repeated acts intended to intimidate, harass, or harm a victim [1]. Bullying can be direct, as in physical or verbal bullying. It can also be indirect and involve actions such as ostracism, spreading rumours, and damaging a victim's relationship with others [2]. Victims of physical bullying know who their attacker is, but in other forms of bullying, the perpetrator may remain unknown. Many instances of bullying also involve bystanders – individuals who witness or are aware of the bullying. Although this report focuses on adolescent bullying, this behaviour is found throughout much of the lifespan, and it occurs not only within schools, but also in homes, workplaces, sports fields, and potentially any place where people congregate. Bullying is a human problem, not a child problem.

2. What is the question?

Two most central questions are (1) what leads adolescents to bully, and (2) what are the most effective and efficient measures to deal with and prevent bullying? In answering the first question, it is important to understand how aspects of the individual (i.e., bully and victim) contribute to the occurrence of bullying. Family and parenting factors, as well as the child's cognitive, social, and intellectual skills play a role. Additionally, factors

associated with the situation can also increase or decrease the likelihood that bullying will occur. These situational factors might include the presence of bystanders and their willingness to support or thwart the aggression.

3. Why is bullying important in the transition to adolescence?

Bullying behaviour in adolescence is of concern for a number of reasons. The harm that adolescents can produce through aggression is much greater than in childhood, and so the potential consequences of bullying are magnified in comparison. In addition, when children and young people learn to engage in aggressive behaviour as a way to deal with conflict in their lives, they are at increased risk to continue this behaviour into adulthood. Trajectories of continued aggression are unhealthy for the aggressor, the victim, and society at large. Finally, as children grow older, bullying behaviour becomes less direct. This makes it more difficult to observe and confront. Research on adult workplace aggression confirms that co-worker aggression is a regular and persistent problem, and that the majority of such aggression occurs in less direct forms [3, 4].

3.1 Risks associated with bullies

Children who bully are estimated to make up approximately 10% of the school population worldwide in a given school term [5]. These percentages should be interpreted with caution, however, because incidence rates depend heavily upon the specific definitions used by researchers when eliciting self- and other-reports [6]. It is likely that these global estimates are conservative. Children who bully are at risk of increased levels of other forms of aggression and violence, antisocial behaviour, and later criminal behaviour [6].

3.2 Risks associated with victims of bullies

Across the world, children who report being bullied make up approximately 11% of the school population [5]. They have a greater likelihood of showing physical signs of stress, such as stomach aches, headaches, sleep problems, and bed wetting [7-9]. Victims are also more likely to experience anxiety, sadness, depressive symptoms, lowered self-esteem, social withdrawal, self-harm, and suicidal ideation [1, 10-13].

3.3 Risks associated with bully-victims

A smaller subset of children can be classified as bully-victims. These children are estimated to makeup approximately 6% of the school population in any school term [11], although Marini et al. [14] estimate that up to one-third of adolescents involved in bullying or victimisation can be classified as bully-victims. Compared to bullies and to victims, bully-victims have the greatest incidence of social, behavioural, and mental health problems [15, 16].

3.4 Adolescent bystanders of bullying

Many incidents of bullying also involve peers who are bystanders [6]. These bystanders provide attention and reinforcement, and they can play an important role in encouraging and prolonging bullying [6]. By not taking action, these bystanders convey the message that the bullying aggression is acceptable and normal. The importance of normative beliefs about aggression should not be underestimated. Children who have peers that bully are more likely to engage in future bullying behaviour [17], and bullying is more likely

to occur when peers approve of aggression [18]. Moreover, individual differences in older children's aggression are predicted by earlier differences in normative beliefs [19].

In addition, incidents of bullying are often not perpetrated by a single student, but by groups of students [20]. Bullying that involves bystanders or peer involvement has been estimated to occur in up to 80% of cases observed [21], and the presence of peers is associated with lengthier episodes of bullying [22].

4. What does research tell us about causative factors?

4.1 Factors associated with bullies

4.1.1 Family variables

Parents of children who bully are more likely to use coercive and aggressive means of influence and tend to use less consistent and effective forms of discipline [23]. In addition, lower family socioeconomic status (SES) is associated with bullying [24]. A subset of children who engage in bullying have been victims of adult maltreatment [25].

4.1.2 Child variables

Hostile attribution bias is associated with aggression [4]. People with this bias expect the world to be an unfriendly, hostile place. In ambiguous situations, they interpret others' behaviour as intentionally hostile [26]. Children who bully are likely to have poorer academic skills than the average child of the same age, and they are more likely to believe that problems can effectively be solved through aggression [23]. Children who bully also evidence lowered social problem solving skills [27]. On the other hand, there is also some evidence that at least a subset of bullies are viewed by their peers as popular and attractive [28]. A subset of children who bully will show features of hyperactivity or conduct disorder.

4.1.3 School variables

Adult tolerance of bullying at school is associated with more severe bullying problems [1]. Inadequate supervision during intervals and lunchtimes is also associated with greater frequencies of bullying. Other school factors associated with bullying include lack of clear policies for dealing with bullying, failure to enforced existing anti-bullying policies, and presence of unhealthy, hostile relationships and ineffective conflict resolution strategies among staff [6]. Conversely, a positive school climate can serve to buffer children from negative home and peer environments that might otherwise lead to bullying and victimisation [6].

4.1.4 Societal variables

Schools with greater disparities between the poorest and wealthiest have a greater prevalence of bullying [24]. Interestingly, Due et al. also found that countries with greater economic disparity have higher rates of bullying than those with smaller disparity. They speculate that when societies have a widespread acceptance of inequality, these norms might be displayed by children through "the approval of behaviours associated with status differences, such as bullying" (p. 7). Perceptions of normative behaviour influence aggression; thus societies that accept aggression as a means to solve problems and disputes are likely to have greater levels of aggression within and outside of schools.

4.2   Factors associated with victims of bullies

Targets of bullying are more likely to be children who score higher on scales of anxiety, depression, withdrawal, low self-regard, and assertiveness [15]. Longitudinal research shows that these characteristics are risk factors, rather than simply consequences of bullying. In addition, early displays of aggressive behaviour predict later peer rejection and victimisation [15]. Children who do not fit in with a peer group, who are obese, have developmental disabilities, or do more poorly than peers academically are at greater risk for victimisation [6].

5. Prevention, treatment, and management of bullying in adolescence

Interventions can be grouped into five broad categories [1]:

- curriculum interventions
- multidisciplinary or whole-school interventions
- social and behavioural skills groups
- mentoring, and
- social work support.

Curriculum-based interventions vary in their content, but tend to involve the presentation of videos, lectures, and written material, class discussions, group work, and in some cases role-playing. Rigorous evaluations of curriculum-based interventions to date indicate that they are not particularly effective in reducing bullying behaviours [1]. They are designed to change student attitudes and group norms, but because they only target one level, they are inadequate on their own to change behaviour that is more systemic in nature [1].

Evaluations of whole-school, multidisciplinary interventions generally suggest modest improvements in bullying behaviours [1]. These programmes have been estimated to reduce bullying by just over 20% [28]. Whole-school interventions involve a mixture of targeted teacher training; information and materials for students, staff, and community members; workshops; training of peer supporters; conflict resolution training; and policy work on school rules and sanctions surrounding bullying. Rigorous evaluation of bullying programmes is still at an early stage [2], but it appears that the relative success of whole-school programmes is that they target bullying at many levels and more directly address the systemic nature of bullying. One well-known whole-school antibullying programme is the Olweus Bullying Prevention Program [29]. Developed in Norway, it has since been adapted internationally and applied to schools in Italy, United States, Switzerland, Canada, and Australia.

The results of interventions that target social and behavioural skills in children are mixed. Whereas one study reported clear reductions in bullying behaviour and associated changes in self-esteem, peer liking, and social anxiety in middle-childhood [30], three others working with older children found no consistent reductions in bullying. Interestingly, the one successful study focused training on victims rather than bullies.

The two remaining programme types, mentoring and social work support, have not received adequate assessments to date. The mentoring programme led to reduced bullying, physical fighting, and feelings of depression, and increased academic performance, but it only involved a sample intervention group of 28 students.

There are a large number of published studies that target interventions to reduce bullying in schools. More recently, a handful of excellent meta-analyses have clarified strengths and weaknesses in the existing knowledge surrounding bullying. The area continues to lack adequate long-term research on bullying interventions, particularly with young people through adolescence and early adulthood.

6. Where is policy/intervention currently focused?

Kia Kaha is an anti-bullying programme developed and promoted by the Youth Education Service (YES) of the New Zealand Police [31, 32]. In theory, it follows the basic principles found in the best of whole-school anti-bullying programmes. It adopts a problem-solving, no blame approach, involves school management, teachers, pupils, and parents, and promotes zero tolerance of bullying. Approximately 130 YES officers throughout New Zealand work with primary and secondary schools to implement the Kia Kaha programme. Without adequate fidelity checks, it is unclear how well individual schools promote and follow the programme in its entirety. The success of whole-school programmes depends on the programme being implemented as intended throughout the school community. Although limited published reports are promising [31, 33], rigorous, internationally-recognised standards of assessment are lacking.

7. Implications for future policy

According to Smith, Schneider, Smith, & Ananiadou [34], whole-school interventions "reflect a reasonable rate of return on the investment inherent in low-cost, nonstigmatizing primary prevention programs" (p. 557). These need to be implemented with well-trained staff, adopted throughout the school, and followed with a general change in school climate. If aggressive solutions to conflict continued to be tolerated or practised at higher levels within a school, interventions will be less effective. Moreover, it is important that peers cease to support and reinforce the behaviour of bullies [35]. There is also reason to believe that family interventions to reduce parental conflict and aggression at home are additional avenues to pursue in the effort to curtail bullying at school [36]. An important question for New Zealanders is whether they are ready to tackle the problem of bullying in New Zealand schools by addressing the problem of aggression throughout the community. If they are, the solution will need to extend beyond the school, into the home, sports fields, and workplaces – and involve the behaviour of adults leading the way.

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Chapter 18

Smoking impacts on adolescent development

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Summary

- Smoking represents a serious threat to the health and well-being of those who smoke and those around them. There are relatively lower levels of population-wide smoking present in New Zealand compared to other OECD countries. Within New Zealand, greater levels of smoking are present in men compared to women, within the Māori population – particularly females – compared to other groups, and those living in disadvantaged neighbourhoods. These factors likely contribute to the low initial age of smoking present in New Zealand.

- Individually, genetic tendencies, as well as a lack of academic and social skills, can contribute to smoking. During the period of adolescence, mental health, particularly depression, has emerged as one of the strongest predictors of smoking. Depression not only predicts youth smoking but also a range of negative mental and physical health outcomes. The link between depression and smoking appears to be stronger for females. These factors contribute both to initiation of smoking during adolescence and to persistent smoking into adulthood.

- Outside familial forces such as a parent who smokes, depressed economic conditions or social influences of peer group choice and peer group identity can increase the likelihood of youth smoking.

- Adolescence is a natural time of normative transition which presents youth with stresses and challenges. Smoking is not an isolated activity; contextual factors during this fragile period can contribute to youth smoking in a number of ways.

- Well-designed prevention and intervention programmes should address not only smoking but the predictors of smoking. Doing so at an early age will work to ameliorate youth smoking (intervention) and reduce the prevalence of adolescent smokers who persist to become adult smokers (prevention).

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1. Introduction

Smoking is estimated to be a leading cause of preventable death and health problems in New Zealand [1]. Smoking is directly harmful to health and life expectancy. Secondary exposure to smoking while pregnant and second hand smoke adversely affect the health and development of children. In addition to health concerns, it is estimated that there is an 84 million dollar annual cost of smoking to the New Zealand government, employers, social welfare, health care and the environment [2]. While smoking has a direct detriment to physical health, smoking has a high co-occurrence with mental health problems as well. This co-occurrence is evident during adolescence, a period where there are increased rates of mental health problems and delinquency which can lead to substance abuse. As such, adolescence is a period when many lifetime smokers first begin smoking. By focusing on the context and precursors to the development of smoking a comprehensive strategy to ameliorating smoking behaviour may be facilitated. Such a preventative approach would beneficially impact the long term physical, mental, social and fiscal welfare of New Zealand.

2. Adverse health effects of smoking

Smoking in all its forms is detrimental to the user's health as well as those around them. It is estimated that there are 4500–5000 deaths annually in New Zealand related to smoking and second hand smoke [3]. The effects of smoking on the body are widespread, notably affecting the pulmonary, cardiovascular, reproductive and circulatory systems. Disease related to smoking accounts for 90% of all lung cancer, 70% of all chronic bronchitis and emphysema and 25% of all ischaemic heart disease [2]. In addition, smoking has been linked to cancer in the stomach, throat, liver, kidneys, bladder, mouth and throat [2, 4].

The ancillary effects of smoking during pregnancy (and second hand smoke) are harmful to the mother as well as the fetus. Smoking has been found to affect fetal and neonatal growth and been linked to lower birth weight, smaller birth size and death in infants [2, 4]. Smoking during pregnancy has also been related to later developmental problems in children, most notably conduct disorder and antisocial behaviour [5-7].

Second hand smoke has also been found to be detrimental to the health of those in the vicinity of smokers, increasing the risk of lung cancer by 20-30% and heart disease by 23% [2]. A New Zealand survey found regular smoking to take place in 12.5% of homes and more so for those in deprived neighbourhoods [8]. Exposure to second hand smoke also has been linked to wider health problems in children such as greater risk of infection and long term respiratory problems [2]. In addition to physical health, smoking in adolescence has been linked to serious emotional problems as well as depression and suicide ideation [9, 10].

3. Incidence and prevalence rates

Internationally, it is estimated that a quarter to a third of the world's population smokes daily [11], with 22% of women and 35% of men estimated to smoke. The estimated prevalence rates of smoking for other OECD countries have been found to be 23.3% in Australia, 21.3% in Canada, 24-29% in the UK and 20-29% in the US [3, 12].

The overall prevalence of smoking in New Zealand in 2008 was 23.1% of the population, with 25.7% of men and 22.3% of women smoking [3]. There is a wealth of data relating to smoking rates in New Zealand and internationally as part of efforts to monitor, prevent

and ameliorate smoking behaviour. Smoking in the present context refers to smoking of manufactured cigarettes or loose tobacco.

In comparison to other high income countries, New Zealand has the lowest estimated overall prevalence of active smoking [11]. In addition, New Zealand ranked 4th lowest in a 2007 OECD comparison of daily smoking rates in 30 countries [13]. Within New Zealand, smoking varies by a number of demographic factors, namely age, gender, ethnicity and socioeconomic status.

4. Variation in prevalence of New Zealand smokers

By age group, 20.8% of adolescents in New Zealand aged 15-19 years old were found to smoke regularly [3]. From this early age, rates of smoking have been found to increase over the life course, peaking in early to middle adulthood. For adult males 40.9% of early adults are smokers and 33% for females [3]. The prevalence of smoking by ethnicity is 45.4% for Māori, 31.4% for Pasifika, 21.3% for European/Other and 12.4% for Asians [3]. A further at risk population is Māori females, who are twice as likely to smoke in comparison to the general female population [3]. Finally, people living in disadvantaged neighbourhoods are at 1.5 times increased likelihood of smoking [3]. These statistics characterize populations at risk for developing smoking and identify subpopulations that may benefit the most from smoking interventions. The relatively high rates of smoking in youth increase into adulthood which highlights adolescence as a time when preventative smoking measures may be most beneficial. Youth smoking is a product of a number of social, familial and individual characteristics. Targeting youth smoking therefore is a multifaceted enterprise which must be located within the wider context of adolescent development.

5. Youth and smoking

Teenagers are particularly vulnerable to smoking. During adolescence many individuals begin smoking, often establishing a lifelong habit. It is estimated that "80% of regular smokers begin before the age of 18" [14 p. 1]. In New Zealand, the average age of first cigarette use is 13.3 years old with an average onset of smoking found to be 14.6 years old, with girls beginning smoking earlier than boys [3]. Among youth populations, 12.8% of 14-15-year-olds who took part in a 2007 survey considered themselves to be regular smokers [14]. The onset of smoking appears to be influenced by a combination of social, emotional, familial and child factors. In New Zealand 81% of 15-19-year-old current smokers had a family member who smoked [3]. Greater rates of smoking are also present in minority populations with approximately 50% of Māori youth reporting being influenced by a parent smoking, compared to 20% of non-Māori youth [8]. Familial and peer pressures influence not only smoking behaviour but access to tobacco as well, as smokers aged 15-19-years were most likely to get their tobacco from family or friends [3].

In light of the health risks associated with smoking, interventions should target both the cessation and prevention of onset of smoking. Most lifetime smokers begin smoking during adolescence [14, 15]. The initiation of smoking behaviour during this period does not occur in isolation but develops reliant on a range of individual and environmental influences in the child's life. This marks adolescence as a vital point at which to target not only smoking, but also the predictors of youth substance abuse in ameliorating lifetime prevalence rates of smoking. As such, it is important to consider the context within which smoking behaviour develops, including the individual factors that lead to smoking.

6. Social and familial influences on adolescent smoking

Adolescence naturally marks a period of increases in delinquent behaviour. Increases in delinquent behaviour coincide with increases in substance abuse, such as smoking [16]. Adolescents who initiate such maladaptive behaviour during this period exist as a categorically different risk group from those with persistent problems with delinquency [17]. A number of external influences on adolescents relative to their environment have been shown to relate to increases in concurrent and future smoking.

Factors in the environment such as family circumstances and peer groups have been shown to contribute to smoking [18, 19]. Specifically, in a 25 year longitudinal study of predictors of adult smoking using a New Zealand based sample, family socioeconomic status was predictive of adult smoking [18]. Socioeconomic status was found to impact on familial influences of parental smoking and peer smoking. Importantly, socioeconomic status also impacted on individual factors of conduct problems and school performance to predict adult smoking. Thus, early influences in the child's environment can predict later smoking outcomes.

One consistent and significant influence on the prevalence of adolescent smoking is the presence of parents who smoke. The intergenerational transmission of smoking appears consistent, with a greater influence if children are exposed to smoking prior to 13 years of age [20]. In addition, having more than one parent who smokes and consistent exposure to smoking are related to a greater chance of adolescent smoking. This effect was found to be strongest for fathers and sons (versus daughters) [20]. Additional family influences on smoking include the presence of a step-parent [21].

Peers also greatly influence youth smoking. The inclusion in peer groups, need for social approval and exposure to peer smoking are all related to the onset of smoking in youth [18, 22]. Numerous studies have found an influence of peers and peer smoking on onset of smoking [23-25]. A number of specific peer influences have been found to impact on initiation and maintenance of smoking during adolescence. External peer factors like the presence of high stress and lower social status have been found to contribute to smoking in adolescence [23]. A more advanced model of peer influences on smoking proposes that it is a combination of demographic, family and personality factors which lead to selection of a friendship group [26]. The likelihood of smoking is then determined by characteristics of the peer group, such as group expectations, opportunities to smoke, peer pressure within the group and smoking as a social identity [26]. Research has shown that in addition to these peer factors, closeness within the peer group and friendship quality also impact on smoking within a peer group [25]. It is evident that a multitude of influences exist at the peer level that contribute to one's likelihood of smoking. When these social influences are coupled with negative familial influences, there is an even greater chance of smoking during adolescence.

Collectively, a disadvantaged family environment with parents who smoke, coupled with the need for social bonding in adolescent groups with smokers is predictive of smoking in children. This risk is greatly amplified and is most predictive of lifetime smoking for children who are at a cognitive or emotional disadvantage [18, 22]. While smoking in itself is detrimental to health, smoking behaviour appears to be a potential marker of social and emotional problems during adolescence, co-occurring with depression (especially for girls), suicide ideation and substance abuse [9, 10, 27-29]. As such, smoking behaviour may best be ameliorated by understanding not only the environment in which it occurs, but also the individual factors that contribute to initiation of smoking, which may be even more

significant in predicting long term smoking than outside influences [28, 30, 31]. Individual liabilities such as disadvantaged social and academic skills, a genetic predisposition to smoke and mental health problems all significantly contribute to smoking [15, 18, 19, 32]. Of all the individual influences on substance abuse and smoking behaviour, mental health problems appear to be the most significant in predicting smoking during the period of adolescence.

7. Adolescent mental health and smoking

A greater rate of smoking is typically found in populations with mental illness. In adulthood, smoking is found to co-occur with a number of mental health diseases such as schizophrenia, mood disorder, personality disorder, ADHD, depression and anxiety [33]. In New Zealand, 32% of people with a mental disorder smoke, compared to 21% in those without any mental problems [34]. With respect to adult mental illness, smoking is thought to act as a means of self-medicating for an underlying disorder. This cycle of reliance on tobacco due to mental disorder has its origins in adolescence.

Adolescence is a normative period of transition during which individuals are at increased vulnerability for mental health disorder, especially depression. Adolescence marks the onset of increases in depression, especially for girls, who are particularly at risk [35]. In New Zealand, girls in secondary school are at twice the risk for developing depression as boys [36]. In turn, research has found that levels of depression and smoking in adolescence are linked, with a stronger relation present for girls [30, 37]. In both high risk and normative adolescent female samples severity of depressive symptoms has been found to predict the level of tobacco use, with increases in depression leading to increases in tobacco use [31, 38]. In addition, whereas family dysfunction and association with peers have been seen to contribute to the co-occurrence of depression and substance abuse [32], the influence of depression has been found to influence smoking over and above the influence of peer smoking [31].

As previously evidenced, girls are at an increased risk for both depression and substance abuse during adolescence. This increased risk is believed to result from earlier maturation than boys leading to a host of risks such as association with an older and possibly more deviant crowd, increased risk for sexual behaviour and delinquency [19]. In addition, girls may be at a specific risk for smoking as social pressures during adolescence can create unreasonable stereotypes regarding body image, leading to cigarette use as a means for both weight control and mood stabilisation [19].

Importantly, recent research has found that adolescent depression precedes smoking behaviour [31, 38]. This indicates that during adolescence mental health problems predict smoking, rather than vice versa. Research also suggests that depression in adolescence may lead to maintenance in smoking throughout adolescence and into adulthood [28, 30, 31]. In addition, when mental illness and substance abuse occur together, they predict a number of negative outcomes. Adolescents, particularly girls, with depression and substance use have higher rates of illicit drug use, delinquency, eating disorders, suicide, conduct problems, incarceration as well as greater levels of suicide later in life [19, 39].

These findings highlight the significance of identification and targeting of the routes through which depression and substance abuse co-develop. Adolescence appears to be a time of particular relevance in targeting smoking behaviour, during which females are at increased risk. By targeting smoking in the context of the precursors of smoking, namely mental health problems, both adolescent and lifetime/adult smoking can be

ameliorated. Research indicates that smoking in itself serves as a marker of co-occurring mental health problems not only during adolescence but later in life as well [33]. This provides a comprehensive context from which to make the maximal impact on reducing substance abuse with the most effective attempts to reduce smoking behaviour targeting both smoking and its underlying causes.

8. Smoking prevention and intervention

To properly address smoking, programs should be aimed at a wide range of age groups from early adolescence to adulthood. Both adults and adolescents would benefit from intervention programs that tailor to their individual needs and symptoms. Such programs should target prevention and cessation through focusing on both the outside influences on smoking such as family and peers, as well as individual factors such as mental health. Whereas familial and peer influences may be static, research has shown that persistent lifetime smokers are more likely to have both initiated smoking early in life and have current mental health problems [40]. In addition, successful smoking cessation in adulthood is better predicted by lower levels of current mental health and lower levels of mental health problems earlier in life [40]. The evidence presented thus far illustrates that factors in both the environment and specific to the individual contribute to initiation of smoking. In addition, the earlier an individual begins smoking, the greater the likelihood of continued smoking. Research shows that youth who began smoking before the age of 16 had twice the likelihood of continued smoking as compared to those who began smoking later in life [41]. This provides support for prevention and intervention programs aimed at early adolescence to decrease rates of adult smokers.

8.1   Adolescent smoking

Research has shown that school based programmes are effective in smoking prevention when they address adolescent intentions, beliefs and attitudes regarding smoking [42, 43]. The most successful programmes take place over multiple sessions, are interactive in delivery and teach refusal and social skills related to smoking [42, 43]. A parent focus on smoking prevention has also shown promise as children whose parents are more engaged, set limits and discuss smoking with their children are less likely to smoke [44, 45].

In adolescence, there is evidence that family factors may be more protective for girls whereas community programs may be more successful for boys [19]. The implementation of programs in adolescence has shown success when taking a comprehensive approach through targeting a range of problems such as stress, depression, social skills and body image, in an effort to reduce mental health and substance abuse problems [19]. Programs that successfully ameliorate depression have also been shown to be associated with decreases in substance use [39].

8.2   Adult smoking

Intervention for current smokers focuses on treatment via counselling or nicotine replacement options. The use of gum, nicotine patches, inhalers, or lozenges has been shown to increase the rate of successful quitting by 50-70% through reducing the motivation to smoke and easing withdrawal symptoms [46]. In addition to nicotine replacement, the use of smoking cessation counselling and time release bupropion, a pharmaceutical aid, has also been shown to increase the chance of successful quitting [4, 47].

In addition, successful prevention programs should address smoking within the context of mental health. Addressing depression in concert with mental health programs has shown promising outcomes for cessation during pregnancy [48]. For at-risk adults, stepped-care programs offer a novel approach: individually tailored graded interventions targeted at both smoking cessation and mental health. These programs have proven to be effective in reducing smoking and mental health problems [49, 50].

A number of options have evidenced success in wider application of smoking prevention, including expanded smoking treatment coverage, telephone quitlines, internet based treatments and legislation targeting smoke free areas, advertising bans, health warnings, health education and tobacco pricing [2, 51].

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Chapter 19

Alcohol use in adolescence

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Summary

- There is consistent evidence to suggest that a substantial fraction of New Zealand young people engage in heavy drinking including hazardous drinking, alcohol abuse and alcohol dependence. Over a third of young people engage in binge drinking or hazardous drinking and by the age of 25 over 20% will have developed a significant alcohol related problem.

- The misuse of alcohol by young people has been associated with increased risk of a number of adverse outcomes including: motor vehicle collisions, injuries and deaths; crime; violence; sexual risk taking; mental health problems and victimisation.

- There is increasing international evidence on the types of policies that are effective in reducing the risks of alcohol related problems in young people. Effective policies include: increased alcohol taxation; regulating the availability of alcohol; regulation of drink driving; alcohol marketing restrictions; development of effective treatment services.

- Approaches having little or no effectiveness include: alcohol and drug education in schools; public service advertisements advocating responsible drinking and avoidance of drink driving; warning labels on alcohol containers.

- The recent Law Commission report provides a comprehensive and evidence-based framework for reforming the supply and regulation of alcohol in New Zealand.

- Key reforms that are likely to benefit young people include: increasing the cost of alcohol; a substantial increase in the drinking age and the age at which alcohol may be purchased; adopting a zero tolerance policy for drink driving by under 21 year olds; further restriction on the advertising of alcohol; greater regulation of hours of sale, number of outlets and supply of alcohol in licensed premises frequented by young people; and greater investment in treatment for young people with significant alcohol related problems.

- Greater investment is required in evaluation research to ascertain the extent to which policy changes have beneficial effects in reducing the misuse of alcohol by young people.

1. Introduction

The purpose of this chapter is to examine the use and misuse of alcohol by young people; to describe the harms associated with alcohol misuse and to outline policy options for both regulating the use of alcohol and reducing alcohol related harms.

2. What is the question?

Alcohol is widely used and misused by young New Zealanders, with estimates suggesting that over 1 in 3 young people aged 12-16 engage in binge drinking [1] and a similar fraction of young people aged 16-21 engage in hazardous drinking [2]. There have been ongoing public concerns expressed about young people and alcohol in both the New Zealand media and in official reports. The growing statistical evidence and public concerns raise three important questions about alcohol and young people.

- The first question concerns the extent to which alcohol use has harmful consequences for young people.
- The second question concerns the best ways of regulating the purchase, supply and consumption of alcohol by young people to minimise alcohol related harms.
- The third question concerns the development of prevention, treatment and related services aimed at both reducing heavy drinking by young people and providing treatment for young people with alcohol related problems.

3. Why is alcohol use important in the transition to adolescence?

There is growing and internationally consistent evidence to suggest that the heavy use of alcohol by young people makes substantial contributions to risks of a range of adverse conditions in adolescence. Amongst the adverse effects that have been documented are the following.

3.1 Increased risk of motor vehicle collisions, injuries and deaths

The transition to adolescence includes two rites of passage that have consequences of increasing the risk of injury and mortality from motor vehicles. First, over the period of adolescence the majority of young people begin to use alcohol as part of social activities. For example, estimates from the Christchurch Health and Development study suggest that by the age of 15 over 70% of young people reported drinking within the last year, with 30% reporting drinking at least once per month [3]. Second, the onset of drinking behaviours coincides with age at which a driving licence can be obtained, with 15 being the age for acquiring a learner's licence. The combination of these two events places adolescents at risk of drink driving, with the attendant harms of motor vehicle collisions, injury and death [4-7].

3.2   Increased risk of crime

There is now substantial evidence to suggest that the disinhibiting effects of alcohol place teenagers at increased risk of a range of crimes including: violence; vandalism; sexual crimes; partner violence and property crimes [8-29]. This scientific evidence has been supplemented by growing amounts of video material of public areas that has documented the ways in which the misuse of alcohol fuels antisocial behaviours by young people [30].

3.3   Increased risk of sexual risk-taking

The heavy use of alcohol is also associated with increased risk of sexual risk-taking, including multiple sexual partnerships and unprotected sex [31-33]. In turn this increased rate of sexual risk taking is associated with increases in sexually transmitted diseases, pregnancy and abortion [32-35].

3.4   Mental health problems and suicidal behaviours

There is increasing evidence to implicate the misuse of alcohol in the development of mental disorders such as depression [3, 36-44] and the development of suicidal behaviours in young people [13, 45-47].

3.5   Victimisation

The social context within which alcohol is consumed means that not only are young drinkers at risk of behaving in 'at risk' ways, they are also at increased risk of becoming the victims of drink driving and alcohol fuelled crimes [19, 29, 48-52].

In reviewing the risks associated with teenage drinking in New Zealand the recent Law Commission's report [53, 54] concludes:

> *"One of the greatest challenges we face around alcohol is how to reconcile the new evidence of the risks alcohol presents to young people with our cultural norms. Drinking to intoxication is commonly seen in our society as a rite of passage and drinking to intoxication is not only socially accepted but expected. New research has shown that young people experience more harm per standard drink than older drinkers. The highest risk is for those under 15 years but there is still an elevated risk of harm per drink for young people up to the age of 25 years."*(p. 83) [53]

In addition, the Law Commission notes:

> *"It is hard to think of any other lawful product available in our society that contributes to so many social ills. While alcohol misuse is only one of several risk factors contributing to these harms, alcohol distinguishes itself because, like many other factors associated with crime, injury and social dysfunction, the harmful use of alcohol is a modifiable risk factor."* (p. 7) [54]

4. What is the scale of the problem?

A number of New Zealand publications have sought to estimate the fraction of young people who are at risk because of the heavy consumption of alcohol [1, 2, 18, 53-59]. However, different studies have used some different approaches. In studies of younger teenagers, rates of binge drinking have been used to assess the size of alcohol related problems. For example the Youth 2007 survey reports 34% of young people age 12 to 17 engaged in binge drinking in the previous month, where binge drinking was defined as drinking more than five alcoholic drinks in four hours [1]. The New Zealand Mental Health

Survey (Te Rau Hinengaro) reported a range of measures applied to 16 to 24 year olds [2, 55]. These measures include assessment of the number of young people engaging in hazardous drinking as well as those meeting formal diagnostic criteria for alcohol abuse and dependence. Te Rau Hinengaro found that 79% of young people aged 16-24 drank in the previous 12 months and 49% of those drinkers drank hazardously in that period. The same study showed that, regardless of drinking status, nearly 17% had met DSM IV criteria for alcohol abuse, with 6.5% having met criteria for alcohol dependence. These figures clearly suggest that over a third of young New Zealanders are at risk of alcohol related problems each year because of their binge drinking and/or hazardous drinking. The percentage who will have met formal diagnostic criteria for an alcohol related disorder by the time they are 25 years of age will be well over 20%.

All of these figures are indicative of a large and growing problem with the misuse of alcohol by young people [53, 54]. Given the consequences of the misuse of alcohol by young people for a wide range of outcomes, finding constructive ways and means of regulating the use of alcohol by young people and mitigating the adverse effects of alcohol misuse is a matter of high priority in the area of adolescent policy.

5. What does research tell us about causative factors?

There has been extensive research into the factors associated with the use and misuse of alcohol by young people. These factors include the following.

5.1 Genetic factors

There has been growing evidence from both twin studies and behavioural genetic research to suggest genetic factors may play an important role in determining individual susceptibility to alcohol abuse and dependence [60-65]. Estimates suggest that up to 60% of the variation in alcohol abuse and dependence may be accounted for by genetic factors [66]. It is likely that genetic factors interact with environmental influences so that those most at risk of alcohol related problems are both genetically susceptible to these problems and are exposed to social environments that encourage the misuse of alcohol [67].

5.2 Socio-demographic factors

There is extensive evidence which suggests higher rates of alcohol misuse amongst certain groups within the population. Males are more likely to misuse alcohol than females although recent evidence suggests that the gender gap in this area is reducing amongst young people [68-72]. Young people from socially disadvantaged background characterised by low family income and socio-economic status are at greater risk [73, 74]. In New Zealand, young Māori have rates of alcohol abuse and dependence that are higher than those of non-Māori [53, 54, 75, 76].

5.3 Family factors

A large amount of research suggests that the nature and quality of the family environment plays an important role in predisposing young people to the misuse of alcohol. Factors associated with alcohol misuse by young people include: parental alcohol problems; early age of first drink; family dysfunction; childhood maltreatment and related conditions [21, 77-85].

5.4 Peer influences

Amongst adolescents peer affiliations play an important role in the development of substance use and abuse, with young people who affiliate with substance-using friends and acquaintances being at increased risk of the use and misuse of alcohol [85-89].

5.5 Access to alcohol

There is extensive evidence to suggest that factors that influence the availability and accessibility of alcohol to teenagers play an important role in the development of alcohol use and misuse in this group. These factors include: (i) the price of alcohol; (ii) the legal drinking age; (iii) the availability of liquor outlets; (iv) licensing hours; (v) the enforcement of alcohol laws; and (vi) advertising. This research makes it abundantly clear that the ways in which the access of young people to alcohol is regulated can play an important role in influencing rates of alcohol use and misuse in this population [9, 90, 91].

The major conclusion that emerges from this research is that the causative factors involved in the development of alcohol use and misuse are likely to involve a complex interplay of biological, social, familial, peer and other factors which combine to determine rates of alcohol use and misuse in the adolescent population. Consideration of these factors suggests that approaches which focus on regulating the access of young people to alcohol offer the greatest potential for minimising alcohol misuse in this population.

6. Prevention, treatment and management of alcohol use/misuse in adolescence

There is an extensive literature on the effective policies for the regulation of alcohol and the prevention, treatment and management of alcohol related problems. This material has been ably summarised in the award-winning text *Alcohol: No Ordinary Commodity* [91]. Chapter 16 of that text provides an overview and summary of the effectiveness of 42 strategies and policies that have been used around the world for the regulation, prevention and treatment of alcohol misuse. Key conclusions of this review are summarised below.

6.1 Increased alcohol taxation

There is consistent evidence from around the world that increasing the taxation of alcohol (and thence the price of alcohol) is one of the most effective methods for reducing alcohol consumption and related harms. This approach has been found to be more effective in reducing heavy drinking and is likely to be effective in reducing alcohol consumption amongst younger drinkers [92-95].

6.2 Regulating the availability of alcohol

There is also strong evidence that regulating the availability of alcohol also has benefits in reducing alcohol consumption and harm. The evidence suggests that by restricting the hours of sale, the times of the day when alcohol is sold and the location of alcohol sale premises and similar factors it is possible to reduce levels of consumption and rates of alcohol related problems [96-99]. A form of alcohol regulation that is used widely is regulation of the legal age at which alcohol can be purchased. There is good evidence from US-based research that raising the minimum drinking age to 21 and adequately enforcing the law leads to reductions in alcohol related harms amongst young people [100-104].

6.3 The regulation of drink driving

A further move that has been shown to be effective in reducing alcohol related harms is restrictions on drink driving including lowering the legal breath alcohol concentration and ensuring that drink driving laws are visibly enforced by the use of check points, random breath tests and strong penalties [105-108]. With respect to adolescents it has been proposed that zero tolerance policies regarding breath alcohol concentrations are effective in reducing rates of drink driving amongst those below the legal drinking age [109-112].

6.4 Alcohol marketing restrictions

There is increasing evidence to suggest that restricting alcohol advertising and marketing may have modest effects on drinking in young people [113, 114]. Conversely, there is no evidence the voluntary self-regulation codes by the alcohol industry have been successful in reducing rates of alcohol consumption amongst young people [113].

6.5 Altering the drinking context

A further strategy that has been found to have modest effects in reducing risks of alcohol consumption and harm is greater regulation and oversight of drinking establishments and alcohol supply outlets to ensure that regulations regarding alcohol consumption relating to age of supply and levels of intoxication are adequately enforced [115-117].

6.6 Development of effective treatment services

The preceding approaches have all relied on changing the policy environment in various ways to reduce levels of hazardous drinking and alcohol related harms. However, even with the most effective population level policies a number of young people will develop significant alcohol related problems and require treatment and support.

There has been a growing research literature on the development of interventions aimed at treating and assisting people with alcohol related problems. This research has identified a number of treatment approaches as being effective. These include: brief interventions aimed at reducing the risks faced by hazardous and high risk drinkers; cognitive behavioural, motivational enhancement and related therapies; and mutual aid treatments [118-120]. Parallel to the development of these interventions there has been a growing number of best practice guidelines for the development of treatment for adolescent populations with alcohol related problems [46, 121-123].

7. What does not work

While there is growing evidence on effective strategies for reducing alcohol related harm, there is also a growing consensus about the approaches which are likely to be ineffective. These approaches include the following.

7.1 Alcohol and drug education in schools

Around the world there have been investments made in alcohol and drug education programmes that seek to teach young people about the risks of alcohol and drugs and reduce the risks of future use and abuse of substances. There is now generally consistent evidence to suggest that while alcohol and drug education increases young people's

knowledge about these substances, it does not generally reduce the risks of future use and abuse of substances [124-127].

There have, however, been some exceptions to these findings. In particular, there has been promising evidence that the "Keepin' it REAL" programme may be effective in reducing drug and alcohol abuse in young people [128-133]. Keepin' it REAL is a multicultural, school-based substance-use prevention program for students 12-14 years old. Keepin' it REAL uses a 10-lesson curriculum taught by trained classroom teachers in 45-minute sessions over 10 weeks, with booster sessions delivered in the following school year. The curriculum is designed to help students assess the risks associated with substance abuse, enhance decision making and resistance strategies, improve anti-drug normative beliefs and attitudes, and reduce substance use.

7.2   Mass media campaigns

Parallel to alcohol and drug education, there have been large investments made in media campaigns aimed at encouraging responsible drinking and highlighting the hazards of behaviours such as drink driving. Despite the investment made into such campaigns, the evidence for their effectiveness in reducing alcohol consumption or alcohol related harms is very limited. Many programmes have not shown the expected gains and changes in behaviours [134, 135]. In commenting on this area Babor et al [91] note:

> "Despite their good intentions, Public Service Advertisements are not an effective antidote to the high quality pro drinking messages that appear much more frequently as paid advertisements in the mass media." (p. 202)

These findings suggest that investments into media advertising to encourage responsible drinking or avoid hazardous drinking need to be approached with caution and require careful evaluation to establish their effectiveness and cost benefit ratio.

7.3   Warning labels

A third approach that has been used has been to require that alcohol beverage containers carry labels warning consumers of the risks of excessive alcohol use. Reviews of the evidence suggest that such labels have no measureable beneficial effects on levels of alcohol consumption or alcohol related harm [136-138].

A common theme that appears to unite interventions that do not work is that all involve methods of education and rational persuasion that seek to discourage the excessive use of alcohol. Regrettably the weight of the evidence suggests that reasonable and rational appeals are not effective in reducing rates of alcohol consumption or alcohol related harms.

8.   Where are policy/intervention currently focused?

Recently there have been growing public concerns stated about the issue of problem drinking in New Zealand with many of these concerns focusing on the issue of hazardous drinking by young people. These concerns have been reinforced by highly publicised events in which young people have died as a result of the excessive use of alcohol, both from alcohol poisoning and from motor vehicle accidents. Parallel to these concerns there have been recent suggestions for a major review of the legislation and regulation of alcohol. The most ambitious attempt in this area has been the recent 2009 Law Commission report which provides a comprehensive overview of the regulation of alcohol within New Zealand

and sets forth a series of proposals for the possible introduction of new legislation centred around demand reduction (e.g. increasing the price of alcohol); supply control (e.g. raising the drinking age) and problem limitation strategies (e.g. reducing the legal blood alcohol limit) [53, 54, 139].

The work of the Law Commission has been supplemented by a public advocacy campaign by Alcohol Action [140] who has proposed what has come to be known as the 5+ solution. This solution is: (1) raise alcohol prices; (2) raise the purchase age; (3) reduce alcohol availability; (4) reduce marketing and advertising; (5) increase drink-driving countermeasures + (increased treatment opportunities for heavy drinkers).

Both the Law Commission report and the advocacy by Alcohol Action draw heavily from the evidence base reviewed in the previous section.

9. Implications for future policy

It is clear that the misuse of alcohol by young New Zealanders poses a major social and health problem that requires urgent attention. The foundations for change and reform have been well developed in the Law Commission report and summarised in the advocacy of Alcohol Action's 5+ plan. Key areas of reform that are likely to have an impact on alcohol misuse in adolescence are:

- increasing the cost of alcohol;
- raising the drinking age and the age at which alcohol may be purchased to 21 years;
- adopting a zero-tolerance policy for drink driving by under 21 year olds;
- further restriction on the advertising of alcohol;
- greater regulation of hours of sale and supply of alcohol in licensed premises frequented by young people; and
- greater investment in treatment for young people with significant alcohol related problems.

It is also important that greater investment is made into research and evaluation to document the consequences of policy change. The reduction of the drinking age to 18 in 1999 provides a clear example of the need for evaluation to be built into policy change. Whilst the reduction of the drinking age to 18 was a major social policy change, no clear plan was developed to evaluate the consequences of this change. Whilst a number of evaluations have been conducted [e.g. 141-143] these have been limited because of problems of data quality and data availability. In turn, the lack of systematic evaluation of the evidence has complicated the process of policy debate and reform. It may be suggested that had a clear plan been developed for evaluating the consequences of 1999 reforms with this information being provided to Parliament, many of the debates and concerns that have been expressed about further changes to the law could have been addressed by evidence rather than opinion. For these reasons it is important that when major policy change is contemplated evaluation is built into the policy change process so that clear conclusions may be drawn about the effectiveness or otherwise of policy change. If applied consistently this strategy could result in an evolutionary process in which good policies are strengthened and reinforced by research evidence whilst poor policies are identified and discarded.

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Appendix 1: Summary of evidence on effective treatments

The review in the main chapter provides an overview of the evidence regarding the effective interventions to address alcohol related problems in young people. This evidence is based on a large body of research conducted around the world. The major findings from this body of research have been summarised by Babor et al. in the award-winning text *Alcohol: No Ordinary Commodity* [91].

Table 19.1 is reproduced from that text and provides a summary of the evidence on the effectiveness of 42 interventions in terms of:

(a) overall effectiveness

(b) breadth of research support

(c) cross-national testing.

Overall effectiveness is scored as:

0   Evidence indicates a lack of effectiveness

+   Evidence for limited effectiveness

++   Evidence for moderate effectiveness

+++   Evidence for a high degree of effectiveness

?   No controlled studies have been undertaken or there is insufficient evidence upon which to make a judgement

Breadth of research support is scored as:

0   No studies of effectiveness have been undertaken

+   One or two well-designed effectiveness studies completed

++   Several effectiveness studies have been completed, sometimes in different countries, but no integrative review was available

+++   Enough studies of effectiveness have been completed to permit integrative literature reviews or meta-analyses

Cross-national testing is scored as:

0   The strategy has been studied in only one country

+   The strategy has been studied in at least two countries

++   The strategy has been studied in several countries

+++   The strategy has been studied in many countries

In addition, the table provides narrative comments on specific interventions. Table 19.1 may be used to clarify and elaborate on the general recommendations made in the main chapter.

Table 19.1. Summary of effective programmes for the prevention and treatment of alcohol problems (from Babor et al. [91], with permission)

Strategy or intervention	Effectiveness	Breadth of research support	Cross-national testing	Comments
Pricing and taxation				Generally evaluated in terms of how price changes affect population-level alcohol consumption, alcohol-related problems and beverage preferences.
Alcohol taxes	+++	+++	+++	Increased taxes reduce alcohol consumption and harm. Effectiveness depends on government oversight and control of the total alcohol supply.
Minimum price	?	+	0	Logic based on price theory, but there is very little evidence of effectiveness. Competition regulations and trade policies may restrict implementation unless achieved via taxation policy.
Bans on price discounts and promotions	?	+	0	Only weak studies in general populations of the effect of restrictions on consumption or harm; effectiveness depends on availability of alternative forms of cheap alcohol.
Differential price by beverage	+	+	+	Higher prices for distilled spirits shifts consumption to lower-alcohol content beverages resulting in less overall consumption. Evidence for the impact of tax breaks on low-alcohol products is suggestive.
Special or additional taxation on alcopops and youth-oriented beverages	+	+	+	Evidence that higher prices reduce consumption of alcopops by young drinkers without complete substitution; no studies of impact on harms.
Regulating physical availability				Generally evaluated in terms of how changes in availability affect population-level alcohol consumption and alcohol-related problems.
Ban on sales	+++	+++	++	Can reduce consumption and harm substantially, but often with adverse side-effects from black market, which is expensive to suppress. Ineffective without enforcement.
Bans on drinking in public places	?	+	+	Affects young or marginalised high-risk drinkers; may displace harm without necessarily reducing it.
Minimum legal purchase age	+++	+++	++	Effective in reducing traffic fatalities and other harms with minimal enforcement but enforcement substantially increases effectiveness and cost.
Rationing	++	++	++	Effects greater on heavy drinkers.
Government monopoly of retail sales	++	+++	++	Effective way to limit alcohol consumption and harm. Public health and public order goals by government monopolies increase beneficial effects.
Hours and days of sale restrictions	++	++	+++	Effective where changes in trading hours meaningfully reduce alcohol availability or where problems such as late-night violence are specifically related to hours of sale.

Table 19.1. Summary of effective programmes for the prevention and treatment of alcohol problems (continued)

Strategy or intervention	Effectiveness	Breadth of research support	Cross-national testing	Comments
Restrictions on density of outlets	++	+++	++	Evidence for both consumption and problems. Changes to outlet numbers affect availability most in areas with low prior availability, but bunching of outlets into high-density entertainment districts may cause problems with public order and violence.
Different availability by alcohol strength	++	++	++	Mostly tested in terms of different strengths of beer and for broadened availability of wine.
Modifying the drinking environment				Generally evaluated in terms of how staff training, enforcement, and legal liability affect alcohol-related violence and other harms.
Staff training and house policies relating to responsible beverage service (RBS)	0/+	+++	++	Not all studies have found a significant effect of RBS training and house policies; needs to be backed by enforcement for sustained effects.
Staff and management training to better manage aggression	++	+	++	Evidence currently limited to one randomised controlled study and supportive results from multi-component programmes. Evidence is available from Australia, Canada, and Sweden.
Enhanced enforcement of on-premises laws and legal requirements	++	++	++	Sustained effects depend on making enhanced enforcement part of ongoing police practices.
Server liability	++	++	+	Effect stronger where efforts made to publicise liability. Research limited to US and Canada.
Voluntary codes of bar practice	0	+	+	Ineffective when strictly voluntary but may contribute to effects as part of community action projects.
Late-night lockouts of licensed premises	?	+	0	Limited research, and no studies have identified effective approaches.
Drink-driving countermeasures				Most research has focused on intervention effects on traffic accidents and recidivism after criminal sanctions.
Sobriety check points	++	+++	+++	Effects of police campaigns typically short term. Effectiveness as a deterrent is proportional to frequency of implementation and high visibility.
Random breath testing	+++	++	++	Effectiveness depends on number of drivers directly affected and the extent of consistent and high profile enforcement.
Lowered BAC limits	+++	+++	+++	The lower the BAC legal limit, the more effective the policy. Very low BAC levels ('zero tolerance') are effective for youth, and can be effective for adult drivers, but BAC limits <0.02 are difficult to enforce.

Table 19.1. Summary of effective programmes for the prevention and treatment of alcohol problems (continued)

Strategy or intervention	Effectiveness	Breadth of research support	Cross-national testing	Comments
Administrative licence suspension	++	++	++	When punishment is swift, effectiveness is increased. Effective in countries where it is applied consistently.
Low BAC for young drivers ('zero tolerance')	+++	++	++	Clear evidence of effectiveness for those below the legal drinking or alcohol purchase age.
Graduated licensing for novice drivers	++	++	++	Can be used to incorporate lower BAC limits and licensing restrictions within one strategy. Some studies note that 'zero tolerance' provisions are responsible for this effect.
Designated drivers and ride services	0	+	+	May be effective in getting impaired drinkers not to drive, but can also encourage passengers to drink more. Does not affect alcohol-related crashes.
Severity of punishment	0/+	++	++	Mixed evidence concerning mandatory or tougher sanctions for drink-driving convictions. Effects decay over time unless accompanied by renewed enforcement or media publicity.
Restrictions on marketing				
Legal restrictions on exposure	+/++	+++	++	Draws on two separate literatures: effects of advertising and promotion on youth drinking and attitudes, and effects of initiating or removing advertising bans and other interventions. Strong evidence of dose-response effect of exposure on young people's drinking, but evidence of small or insignificant effects on per-capita consumption from partial advertising bans; advertising bans or restrictions may shift marketing activities into less-regulated media (e.g. Internet).
Legal restrictions on content	?	0	0	Evidence that advertising content affects consumption but no evidence of the impact of content restrictions as embodied in industry self-regulation codes.
Alcohol industry's voluntary self-regulation codes	0	++	++	Industry voluntary self-regulation codes of practice are ineffective in limiting exposure of young persons to alcohol marketing, nor do they prevent objectionable content from being aired.
Education and persuasion				
				Impact generally evaluated in terms of knowledge and attitudes; effect on onset of drinking and drinking problems is equivocal or minimal. Target population is young drinkers unless otherwise noted.
Classroom education	0	+++	++	May increase knowledge and change attitudes but has no long-term effect on drinking.
College student normative education and multicomponent programmes	+	+	0	Individualised multi-component approaches that include feedback on norms, expectancies, motives, or decisional balance have short-term effects on consumption and problems. Programmes usually targeted heavy drinkers and thus may overlap with brief interventions targeted at high risk drinkers. Purely informational approaches may increase knowledge and change attitudes, but have no effect on drinking.

Table 19.1. Summary of effective programmes for the prevention and treatment of alcohol problems (continued)

Strategy or intervention	Effectiveness	Breadth of research support	Cross-national testing	Comments
Brief interventions with high-risk students	+	+	0	Brief motivational interventions can impact drinking behaviour.
Mass media campaigns, including drink-driving campaigns	0	+++	++	No evidence of impact of messages to the drinker about limiting drinking; some evidence of increased effectiveness of random breath testing when media publicise it.
Warning labels and signs	0	+	0	Raise public awareness, but do not change drinking behaviour.
Social marketing	0	++	0	Raises public awareness but alcohol-specific campaigns do not change behaviour.
Treatment and early intervention				Usually evaluated in terms of days or months of abstinence, reduced intensity and volume of drinking, and improvements in health and life functioning. Target population is harmful and dependent drinkers, unless otherwise noted.
Brief intervention with at-risk drinkers	+++	+++	+++	Can be effective but most primary care practitioners lack training and time to conduct screening and brief interventions.
Mutual help/self-help attendance	++	++	++	A feasible, cost-effective complement or alternative to formal treatment in many countries.
Mandatory treatment of drink-driving repeat offenders	+	++	0	Punitive and coercive approaches have time-limited effects, and sometimes distract attention from more effective interventions.
Medical and social detoxification	+++	++	++	Safe and effective for treating withdrawal symptoms. Reduces alcohol-related harms through prevention of mortality. Little effect on long-term alcohol consumption unless combined with other therapies.
Talk therapies	++	+++	++	A variety of theoretically based therapies to treat persons with alcohol dependence in outpatient and residential settings. Population reach is low because most countries have limited treatment facilities.
Pharmaceutical therapies	+	++	++	Consistent evidence for a modest improvement over talk therapies and clinical management only for naltrexone.

Appendix 2: Cost benefits of effective treatments for alcohol misuse

Alcohol: No Ordinary Commodity [91] summarises evidence on the cost effectiveness of various interventions using an analysis paper for the World Health Organization by Anderson [144] who conducted a detailed cost-benefit analysis of alcohol policies in three regions: the Americas (e.g. Brazil and Mexico), Eastern Europe (e.g. Russia and Ukraine), and the Western Pacific (e.g. China and Vietnam). On the basis of this analysis it was concluded:

- Two strategies (school-based education and mass-media awareness campaigns) were found not to be cost-effective because they do not affect alcohol consumption or health outcomes.

- Population-level alcohol policies (e.g. pricing and availability policies) are more cost-effective than individual-level policies, such as brief interventions for hazardous alcohol use.

- Tax increases represent a highly cost-effective response in regions with a high prevalence of heavy drinking, such as Latin America and Eastern Europe.

- In countries with high levels of unrecorded production and consumption, increasing the proportion of consumption that is taxed could be more effective than a simple increase in excise taxes.

- The impact of reducing access to retail outlets for specified periods of the week and implementing a comprehensive advertising ban have the potential to be cost-effective countermeasures, but only if they are fully enforced.

While the extent to which these conclusions apply to New Zealand is not completely clear, the findings above are likely to provide some general guidance about the relative cost-effectiveness of different approaches to reducing the risks posed by alcohol consumption.

Chapter 20

Cannabis use in adolescence

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Summary

- Cannabis is the illicit drug most commonly used by New Zealand adolescents. Estimates suggest that by the age of 21 in the region of 80% of young people will have used cannabis on at least one occasion, with 10% developing a pattern of heavy dependent use.

- There is increasing evidence to suggest that the regular or heavy use of cannabis may have a number of adverse consequences including increased risks of: mental health problems; other forms of illicit drug use; school dropout and educational under-achievement; motor vehicle collisions and injuries.

- Current approaches to reducing cannabis-related harms for adolescence have focused on: legislation, drug education and the provision of clinical services.

- There is a sound case for reviewing New Zealand's legislation on the possession of cannabis to obtain a better balance between prohibition and harm avoidance strategies.

- While drug education is widely advocated as a means of reducing adolescent substance use, the evidence for the effectiveness of this approach as a means of reducing risks of drug use is limited.

- There is growing evidence to suggest a number of effective treatments for addressing problems of cannabis abuse and dependence. These treatments include: cognitive behavioural therapy, motivational enhancement, contingency training and family based intervention.

- Future policy developments should consider: (a) a re-assessment of current legislation regarding the regulation of cannabis; (b) evaluation of the effectiveness of drug education programmes as a means of reducing risks of illicit drug use, abuse and dependence; (c) the development of best practice clinical guidelines for the treatment and management of young people having cannabis-related problems.

1. Introduction

The purpose of this chapter is to examine the use and abuse of cannabis by young people; to describe the likely harms of regular and heavy cannabis use, and to outline policy options for regulating cannabis and reducing cannabis-related harms.

2. What is the question?

Cannabis is the most commonly used illicit drug in New Zealand and in many other developed countries [1-4]. The use of cannabis in young people has been examined in New Zealand's major longitudinal studies—the Christchurch Health and Development Study (CHDS) and the Dunedin Multidisciplinary Health and Development study (DMHDS). Both studies have followed the life history of cohorts of over 1000 children from birth to adulthood. Both studies report that by the age of 21 nearly 80% of young people have used cannabis on at least one occasion and 10% have developed a pattern of heavy use consistent with a diagnosis of cannabis dependence [1, 3, 5, 6]. Heavy cannabis use is more common in males and amongst Māori [1, 3, 5-7]. These findings have been based on South Island samples recruited in Dunedin and Christchurch but it is likely that the patterns of use found in these samples will apply to North Island settings. The high rates of cannabis use, abuse and dependence amongst young New Zealanders raise three important questions:

- The first question concerns the extent to which the use of cannabis has harmful consequences for young people.
- The second question concerns the best ways of regulating the use of cannabis to minimise the harms faced by young people.
- The third question concerns the development of services aimed at the prevention, treatment and management of cannabis abuse and dependence.

The evidence regarding each of these questions is reviewed below.

3. Why is cannabis use important in the transition to adolescence?

Until relatively recently, cannabis has been viewed as a relatively harmless drug that has few adverse effects [8]. However, in the last two decades there has been an accumulation of evidence suggesting that cannabis may have multiple harmful effects, with these effects being particularly marked for adolescent users [2, 9-13]. It is believed that the greater vulnerability of adolescent users may be due to the biological effects of cannabis on the developing adolescent brain [14-16]. Amongst the adverse effects that have been documented are the following.

3.1 Increased risk of psychosis/psychotic symptoms

Psychosis refers to severe mental illness marked by such features as hallucinations, delusions and general social alienation [17]. The most well known psychosis is schizophrenia. There is now mounting evidence to suggest that the regular, heavy or abusive use of cannabis is associated with increased risks of symptoms of psychosis and psychotic symptoms, with young people using cannabis regularly having rates of these symptoms which are between 1.5 to 2.5 times higher than those not using cannabis [8, 11, 18-23]. Associations between cannabis and psychosis/psychotic symptoms have been found to persist after statistical control for other factors and appear to be most marked amongst young people who are

predisposed to psychotic illness as result of a family history of psychotic disorder [18-21] or who have genetic vulnerabilities [22, 23].

3.2   Increased risk of other mental disorders

In addition to findings linking cannabis use to increased risks of psychosis/psychotic disorders, there is growing evidence to suggest increased rates of depression, anxiety and suicidal thoughts amongst heavy cannabis users [24-29]. Again, the evidence suggests that these risks are greater for adolescent users [2, 11, 13].

3.3   Increased risk of other illicit drug use

A large number of studies have shown the presence of strong statistical linkages between the use of cannabis and the use of other illicit drugs with the onset of cannabis use preceding the use of other illicit drugs [30-37]. For example, research conducted by the Christchurch Health and Development Study found that rates of subsequent or other illicit drug use were over 100 times higher amongst adolescent weekly users of cannabis when compared with non users of cannabis [30]. These statistical associations have raised the possibility that cannabis may be a 'gateway drug', with the use of this drug increasing the risks of other forms of drug usage by various routes. While the 'gateway' hypothesis has been highly controversial [38-41] there is growing evidence to suggest that the use of cannabis may increase the risks of using other illicit drugs, with this association being particularly marked for adolescent populations [30-37].

3.4   Increased risk of school dropout and educational under-achievement

An increasing number of studies including New Zealand studies [3, 7, 42-51] have examined the linkages between the use of cannabis and educational achievement. This research has found that young people who begin the use of cannabis before the age of 18 are at increased risk of high school drop out and educational under-achievement. Adolescent cannabis users are less likely to leave school with qualifications, less likely to enter university and less likely to acquire a degree. These associations have been found to persist after statistical control for other factors, raising the clear possibility that by various routes the early use of cannabis may increase risks of school dropout and educational under-achievement [3, 7, 42-51].

3.5   Increased risk of motor vehicle accidents

Motor vehicle accidents are a major source of mortality for adolescents and also account for a substantial number of hospital admissions [52, 53]. There is now growing evidence from both laboratory studies and epidemiological research to suggest that driving under the influence of cannabis is associated with increased risk of motor vehicle collisions and associated injuries [13, 54-61].

Consideration of the risks associated with cannabis shows a range of adverse outcomes that span mental health risks, possible gateway effects, educational under-achievement and risk of motor vehicle collisions. All of these outcomes are particular areas of risk for the adolescent years. When considered in conjunction with the high rates of cannabis use amongst New Zealand adolescents, these findings clearly suggest that the use and abuse of cannabis is a factor that may contribute to increased adolescent vulnerability in a number of areas.

However, this conclusion needs to be leavened by a number of other considerations. The first is that while the evidence clearly points towards the possibility that the abuse of cannabis may have multiple adverse effects, there have been ongoing debates about the extent to which the linkages between cannabis use and adverse outcomes reflects cause and effect associations in which the use of cannabis leads to increased risk of various adolescent problems. These debates have focused around the extent to which the existing observational evidence can be used to draw cause and effect conclusions [11, 62]. Nonetheless, there is an emerging consensus that cannabis is not a benign substance and heavy or regular use may have adverse consequences for a number of areas of adolescent functioning.

A second issue is that given the widespread use of cannabis by New Zealand adolescents it is evident that large numbers of young people use cannabis only occasionally and for this group it is unlikely that cannabis has substantial harm effects [63]. These observations raise complex issues about the legal regulation of a drug that is widely used but whose harmful effects are largely confined to a minority of heavy and regular users.

4. What is the scale of the problem?

As noted above the use of cannabis by young people is very common, with nearly 80% of young people using cannabis before the age of 21. However, much of the problematic use of cannabis is likely to be confined to the 10-15% of the adolescent population who use cannabis in a heavy and abusive way [26, 51].

5. What does research tell us about causative factors?

Research conducted by the Christchurch Health and Development Study has examined the role of social, personal and family factors in development of illicit drug use in a birth cohort of over 1000 Christchurch born young people studied from birth to the age of 25 [1, 6]. Key risk factors for later illicit drug use and dependence included:

- demographic factors, including male gender and Māori ethnic identification;
- family-related factors including parental use of illicit drugs and exposure to childhood sexual abuse;
- individual factors including novelty-seeking behaviour, conduct disorder, use of alcohol or tobacco;
- affiliation with substance-using peers.

These factors appear to act cumulatively, with the individual's risk of use or abusing illicit drugs increasing as the number of risk factors to which the young person is exposed increases.

6. Prevention, treatment and management of cannabis use in adolescence

6.1 The legal regulation of cannabis use

An area that has been the source of ongoing social, legal and political debate concerns the legal regulation of cannabis. These debates have centred on the weight that should be given to three different approaches to the social and legal regulation of cannabis.

The first approach currently followed by New Zealand is that of prohibition in which the possession and supply of cannabis is illegal. Cannabis is currently classified as a class C substance with possession attracting a fine of up to $500 or 3 months imprisonment and supplying a prison sentence of up to 14 years. The difficulties with cannabis prohibition have been noted in a number of reviews [64-67] which have pointed to the difficulties and injustices of attempting to criminalise the use of a substance which is widely used. In commenting on this issue the Global Cannabis Commission report [67] concludes:

> *"The rationale for severe penalties for possession offences is weak on both normative and practical grounds. In many developed countries a majority of adults born in the last half century have used cannabis. Control regimes that criminalise users are intrusive on privacy, socially divisive and expensive."* (p. 180)

In addition there is further evidence to suggest that the laws for cannabis possession are applied in unfair and socially inequitable ways. In particular, research from the Christchurch Health and Development Study [68] found that the current administration of cannabis laws was: (a) inefficient, since only a small fraction of users are arrested or convicted; (b) discriminatory, with males, Māori and those with a previous criminal record being more likely to be convicted; and (c) ineffective since there was no evidence of a reduction in cannabis use following arrest or conviction for the possession of cannabis. These findings highlight the problems with the current New Zealand approach to the regulation of cannabis.

At the other extreme there has been advocacy for the legalisation of cannabis so that cannabis would have the same legal status as tobacco and alcohol. Arguments in favour of the legalisation of cannabis have pointed to: (a) the difficulties, costs and inequities of cannabis prohibition; (b) uncertainties in the evidence on the harms of cannabis; and (c) the greater health risks of the legal drugs of alcohol and tobacco [67, 69-71]. It has been argued that on all three grounds treating cannabis as a legal drug subject to regulation is preferred to the present option of prohibition. There are, however, two major objections to proposals to legalise cannabis. The first centres around concerns that the legalisation of cannabis would, over time, increase the use of cannabis and thence the overall burden of cannabis-related harm [72, 73]. These concerns have been reinforced by ongoing social debates about the need for greater regulation of legal drugs and particularly the use of tobacco [74]. The second major barrier to the proposal to legalise cannabis is that New Zealand is a signatory to the Single Convention on Narcotic Drugs [67]. This convention classifies cannabis as a Schedule IV substance with this classification making it virtually impossible for signatories to remain within the Convention and to legalise the use of cannabis even if there was a strong social and political consensus that such action was desirable.

Between the extremes of complete prohibition and legalisation there have been a number of attempts to liberalise the laws on cannabis possession and use, in ways which fall short of full legalisation but which are designed to reduce what are seen as the undesirable features of complete prohibition [67, 69, 70]. These approaches have varied from country to country but as a general rule have focused around the decriminalisation or de-penalisation of cannabis use. A good example of this approach is provided by the reforms set in place in Western Australia [75]. Since 2004, a fine of AU$ 100–200 with 28 days to expiate is served if a person is found in possession of smoking equipment, up to 30 grams of marijuana, or two non-hydroponic cannabis plants. An alternative to paying the fine or appearing in court is to attend a cannabis education session. The general aims of this

approach have been to retain the illegal status of cannabis whilst mitigating the adverse effects of strict prohibition.

An increasing number of jurisdictions have attempted to introduce legislation that in various ways de-penalises or decriminalises the use of cannabis. In a review of these approaches the Global Cannabis Commission Report [67] concluded:

> *"Measures to reduce penalties or decriminalise possession have been adopted in numerous jurisdictions without any upsurge in use. Moreover, these reform measures have had some success in ameliorating the adverse consequences of prohibition." (pp. 180-181)*

However, most of the debate about the legalisation, de-penalisation or decriminalisation of cannabis use has focused on adult users subject to the provisions of the criminal justice system. Less consideration has been given to the regulation of cannabis use in adolescent populations. In commenting on this issue the New Zealand Law Commission has recommended that any amendments to the laws for adults should not apply to children and young people [65]. They also note that the majority of police apprehensions for drug related offences by children and young persons under 16 are dealt with by various forms of diversion and that only a minority (16%) result in prosecution. These findings clearly suggest that the New Zealand Youth Justice system has evolved a system in which the majority of young people coming to attention are dealt with by diversion rather than prosecution. There is a clear case for extending these provisions to older adolescents in the age range of 18-21 years.

An important legislative issue that requires attention is the issue of the supply of cannabis to young people under the age of 18. There is increasing evidence to suggest that this age group is the most vulnerable to the effects of cannabis [2, 9-13] and accordingly there are grounds for suggesting that sentencing in cases of the supply of cannabis should take into account the ages of the individuals to whom cannabis is being supplied, with supply to adolescent populations attracting more severe penalties.

7. The prevention and treatment of cannabis-related conditions

Whilst legislation provides a general context for the regulation of cannabis use, there is clearly a need to develop further policies for the prevention and treatment of cannabis related harms [76].

7.1   Drug education in schools

One approach that has been widely advocated has been the use of drug education in schools. In particular it has been argued that by educating young people about the harms of drugs including cannabis, risks of future drug use and abuse may be reduced [77-79]. However, the evidence in support of school-based drug education is not strong [80-84]. In general, studies of drug education programmes have found these programmes to be most effective in increasing knowledge about the risks of drug abuse [79]. However this increased level of knowledge does not always translate in reductions of drug use behaviours [83]. An example of these issues has been provided by the evaluation of the US drug education programme Drug Abuse Resistant Education (DARE). This programme brings police officers into the class to educate young people about the risks of drug abuse. Evaluations have found that the programme is effective in increasing student knowledge but that the effects decrease with time and do not appear to alter later risks of drug abuse [85-89]. Because of concerns about the effectiveness of DARE, the US Department of

Education now prohibits public schools from spending federal funding on the programme [90]. The difficulties found with programmes such as DARE highlight important issues about the funding and delivery of school-based drug prevention programmes. While it remains possible that well constructed and well delivered programmes may have beneficial effects in reducing rates of drug abuse [78, 80, 91], it is important that all programmes in this area are subject to thorough evaluation using randomised controlled trials before public funding is widely committed to this approach [81, 83, 92].

7.2   The treatment of cannabis abuse and dependence

As noted above, a substantial number of New Zealand adolescents engage in the heavy and abusive use of cannabis, with this use being associated with further risks. It is clear that the needs of this group will not be addressed by either legislation that criminalises their problems or through drug education, and that there is a need to develop effective clinical services for the treatment and management of cannabis abuse and dependence. There are now an increasing number of studies that have examined the use of a number of therapeutic approaches to the treatment of cannabis abuse and dependence. These approaches include cognitive behavioural therapy, motivational enhancement and contingency management training [93-96]. While these treatments have been found in randomised controlled trials to have some efficacy [96], their major benefits appear to be a reduction in levels of cannabis use rather than ensuring complete abstinence from cannabis. These results raise issues about the extent to which such therapy should focus on moderation of cannabis use rather than complete abstinence.

8.   Where is policy/intervention currently focused?

8.1   Legislation

Despite ongoing social debates about the desirability or otherwise of liberalising New Zealand's cannabis laws, little progress has been made in this area over the last decade. However, recently the New Zealand Law Commission presented a major review of New Zealand's Drug Law including recommendations on the regulation of cannabis [65, 66]. The central theme of the Law Commission's report is the need to revise New Zealand's drug laws to increase the range of options for addressing the possession of cannabis and other illicit drugs. Underlying these recommendations was a focus on striking a better balance between prohibition and harm reduction in the administration of New Zealand's drug laws. The extent to which these recommendations will be reflected in corresponding changes in Government policy is unclear [65-67].

8.2   Drug education

Currently a number of organisations and agencies provide drug education programmes. These organisations include:

- the Ministry of Education through school Boards of Trustees, principals and teachers as part of the health and physical education curriculum [97];
- the DARE foundation which offers a New Zealand version of the US DARE programme [98].

While substantial investments into drug education are being made in New Zealand there has been a general lack of research evaluating the efficacy of these approaches.

8.3   Treatment for cannabis abuse and dependence

Treatment for cannabis abuse and dependence is offered by the Child and Adolescent Mental Health Services (CAMHS) administered by District Health Boards. However, it is likely that the nature, quality and extent of these services will vary among DHBs depending on the availability of staff, funding and local DHB policies [99].

9. Implications for future policy

Given that a large number of young New Zealanders use cannabis, with a substantial minority using cannabis heavily or abusively, there is a clear case for developing clear policies regarding the prevention, treatment and management of cannabis use in adolescence. The case for such policy investment is reinforced by growing evidence of the harmful effects of cannabis use in the areas of mental health, educational achievement, the transition to other drug use and in motor vehicle collisions and injuries. Four lines of policy development are of high priority.

The first is a thorough review of current legislation regarding the possession of cannabis, with the aim of considering the appropriate balance between prohibition and harm avoidance approaches for addressing cannabis possession by young people. The recent Law Commission review provides a thorough and useful framework for developing reforms and new approaches to the existing legislation [65, 66].

The second is a thorough review and evaluation of current drug education policies and investments. While drug education policies and programmes have been popular as a possible means of preventing adolescent drug use and abuse, the weight of the evidence suggests that these programmes are often of very limited efficacy in reducing the use and misuse of drugs [80-84]. Accordingly, there is a case for investing in adequate evaluation of existing drug education initiatives before further investments are made in this area.

The third is upon the development of adequate evidence based services to provide young people with cannabis-related problems. The best approach to this issue may be through the development of best practice guidelines for the management of cannabis-related disorders, with these guidelines being used as a blueprint for the provision of services by CAMHS and other organisations. A useful model for the development of such clinical guidelines has been developed by the Australian National Cannabis Prevention and Information Centre (NCPIC) and it would seem sensible to build on these guidelines to develop common trans-Tasman strategies for the treatment and management of cannabis related problems in young people [100, 101].

Finally, as with a number of adolescent problems, risks of cannabis use, abuse and dependence are higher amongst young Māori. These findings clearly highlight the need to develop culturally appropriate strategies and methodologies for addressing these problems in Rangatahi.

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Appendix 1: Summary of evidence on effective treatments

A small but growing number of studies have examined the extent to which various treatments may reduce rates of the use of cannabis by young people meeting diagnostic criteria for cannabis abuse and dependence [93-96]. Research in this area has suggested that a number of treatments may result in modest reductions in rates of cannabis use. These treatments include: (a) Motivational Enhancement Therapy (MET); (b) Cognitive Behavioural Therapy (CBT); (c) Contingency Management; and (d) Family Based Treatments.

The strongest evidence in this area comes from the Cannabis Youth Treatment (CYT) study, which was a large multisite study involving 600 adolescents presenting at four treatment sites with a diagnosis of cannabis abuse or dependence [102-104]. Participants were randomised to receive one of five outpatient interventions. These interventions were:

- a 6 week intervention comprising two sessions of MET and three sessions of CBT;
- a 12 week intervention comprising two sessions of MET and 10 sessions of CBT;
- the 12 week MET/CBT intervention plus Family Support Therapy that included parent education, family therapy and case management over 20 sessions;
- a 12 week intervention involving 14 sessions based around the Adolescent Community Reinforcement approach; and
- up to 15 sessions of Multidimensional Family Therapy.

All five interventions showed significant pre-post treatment effects: compared to base line, at 12 months follow up there was an increase in reported abstinence and decreases in symptoms of cannabis abuse and dependence. However, the effects of the intervention were relatively modest and at 12 months follow up two thirds of the participants were still reporting substance use or similar problems [102-104].

Whilst the CYT is the largest and most ambitious study in this area, further studies have also shown that various therapies may have modest effects in reducing rates of cannabis abuse and dependence. These treatments assessed include Multidimensional Family Therapy [105], Multisystemic Therapy [106] and Brief Strategic Family Therapy [107]. The major conclusion that emerges from this body of research is that any of a range of relatively brief interventions is effective in reducing rates of cannabis-related problems but that the benefits of these programmes in reducing the number of young people with cannabis related problems are relatively modest.

Appendix 2: Cost-benefit of effective programmes for the treatment of cannabis abuse and dependence

Because of the limited research in this area no long-term studies have been conducted of the relative costs and benefits of providing treatments to young people with cannabis abuse or dependence. However, as part of the Cannabis Youth Treatment Study (CYT) limited cost comparisons were made by estimating two cost-benefit statistics for the five interventions studied (See Appendix 1 for details) [104]. These statistics were:

- the cost per day's abstinence over a 12 month period;
- the total cost of recovery over a 12 month period.

This analysis revealed that although the five programmes investigated produced similar outcomes, the costs of these outcomes varied quite widely. The most cost effective treatment was the brief 6-session (MET/CBT) intervention and the most expensive was Family Support Network (FSN) intervention. The costs per day of abstinence for the brief 6 session MET/CBT intervention varied from US$ 4.91 to US$ 9.00 depending on site. In comparison, the cost per day of abstinence for the FSN intervention was US$ 15.13. Similar differences in treatment costs were evident for the total cost of recovery over a period of 12 months. Depending on site, the brief 6 session MET/CBT intervention cost between US$ 3,938 and US$ 6,611 per recovered case. In contrast, the FSN intervention was estimated to cost US$ 15,116 per recovered case. These differences reflected the different amounts of treatment time involved in each programme, with the brief 6-session MET/

CBT intervention requiring a minimum of 200 minutes of therapy to complete compared with a minimum of 800 minutes therapy time to complete the FSN intervention [104].

These findings clearly suggest that in terms of cost benefit, relatively brief and simple interventions for the treatment of cannabis abuse and dependence are likely to be more effective than more complex and lengthy interventions. The large differences in the cost of outcomes per intervention that were found by the CYT also highlight the need for the evaluation of therapeutic programmes to include estimates of cost benefit in addition to estimates of the efficacy of the treatment in reducing rates of cannabis abuse and dependence.

Chapter 21

Adolescent obesity: prenatal and early life determinants of metabolic compromise

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Summary

- Obesity and related metabolic diseases are a major public health issue, particularly in New Zealand where prevalence in Māori and Pasifika peoples is disproportionately high.

- There has been a rise of over 40% over the last 20 years in the prevalence of childhood obesity.

- In New Zealand, Pasifika children are 2.5 times more likely to be obese than children in the total population; extreme obesity affects 1 in 10 Pasifika children and 1 in 20 Māori children, compared to 1 in 100 New Zealand European children [1].

- Overweight and obese young people are at risk of developing health-compromising behaviours that may compound medical and social problems associated with excess weight.

- A relationship has been established between early life adversity and a greater risk of obesity and diseases such as type 2 diabetes and cardiovascular disease, the early signs of which appear in adolescence.

1. Introduction

The aims of this chapter are to provide a broad overview on issues relating to the early life biological determinants of childhood and adolescent obesity and metabolic compromise.

2. What is the issue?

Previously, type 2 diabetes mellitus (T2DM) has occurred primarily, if not exclusively, in adults. However, the world prevalence of diabetes, as well as obesity, is becoming increasingly apparent among children aged 6 to 11 years and in adolescents aged 12 to 19 years [2]. Childhood diabetes and obesity are already an epidemic in some populations

and are on the rise in others. In New Zealand, 8.3% of children aged 5-14 years and 14.2% of adolescents (aged 15-24 years) are obese. Overweight adolescents are sixteen times more likely to exhibit the metabolic syndrome than their normal weight peers, exposing themselves in adulthood at a greater risk of metabolic syndrome-related death [3]. Chronic complications of diabetes include accelerated development of cardiovascular disease (CVD), end-stage renal disease, loss of visual acuity, and limb amputation [4]. Although weight and body composition are highly heritable, genes account for only a small proportion of obesity risk in human populations [5, 6]. The genome alone cannot account for the significant rise in obesity prevalence. There is now considerable epidemiological and experimental evidence indicating that early life environmental signals, including stress and nutrition, impact on early life development and contribute to patho-physiologies including obesity, type 2 diabetes, aberrant behaviour and poor cognition [7-10]. There is now no doubt that events occurring during fetal and embryonic life influence weight gain, adiposity and metabolic function during childhood and beyond [11, 12].

3. Why is it important for the transition to adolescence?

Childhood obesity is associated with an increased risk of metabolic compromise and adverse health outcomes during adolescence and adulthood [13] including type 2 diabetes, and cardiovascular risk factors [14, 15] and is associated with general health disorders [16]. Obesity in young people is associated with psychosocial problems and antisocial behaviour [17-19] which may impact on school performance [20].

Studies report that obese and overweight children and adolescents:

- have an increased metabolic and cardiovascular health risk;
- have low self esteem;
- have higher rates of anxiety disorders and depression;
- suffer social pressures and bullying;
- are more likely to be involved in substance abuse; and
- demonstrate reduced scores on health-related quality of life questionnaires.

Importantly, although obesity during childhood and adolescence is related to poor quality of life, few studies have effectively investigated whether weight loss improved quality of life [21-23].

4. What is the scale of the problem?

An epidemic of T2DM is occurring in New Zealand, as in other developed countries, driven mainly by demographic trends and the increasing prevalence of overweight and obesity. The epidemic most severely affects the Māori and Pasifika ethnic groups and partially arises from a transition to foods high in fat and energy and from increases in passive leisure. According to the OECD Health Report in 2009, in New Zealand the obesity rate among adults was 26.5% in 2007, lower than in the United States and Mexico but higher than all other OECD countries for which current data are available. This epidemic most severely affects Māori and Pasifika peoples; 42-64% of Māori and Pasifika peoples in New Zealand respectively are now categorised as obese and this is paralleled by increased risk for heart disease, hypertension and stroke in this population. The lifetime risk for T2DM is 26% in Māori, versus 10% in European and Māori people living with diabetes lose on average around 12 years of life expectancy (http://www.moh.govt.nz/moh.nsf). Pasifika

children in New Zealand are particularly at risk, where 34-49% of children investigated were obese and >60% of children had high regional trunk fat [24], a depot specifically associated with metabolic compromise. Overweight adolescents are sixteen times more likely to exhibit the metabolic syndrome than their normal weight peers, exposing themselves in adulthood to a greater risk of metabolic syndrome-related death [3].

5. *What research tells us about causative factors*

There are no causative factors here, only associations.

A multitude of studies report significant associations between events occurring before birth and later life disease risk including T2DM and obesity [25, 26]. Decades ago, low birth weight was reported to be associated with an increased risk of subsequent hypertension, obesity, insulin resistance and dyslipidaemia [26-28]. Within these observations, birth weight was used as a marker of early life adversity, and we can now speculate that low birth weight may be used as a surrogate for developmental adaptations to prenatal cues. Subsequent to these seminal observations describing associations between poor fetal growth and disease risk later in life [29-31], reports emerged that an interaction exits between embryonic/fetal and postnatal (childhood) events amplifying disease risk [32-34]. Human studies have provided evidence that restricted intrauterine growth followed by accelerated (or catch up) growth may potentially be beneficial in the short term, but have adverse effects on subsequent metabolic function [35, 36], blood pressure and cardiovascular function [37, 38]. In historically undernourished but recently urbanised populations such as India, where individuals of low birth weight are exposed to high-fat Western diets, the incidence of obesity and type 2 diabetes is reaching epidemic proportions [39]. Studies have shown that Indian babies are born of low birth weight and exhibit relatively increased visceral adiposity. This is consistent with other studies of small babies, showing disproportionate abdominal fat mass during adult life, despite a low body mass index (BMI) [40, 41]. Men with a lower birth weight who then exhibited catch-up growth by age 7, had a significantly higher risk of obesity comparable appropriately grown counterparts [42]. In largely Caucasian cohorts, lower birth weight and greater weight gain in childhood acted independently to increase central fat distribution and decrease insulin sensitivity in children at age 8 years [43, 44].

While initial experimental models have concentrated on the fetal environment, subsequent studies have demonstrated that the sensitive periods during which early environmental events can have impacts on disease risk now encompasses the time from conception, throughout pregnancy and into early postnatal life [45, 46]. In this regard, both clinical and experimental studies have shown that fetal growth restriction, combined with postnatal accelerated growth, increase the propensity for disease states including obesity, insulin resistance and cardiovascular disorders [38, 47-49]. Physiological deficits that lead to these pathologies appear to be acquired in early life through alterations in nutrition and endocrine function, and growth is simply a surrogate marker for these physiological events.

5.1 *Diet during pregnancy*

The importance of maternal nutrition and in particular, the effect of poor nutrition on birth weight and development of increased disease risk has been addressed using historical cohorts that have undergone adversity (famine, war) during pregnancy. In particular, follow-up studies of survivors of the Dutch Hunger Winter [50-52] have shown that the timing of adversity is a major determinant in health outcome. Famine exposure restricted

to the last trimester of pregnancy and the first few months of life, resulted in significantly lower obesity rates in adult offspring [50, 51]. However, if famine occurred in the first half of pregnancy, offspring were significantly more obese than non-exposed counterparts [50, 51]. The relationship between prenatal famine exposure and later life obesity however does not demonstrate causation. In fact other reports of prenatal famine exposure have yielded contradictory results; retrospective studies investigating offspring exposed to famine during the siege of Leningrad did not show any relationship between birth weight and adult metabolic compromise [53].

Recently a large scale population study investigating how socio-demographic and anthropometric factors relate to food choice in pregnant women, demonstrated that poor maternal educational attainment, smoking, time spent watching television, a younger age, and not being on a diet were among the most important factors determining a mother's dietary intake during pregnancy [54]. Although based in the UK, this study highlights the fact that a large proportion of modern-day women do not consume a 'prudent diet' during pregnancy. In this study, diets of women with low prudent scores were characterised by higher intakes of chips and roast potatoes, sugar, white bread, red and processed meat, full fat dairy products, crisps and sweets, cakes and soft drinks [54]. A recent follow-up of these women and their children demonstrated that while almost 50% of the women studied gained excessive weight during pregnancy (according to US Institute of Medicine guidelines) there remained 21% of women studied that had inadequate weight gain in pregnancy [55]. Therefore both ends of the weight gain spectrum (too little and too much weight gain) as well as inadequate nutritional intake exist in modern-day Western populations of pregnant women. Importantly, this study demonstrated that both excessive and inadequate weight gain during pregnancy were associated with unfavourable gains in childhood adiposity. Children of women that gained excessive weight during pregnancy had a greater fat mass at birth at 4 and 6 years of age (increases of 75, 4% and 10% respectively) [55].

In this regard, maternal obesity is now a common pregnancy complication [56, 57]. In New Zealand >26% of reproductive aged women are obese and importantly, these effects appear to be self-perpetuating, as children of obese mothers are themselves prone to obesity, giving rise to transgenerational effects [58, 59]. Maternal obesity is associated with obstetric complications including fetal and neonatal death, poor lactation outcomes and is the most significant predictor of childhood obesity [60] and metabolic syndrome in her children [61]. The underlying mechanisms are unclear, but reports suggest that adiposity and insulin resistance in children of obese mothers is already present during fetal life and high maternal weight has been associated with abnormal feto-placental function [62]. In a recent study, obese (BMI >30kg/m^2) and lean (BMI <25kg/m^2) mothers with singleton pregnancies were evaluated at elective Caesarean delivery for measures of maternal and fetal insulin resistance [63]. Fetuses of obese mothers had higher percentage body fat, insulin resistance and increased cord leptin levels compared to fetuses of lean women. Together, these findings support the hypothesis that the metabolic compromise in offspring of obese mothers may already be present in fetal life and that a compromised early start to life is associated with increased risk of obesity and metabolic dysfunction in adulthood.

5.2   Prenatal stress

Prenatal stress exposure represents another important adverse intrauterine environment that may impact the anatomy and physiology of the developing organism, with important

implications for obesity risk in offspring [6]. Stress and anxiety during pregnancy are associated with alterations in fetal growth, neonatal behaviour and longer term changes in endocrine function and metabolic compromise [64, 65]. Fetuses of high anxiety women were noted to be more active and to experience growth delays compared to unstressed mothers. Newborns of high anxiety mothers spent more time in deep sleep and less time in quiet and active alert states and showed more behavioural state changes and less optimal performance on tests of motor maturity, autonomic stability and withdrawal [66]. Follow-up of children born to mothers who were bereaved by death of a close family member during the time of pregnancy were significantly more likely to be overweight [67]; the highest risk was observed when the death occurred in the period immediately preceding conception. Consistent with these data, children born to mothers experiencing major stressful life events during pregnancy exhibited higher BMI and percentage body fat, primary insulin resistance, and a lipid profile consistent with the metabolic syndrome as young adults [68]. Children born to mothers suffering post traumatic stress disorder after exposure to the World Trade Centre collapse demonstrated altered stress hormone profiles, particularly those born to mothers exposed during their third trimester of pregnancy [69], consistent with data showing that offspring of Holocaust survivors have an increased vulnerability to post traumatic stress disorder themselves [70].

But these effects need not be permanent. At least some animal studies have shown that the detrimental effects of a poor early life environment can be ameliorated by early environmental enrichment [71-73] and recently this amelioration has been shown in humans as well, where the association between prenatal stress exposure and impaired cognitive ability infants is eliminated by a sensitive early rearing environment [74], paving the way for possible interventions strategies.

5.3   Parental care, bonding and stress in early life

Poor maternal care and bonding has also been shown to impact childhood development and disease risk. In humans, accelerated pubertal onset has been associated with early life stressful events including conflict and lack of warmth between the maternal-child relationships, particularly in girls [75, 76]. Parental neglect in childhood is associated with increased obesity risk in young adulthood [77]. Moreover, perceived poor parent-child relationships, assessed in young adulthood, are associated with disease (including heart disease and hypertension) over three decades later with the strongest associations occurring for poor maternal-child relationships [78]. Childhood exposure to abuse or a dysfunctional household leads to an increased risk of obesity and heart disease in adulthood [79], and children of mothers that suffered intimate partner violence have an elevated risk of obesity at 5 years of age [80]. Recently, evidence that these associations are regulated by changes in gene expression in the brain has been reported in post-mortem brain samples from suicide victims; samples collected from victims that suffered child abuse demonstrated significant changes in levels of important stress responsive genes compared to samples collected from victims that had no history of child abuse [81].

More recent investigations using the Norwegian Mothers and Child Cohort demonstrate that mothers with higher levels of negative affectivity (a broad trait construct describing the tendency to frequently experience negative emotions, such as anxiety, depression, and irritability, and to have a negative view of oneself [82]) were more likely to feed their child an unhealthy diet at 18 months and up to 3 years of age [83-85]. Younger mothers, mothers with higher BMI and those with lower educational achievement were more likely to make potentially obesogenic food choices not only for themselves during

pregnancy [54] but also for their children [86]. Therefore, the maternal trait of negative affectivity could be an independent predictor of infant feeding practices that may be related with childhood weight gain, overweight and obesity [86]. Consistent with this, quality of parental emotional care was recently reported to be inversely associated with coronary heart disease risk in offspring [87]; where improvements in parental emotional care decreased coronary heart disease risks scores in females, but not in males [87].

Although the mechanisms are unclear and the data are inconsistent, there is some evidence of gene x environment interactions having impacts on disease risk. Both clinical [88] and experimental [89, 90] studies report that variations in parental care have significant impacts on the developing children. In young males an interaction between genes and the early postnatal environment has been shown. It was found that although individual differences in a functional polymorphism of the promoter of the monoamine oxidase A (MAOA) gene (the MAOA enzyme, which metabolises neurotransmitters such as norepinephrine, serotonin, and dopamine, rendering them inactive [88]) did not in itself predict future behaviour, those boys who carried the polymorphism and suffered maltreatment in childhood had a three times higher risk of conduct disorder in adolescence and were 10 times more likely to have been convicted of a violent crime [88]. This is a clear example of physiological adaptations interacting with postnatal environmental stimuli. Changes in offspring behaviour can be modified by postnatal environmental enrichment and these changes have been shown to be passed from one generation to the next [91], giving mechanistic credence to human observations that children of abusive and violent households may go on to become offenders themselves.

5.4 Breastfeeding

It has been suggested that breast-feeding may be associated with lower BMI later in life, however, the data are not consistent and the effects tend to be small [92-94]. Discrepancies in data may represent differences in the statistical methods used [95, 96] and in some cases, studies may be underpowered to detect associations between breastfeeding and childhood obesity [97, 98]. A protective influence of breast-feeding appears to be more evident when considering overweight and obesity [94, 99, 100].

6. What research tells us about prevention programmes

The impact of lifestyle interventions on influencing BMI is small. Recently, the US Endocrine Society's Task Force on Paediatric Obesity commissioned a meta-analysis of published randomised trials for interventions aimed at preventing paediatric obesity [101]. This meta-analysis of behavioural interventions to prevent childhood obesity investigated the effects size and 95% CI for the difference between intervention and control for four targets:

- *interventions to increase physical activity:* 22 RCTs included; results suggested a small increase in physical activity;
- *interventions to decrease sedentary activity:* 14 RCTs included; results suggested a small reduction in sedentary activity but primarily interventions that were >6 months in duration;
- *interventions to increase healthy eating:* 14 RCTs included; a small non significant increase;
- *interventions to decrease unhealthy eating behaviour:* 23 RCTs included; small but significant reduction; and

- *interventions to reduce body mass index:* 34 RCTs included; meta-analysis failed to demonstrate any significant benefit of all modalities of intervention (dietary, physical activity or combined lifestyle interventions).

This analysis consistently demonstrated small limited effects of behavioural interventions on childhood obesity. Consistent with these data, school based interventions are effective only in the short term at reducing prevalence of childhood obesity [102]. The worsening rates of childhood obesity suggest that the current interventions have limited success in the long term.

Targeted programmes have included the following:

- *New Zealand interventions:* APPLE project; assignment of community activity coordinators to each intervention school with an initiative to increase physical activity and increase the intake of fruit and vegetables, reduce the intake of sugary drinks [103] [104]; Project Energise [105]; 2-year, stratified, randomised controlled, longitudinal study of school-based nutrition and activity programme implemented in primary schools; Active Schools; Sport and Recreation New Zealand (limited evaluation) [106].

- *International interventions programmes [107]:* within the school system integrating nutrition, physical activity and lifestyle education [108]; personalised weight and fitness health report cards [109]; focus on reduced sedentary behaviour rather than forced play [110].

7. What further research needs to be done?

There is an overwhelming lack of studies targeting the prenatal time period, where the concept of a healthy start to life is encouraged. This remains a largely under-represented area of research in literature.

7.1   Fundamental research questions that need to be addressed

- Identification of children at risk and investigation of why some populations are more at risk of compromise than others.

- Determination of adequate time of intervention. The literature reports that critical periods of developmental plasticity are windows of opportunity for intervention, however identification of these periods still needs clarity; the prenatal, neonatal, childhood time-points are all windows that could be targeted with long and short term outcomes. The prenatal time period holds the most value for long term beneficial outcomes in terms of metabolic function and obesity but will be a slow process and will take years to see the benefit.

- The type of intervention will no doubt depend upon the outcome that is targeted, as outlined in the US Endocrine Society Meta-Analysis [111].

- Prospective, longitudinal, follow-up studies, ideally starting before conception, and extending through pregnancy and birth into childhood and adolescence.

7.2   What health interventions might be worth funding?

- Investment into the evaluation of antenatal/postnatal educational programmes, targeting at-risk populations with educational programmes highlighting the importance of healthy pregnancies.

- Empirical evaluation of the established Plunket system, and whether there is room for reprioritisation into structured support for pregnant women.

- Structured support programmes for young mothers—there is a real need for a properly controlled intervention trial.

8. Implications for future policy [112]

Obesity is increasing rapidly in children and adolescents and is disproportionately prevalent in Māori and Pasifika children of New Zealand. There is increasing evidence that early life environmental factors influence the ecology of chronic disease and obesity with the programming period extending from the embryonic/fetal period to childhood. While there is inevitably some ambiguity over the weight of these effects, there is a growing consensus that pathways to obesity start before birth or infancy and that developmental influences are at least as important as genomic influences. This consensus is reflected in the recent report of WHO Technical Committee on Strategies to Optimise the Outcomes of Pregnancy and in recent pronouncements of the UN Subcommittee on Nutrition (SCN, www.unsystem.org/scn). The recommendations of the WHO technical committee which focused on issues of maternal age, nutritional status, and infant growth highlight that if this is an important pathway simple interventions such as better (more balanced) maternal nutrition, promoting breast feeding, avoiding excessive infant growth etc may be interventions of greater importance than current targets on primary and secondary school children. There is good experimental evidence that manipulation of maternal diet during pregnancy in animal models can change obesity risk in the offspring, but little evidence exists in humans. At a practical level we still do not know the best nutritional advice to give women prior to pregnancy, during pregnancy or for the management of children with different birth phenotypes. Clearly coordinated effort between agencies including those targeting pregnancy (such as Plunket) is critical for the success of reducing childhood and adolescent morbidity resulting from obesity. Although ideal and easy to implement, schools cannot and are not the only time point for intervention.

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Chapter 22

From evidence to policy, programmes and interventions

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Summary

- This chapter considers the issues that arise in the translation of research-based evidence into effective applications: policies, programmes and interventions.

- Three types of application are identified: universal applications targeted at all adolescents; prevention programmes targeted towards 'at risk' young people and their families; and interventions that focus on treating young people with problematic outcomes.

- The chapter then outlines the key elements of the Prevention Science approach including: (a) the use of meta-analysis and systematic review to identify effective programmes; (b) the importance of adequate pilot testing and programme development; (c) the use of randomised trials and other methods to assess programme efficacy; and (d) issues in taking programmes to scale.

- Consideration is also given to the issues that arise in the implementation of programmes including the importance of staff training, organisational factors, client factors, and cultural factors in maintaining programme fidelity and quality.

- The Prevention Science approach described above is compared with the Kaupapa Māori model and the differences between these approaches explained. A model (He Awa Whiria – Braided Rivers) for reconciling these different approaches is described.

- Consideration is given to the training and work force requirements that are needed to ensure greater utilisation of systematic (Western Science; Kaupapa Māori) approaches to policy development, implementation and evaluation.

1. Introduction

The preceding chapters provide a rich menu of recommendations about the ways in which policies, programmes and interventions may be developed to improve the outcomes and circumstances of adolescents in New Zealand. Broadly speaking, these recommendations relate to three types of application [1]:

- Universal policies that are applied to all adolescents. An example of this type of policy is illustrated by the recommendation in Chapter 19 that consideration should be given to raising the legal drinking age.
- Programmes targeted towards 'at risk' young people or their families. These programmes are predominantly prevention programmes that seek to mitigate the risks for young people who are exposed to social, economic, educational, family or related challenges. Examples of this approach are provided by the home visiting and centre-based programmes reviewed in Chapters 2 and 4.
- Interventions that are targeted towards young people who have experienced problematic outcomes. Examples of these programmes include the cognitive behavioural treatments for depression, alcohol abuse and drug abuse reviewed in Chapters 15, 19 and 20.

While the present report reviews and recommends a wide range of policy options, the critical reader is entitled to ask two general questions about these proposals:

The first question is, "How can we be sure that the policies, programmes and interventions being recommended are, in fact, effective in addressing what they purport to address?"

The second and perhaps more important question is, "Will these policies, programmes and interventions work in New Zealand and, if so, what steps are required to ensure their successful implementation?"

The focus of the present chapter is on addressing both of these issues. Specifically, the chapter reviews:

- the use of the Prevention Science paradigm as a framework for identifying, implementing and evaluating policies, programmes and interventions;
- Kaupapa Māori perspectives on policy development, and programme selection and evaluation; and
- reconciliation of Western Science and Kaupapa Māori perspectives using the He Awa Whiria (Braided Rivers) model proposed by Macfarlane.

2. The Prevention Science approach

With the rapidly growing body of knowledge about the prevention, treatment and management of human problems, a number of scientists have begun to focus on the question of how this body of knowledge can be translated to provide beneficial outcomes for people. This task is of high importance given that most scientific research is funded from the public purse and it is reasonable to expect that the knowledge purchased will add, in some way, to human wellbeing [2, 3]. Recognition of the need to translate scientific knowledge into effective policy has led to a general approach and body of knowledge

that has been described as Prevention Science. This field represents a range of methods drawn from a number of fields including evidence-based medicine, epidemiology, human development and related disciplines [4-7].

Stormont [6] summarises the interests of the field as follows:

"Rather than simply advocating for prevention based on its own merit or intuitive appeal, prevention scientists have developed rigorous methods to help ensure that effective strategies are developed and evaluated. Among its hallmarks, prevention science emphasizes the importance of understanding the origins of emotional and behavior problems, especially modifiable risk and promotive factors; systematic intervention development targeting these factors; rigorous evaluation of intervention effects; and careful attention to implementation, dissemination, and sustainability throughout the intervention development and evaluation process. Prevention science carefully defines and embraces the value of evidence. Moreover, prevention scientists recognize the importance of ongoing local evaluation to ensure that effects observed in clinical trials persist in real world applications." (p. 1)

The Prevention Science approach involves a sequence of steps; these steps are designed to ensure systematic and rigorous development, implementation and evaluation of policies, programmes and interventions. The key elements of the approach involve 5 basic stages:

- Stage 1 involves clear identification of the problem, disorder or issue to be addressed. This stage also requires thorough review of what is known about the extent of the problems.

- Stage 2 involves reviewing the literature on the factors and causes associated with issue(s) of interest using the available scientific literature. The most comprehensive review might include a meta-analysis that combines findings across a large number of studies.

- Stage 3 involves conducting pilot studies of proposed interventions aimed at addressing the issues of interest.

- Stage 4 involves large-scale, randomised controlled trials to assess the extent to which the proposed intervention is effective in addressing the issues of interest.

- Stage 5 involves taking the proposed intervention to scale and implementing it in the community and conducting ongoing evaluation.

These stages are conceptualised as having a feedback loop in which the outcomes from Stage 5 are used to inform further developments, thus repeating the cycle of policy development and intervention [1, 8, 9].

In terms of the basic Prevention Science model, the present report addresses the first two stages by: (a) identifying a number of key issues; (b) reviewing the evidence on risk and protective factors; and (c) identifying promising evidence-based policies, programmes and interventions.

The key tasks that remain to be addressed involve:

- Identifying policies, programmes and interventions that are likely to be effective in a New Zealand context. This will involve weighing the available evidence, the programme content and demands against a series of factors relating to the availability of resources and funding, issues of cultural acceptability, the feasibility of implementing the programme in New Zealand contexts, and the 'fit' of the programme with existing policy frameworks.

- Developing integrated implementation and evaluation plans to: (i) pilot and develop programmes; (ii) evaluate programme efficacy using randomised controlled trials or other appropriate methods; and (iii) develop strategies for taking the programme to scale if it is found to be effective.

The last stage, taking effective programmes to scale, is arguably the most difficult of the stages, especially if the programme is to be based in complex open systems like schools or hospitals [10, 11]. Achieving effective scale requires overcoming at least three challenges:

- Although programme integrity is extremely important, some adaptation by those actually delivering programmes is inevitable, especially when programmes require judgements based on detailed knowledge of the local situation or context. In order to protect the fidelity of the programme despite some adaptation, it is important to understand the aspects of the programme that are vital to its effectiveness.

- Embedding programmes so that they are sustainable in the face of ongoing challenges (e.g., demographic and economic changes) is also important. Embedding a programme in a context requires building on site capability that will provide the opportunity to monitor and evaluate the effectiveness of the programme over time. In part this also means being able to monitor how the programme can fit with other activities being carried out at the same location. In the case of schools, for example, it is important to cut additional programmes that do not add value.

- Staged roll out so that implementation resources are not undermined and ongoing research and development can occur into the factors associated with success in the first two components is also important [1, 8, 9].

While the Prevention Science model provides an outline of the steps involved in the development and evaluation of policies, programmes and interventions, there has been increasing recognition that the success of any policy, programme or intervention will depend critically on how well the programme is implemented as well as the intrinsic efficacy of the programme per se. This aspect of programme implementation is often described as programme fidelity [4, 12-14]. Factors likely to increase programme fidelity (and thence programme success) include:

- Effective delivery of the programme in terms of: adherence to the programme principles; participation of the client population; responsiveness of clients to the programme and related factors.

- Organisation factors including: clear leadership; clear lines of authority; adequate administrative support for the programme; and related factors.

- Staff related factors including: staff training and competencies; adequate staff training; audit of staff training and competencies and related factors.

- Client related factors including: recognition of client needs; support to assist programme participation; client engagement and related factors.

- Cultural factors including: consultation with key groups; determination of the cultural appropriateness of the programme; and related factors.

These considerations suggest that for many complex policies and programmes, the implementation and evaluation of the programme will depend critically on an array of complex human issues relating to the delivery of the programme and the ways in which organisational structures, staff and clients perceive the programme or policy and the cultural context within which the programme is to be delivered [4, 12-14]. For example, new programmes in schools need to consider the roles and responsibilities of teachers and leaders within schools. In New Zealand, schools are self governing and teachers
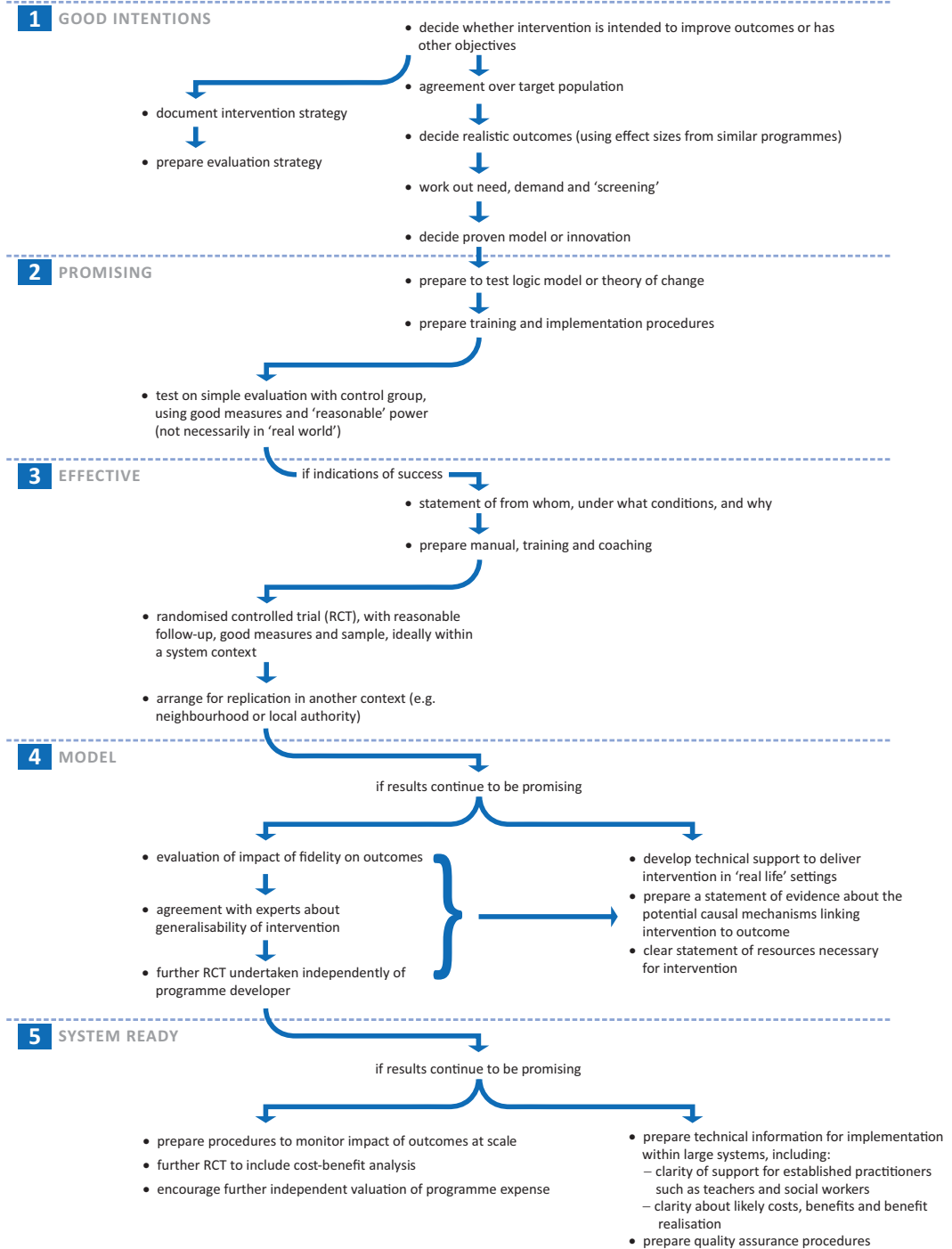
1 GOOD INTENTIONS

- decide whether intervention is intended to improve outcomes or has other objectives
- agreement over target population
- document intervention strategy
- prepare evaluation strategy
- decide realistic outcomes (using effect sizes from similar programmes)
- work out need, demand and 'screening'
- decide proven model or innovation

2 PROMISING

- prepare to test logic model or theory of change
- prepare training and implementation procedures
- test on simple evaluation with control group, using good measures and 'reasonable' power (not necessarily in 'real world')

3 EFFECTIVE

if indications of success

- statement of from whom, under what conditions, and why
- prepare manual, training and coaching
- randomised controlled trial (RCT), with reasonable follow-up, good measures and sample, ideally within a system context
- arrange for replication in another context (e.g. neighbourhood or local authority)

4 MODEL

if results continue to be promising

- evaluation of impact of fidelity on outcomes
- agreement with experts about generalisability of intervention
- further RCT undertaken independently of programme developer

- develop technical support to deliver intervention in 'real life' settings
- prepare a statement of evidence about the potential causal mechanisms linking intervention to outcome
- clear statement of resources necessary for intervention

5 SYSTEM READY

if results continue to be promising

- prepare procedures to monitor impact of outcomes at scale
- further RCT to include cost-benefit analysis
- encourage further independent valuation of programme expense

- prepare technical information for implementation within large systems, including:
  - clarity of support for established practitioners such as teachers and social workers
  - clarity about likely costs, benefits and benefit realisation
- prepare quality assurance procedures

Figure 22.1. Guide to creating a system-ready evidence-based programme.
Reproduced from *Early Intervention: The Next Steps* (2011), an independent report to Her Majesty's Government, with the kind permission of the author, Graham Allen MP.

act relatively autonomously. Locally designed educational programmes such as those reported in Chapter 7 have intensive components designed to capitalise on the capabilities of teachers and their leaders to take instructional decisions and be adaptive, and are generally less scripted than comparable US programmes [11].

Figure 22.1 provides a flow diagram that integrates much of the material discussed above into a conceptual model of the process of policy, development, implementation and evaluation using a Prevention Science approach. The diagram describes five stages of development:

- Good Intentions: The first stage of the process begins with recognition of the need to develop a policy, programme, or intervention and a resolution of key issues relevant to the outcomes of the application, the target population and related matters.

- Promising: This stage represents the translation of the Good Intentions stage to develop the foundations of an effective policy, programme, or intervention by developing an application outline, recruiting and training staff, and conducting preliminary tests of efficacy.

- Effective: This stage involves testing the efficacy of the proposed policy, programme or intervention. Ideally this should involve a well conducted and replicated randomised trial.

- Model: This stage involves formalising and further developing the proposed application in readiness for widespread implementation.

- System Ready: The final stage of the process involves finalising the steps required to implement the policy, programme or intervention on a population-wide basis.

While the Prevention Science approach has been widely recommended as a means of translating evidence into policy, programmes and interventions, this approach has not been uniformly accepted. Some of the issues that have been raised include the cost of the approach, the time-frame required for effective evaluation, and a potential emphasis on problems rather than on strengths [15]. In addition, there may be some issues for which the evidence base has not yet been established and additional research and careful piloting will be required. In light of these considerations, a number of other paradigms have been proposed. One of these paradigms important in the New Zealand context is the Te Ao Māori perspective outlined in the next section.

3. A Te Ao Māori Perspective

A feature that permeates the statistics on adolescence in New Zealand are the poorer outcomes experienced by young Māori. These statistics include: youth suicide [16, 17], mental health problems [18, 19], crime and youth justice [20, 21] drug and alcohol misuse [22, 23], teen pregnancy [24] and other related outcomes (see also Chapters 7 and 11 on Māori). Reducing the disparities between Māori and non-Māori in New Zealand is therefore a matter of the highest social priority, not only for addressing adolescent problems but also for producing a fair, equitable, and culturally-responsive society [25]. Further, the desire of Māori to flourish as Māori in Aotearoa/New Zealand gives an imperative for development based on a Te Ao Māori perspective which is not contingent on a problem focus.

Any discussion of these issues needs to consider the linkages between evidence and applications that are consistent with the Treaty of Waitangi. The Treaty has particular relevance to the government for the development of social, health and related policies

Table 22.1. Comparison of culturally appropriate and culturally responsive policies, programmes and applications (following [28]).

Cultural appropriateness	Cultural responsiveness
Refers to programme selection and content, i.e.: do programme values, format and content align with the cultural values and practice of the target group? It includes:	Refers to the delivery of the programme and the ability to respond to fluid, authentic situations in ways that resonate with (and are therefore culturally appropriate) and affirm the culture of clients. It includes:
Consultation with key groups in selection process	Māori representation at a governance level
Inspection of programme content to determine accuracy	Major consultation on the content of programme
Client satisfaction surveys	Implementation of culture specific topics
Statistical comparison of rates of participation	Ecological approaches such as Te Whare Tapa Whā [29]
Māori participation in planning of programmes	A focus on whānau ora [30]
Being able to demonstrate whānau inclusive principles such as whanaungatanga and manaakitanga	Integral Māori processes and protocols such as pōwhiri and whakawhiti kōrero
A holistic approach to treatment plans that addresses cultural, clinical and whānau needs	A whānau liaison worker, advocate, therapist are intrinsic to the programme
An environment that can assist in enhancing identity and connections such as classrooms, schools or government departments	An environment that can assist in enhancing identity and connections such as marae or tūrangawaewae, as well as schools etc.
A facilitator with the right credentials	A facilitator with the right credentials

and raises complex issues about the development, design and implementation of effective programmes for Māori.

Recognition of this issue is well represented in the recent distinctions that have been drawn between culturally appropriate and culturally responsive programmes [26]. In general, cultural appropriateness refers to the extent to which programmes are developed and delivered in a way that is considered appropriate by Māori. On the other hand culturally responsive programmes are those which more fully recognise the rights of Māori in the development, implementation and evaluation of the programme [26, 27]. Table 22.1 prepared by Macfarlane [28] compares and contrasts issues relating to culturally appropriate and culturally responsive programmes.

An important implication of Table 22.1 is that while it is possible to incorporate issues relating to cultural appropriateness into programmes developed and evaluated within a Western Science framework, the development of culturally-responsive programmes fundamentally requires the adoption of Māori concepts, values and world view into the process of programme development implementation, and evaluation. These considerations have led to increasing advocacy by Māori for what has become to be known as Kaupapa Māori programmes [26, 30-38]. The Kaupapa Māori approach to programme development has been described by Macfarlane as follows:

> *"The key components that define programmes as 'kaupapa Māori' programmes emanate from Māori worldview philosophies and perspectives, i.e.: kaupapa Māori values, beliefs, and concepts, as well as Māori-preferred processes and practices. These components serve to 'unite' them all as uniquely 'Māori', and ensure that there will be 'cultural fit' for those to whom they are delivered [26, 32-38]. These programmes are more likely to resonate with whānau as they draw upon the uniqueness of Māori culture, its ethos, and delivery mechanisms. The contention*

is that programmes must cover four fundamental areas if the service is to be sufficiently grounded so as to take on the form of kaupapa Māori.

Tapu. *This cultural marker is concerned with the sanctity of the person; the special attributes that people are born with and that contribute to defining one's place in time, locality and society. Often the abuse of the sanctity of the tamaiti might be caused by the erosion of Māori values, and tapu is often the corrective and coherent force that can reinstate wholeness and balance. Kaupapa Māori programmes value the sanctity of the Tamaiti.*

Tikanga. *This cultural marker is concerned with 'the Māori way of doing things'. According to Mead [39] tikanga are tools of thought and understanding that are constituted to help organise behaviour and provide some predictability in how certain activities are carried out. Tikanga would include what Linda Smith identifies and explains as Māori ethics within practice [31].*

Taonga tuku iho. *This cultural marker is concerned with the knowledge base of mātauranga Māori — ideas, interpretations, and modifications made through generations and applicable in today's education conundrum. Space for Māori knowledge in curricula and programmes is at the centre, not at the margins.*

Tino rangatiratanga. *This cultural marker is concerned with self-determination and is counter-hegemonic in the sense that curricular and programmes are expressed by Māori. Tino rangatiratanga is a dynamic construct in that it is about removing inhibitions and recognising the dignity of all who are involved in the exploration of good outcomes.*

These four fundamental areas should not be considered in isolation—they coexist; they also vary together, but in patterned ways [40]. To take this perspective is to be in tune with a social constructionist approach in programme development. Such an approach will assert that these cultural markers draw from many sources and experiences that are often contrary to 'essentialist' formations that have been conventional traditions of thought for so long. In Māoridom, these cultural markers are not just natural or stable givens, but they have become emblematic through the 'way of doing things' by Māori in particular circumstances and places, over time. These fundamentals are beneficial—and therefore advantageous—for determining the distinctiveness of culturally responsive programmes."

While there has been increasing advocacy and literature on Kaupapa Māori, the use of this perspective for the development, implementation and evaluation of programmes for Māori has been a contested area. On one hand, critics have pointed to the potential limitations of Kaupapa Māori and its potential lack of rigour from the standpoint of Western Science alone [28]. On the other hand, proponents of Kaupapa Māori have argued for the need to develop culturally responsive programmes and evaluation with a Te Ao Māori framework [26, 27]. Further, it has been suggested that criticism of Kaupapa Māori and other critical methodologies fails to recognise their value in privileging the individual and in providing a source of additional evidence on which to base decisions. These debates mirror broader debates about issues of rights, obligations and ownership that permeate political and social debates about issues relating to the position of Māori within New Zealand [41].

It is the consensus position of this report that Western Science and Kaupapa Māori perspectives should not be seen in tension, rather an approach which encourages partnership and cooperation between these perspectives should be taken. Various
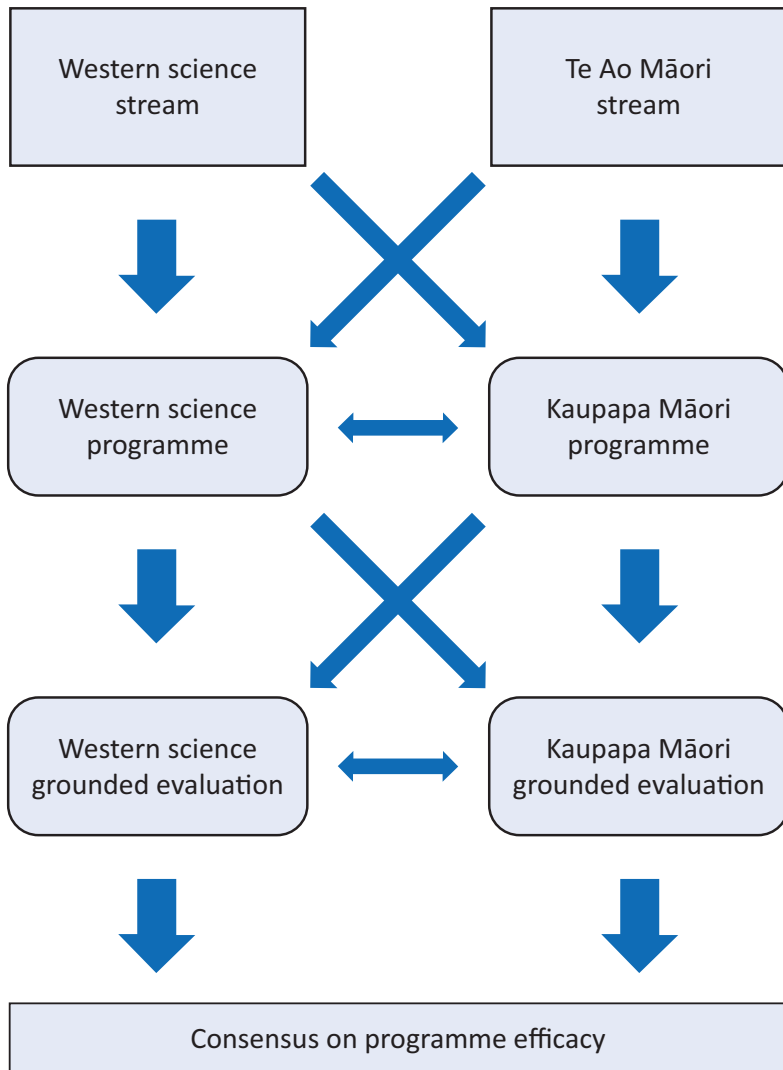
Figure 22.2. Parallel streams model of Western Science and Kaupapa Māori programme development and evaluation.

approaches to this task have been developed [42-45]. Kaupapa Māori research privileges the views of the participants whereas science privileges the method. In the end, however, both are needed.

One approach to reconciling Western Science and Kaupapa Māori perspectives is the He Awa Whiria (Braided Rivers model) proposed by Macfarlane [44]. This model is depicted in Figure 22.2.

The key features of this model are:

- The Western Science and Kaupapa Māori streams are acknowledged as distinctive approaches to the development and evaluation of programmes.
- The model permits knowledge from the Kaupapa Māori stream to inform the development of Western Science programmes and knowledge from Western Science programmes to inform the development of Kaupapa Māori programmes.

- The model also permits the evaluation methodologies used in the Western Science stream to be applied by the Kaupapa Māori stream and the evaluation methodologies used by Kaupapa Māori research can be applied to the Western stream.

- Finally the model assumes that the acceptance of programmes as being effective will rely on a consensus based on knowledge from both streams.

This model represents a promising solution to encouraging an appropriate partnership between Western Science and Kaupapa Māori. In addition, the model underscores the need to evaluate the impact of programmes on outcomes for different participants. This means, on the one hand, scientific evidence needs to be disaggregated so that the effects of programmes with different groups in different contexts are clearly known. On the other hand, it also requires use of good qualitative data which enables the 'voices' of participants and their responses to programmes to be considered in the evaluation. In New Zealand, an effective policy, programme, or intervention is one that leads to a positive change for individuals and collectives, who must also feel that their cultural (and other) needs have been valued.

4. Encouraging systematic approaches to policy development, implementation and evaluation

Throughout the world, changes are occurring in the development of social and health policies. These changes have been fuelled by the increasing body of research knowledge about the programmes and policies that are likely to be effective and those which are not. The impetus for this approach has also been fuelled by a growing awareness of the fact that many policies and programmes and interventions that have been represented as being effective have proved to be ineffective or even harmful. For example, consider the evaluation of the US-based "Scared Straight" programme [46, 47]. In this programme, young men with a history of delinquent behaviours were taken to prisons and exposed to the realities of prison life supported by graphic description of these realities provided by inmates. Initial qualitative and other evaluations suggested that the programme was beneficial. However when the approach was subject to rigorous testing using randomised trials it was discovered that "Scared Straight" was in fact harmful with those young men exposed to the programme being more likely to offend than those in a control series not exposed to the programme [46, 47].

Findings like this post a clear warning about the social and financial costs of investing in policies, programmes and interventions lacking evidence of efficacy. These considerations raise some important issues about the staffing and infrastructural changes that are needed to accelerate the development of effective evidence-based approaches to policy development, implementation and evaluation. These issues include:

- The need to build greater collaboration between the scientific community and policy makers including politicians, and key Government policy makers so that the key principles of evidence-based programme selection, implementation and evaluation have greater prominence in development of key areas of adolescent policy.

- The need to invest in greater training of research and policy staff in the principles of the evaluation of evidence-based programmes.

- Greater training of research workers who are capable of working within both Western Science and Kaupapa Māori frameworks.

- Greater recognition in public policy documents and legislation of the need to evaluate new policies, programmes and interventions thoroughly before long term investments are contemplated.

- The willingness to discontinue programmes that are not shown to be effective.

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Appendix

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Dr Sue Bagshaw
The Collaborative for Research and Training in Youth Health and Development Trust, and the Department of Paediatrics, University of Otago, Christchurch

Dr Sue Bagshaw works as a primary care doctor specialising in adolescent health at a one stop community youth health centre for 10-25 year olds, which she set up. She is a part time senior lecturer in adolescent health in the Department of Paediatrics at the Christchurch School of Medicine, and she is Director of the Collaborative Trust (a research and training centre for youth health and development). She spent 20 years working for the Family Planning Association in Christchurch and ten years working part time on the Methadone programme in Christchurch, which is why she has interests in common with young people – sex, drugs and rock 'n roll!

Ms Jacquie Bay
Liggins Institute, The University of Auckland

Ms Jacquie Bay is an experienced secondary school biology teacher who, prior to joining the Liggins Institute, was Head of Science at Diocesan School for Girls in Auckland. She has a special interest in the role of student led research in science education, completing her Masters in Science Education in this field in 1999. She is well known for work in the integration of ICT tools in teaching and learning. Experienced in curriculum management and national marking panels, she is currently Chair of the New Zealand Biology Educators' Association. Jacquie is aware of current issues faced by secondary biology educators and the potential positive impact of effective interaction between the secondary and tertiary science sectors.

Dr Alan Beedle

Office of the Prime Minister's Science Advisory Committee and Liggins Institute, The University of Auckland

Dr Alan Beedle trained as a molecular biologist and then became a professional science editor and writer. He is now Chief of Staff in the Office of the Prime Minister's Science Advisory Committee, where his particular interests lie in promoting the use of evidence in policy making and in building relationships between policy advisors in the public service and experts in science, medicine, social studies and engineering. Alan also holds a research fellowship at the Liggins Institute of The University of Auckland, where he recently co-authored the first textbook on evolutionary medicine with Professor Sir Peter Gluckman.

Dr Joseph Boden

Christchurch Health and Development Study, University of Otago, Christchurch

Dr Joseph Boden is a Senior Research Fellow at the Christchurch Health and Development Study, Department of Psychological Medicine, University of Otago, Christchurch. His research interests centre on the psychosocial causes and consequences of substance use, abuse, and dependence; mental health and substance use epidemiology; and the social and psychological determinants of maladaptive behaviour including aggression and violence.

Professor Chris Cunningham

Research Centre for Māori Health & Development, Massey University, Wellington

Professor Chris Cunningham is Professor of Māori Health and Director of the Research Centre for Māori Health & Development at Massey University. Chris' doctoral training is in quantum chemistry and he has worked as a Senior Public Sector Policy Advisor with the Ministry of Māori Affairs, Education Review Office and Ministry of Health. Chris is a Director of Te Hoe Nuku Roa – Best Outcomes for Maori Longitudinal Study and a Director of He Kainga Oranga – Housing & Health Research Programme. He is involved with numerous organisations concerned with Māori health and development. Chris and his wife are parents to four children.

Dr Simon Denny

Department of Paediatrics, The University of Auckland, and Centre for Youth Health

Dr Simon Denny is a Youth Health Physician working at the Centre for Youth Health and University of Auckland. Dr Denny completed his adolescent training in the USA where he was a 2000-01 Harkness Fellow in Health Care Policy. He was the Principal Investigator of Youth'07 which aimed to collect, analyse and disseminate accurate and comprehensive information on the health and wellbeing of New Zealand youth. Youth'07 follows on from Youth2000, which was the first nationally representative health survey of students attending secondary schools in New Zealand.

Professor David Fergusson FRSNZ

Christchurch Health and Development Study, University of Otago, Christchurch

For the last 34 years, Professor David Fergusson has been the Principal Investigator and Executive Director of the Christchurch Health and Development Study (CHDS), an internationally renowned longitudinal study of a birth cohort of 1,265 New Zealand children born in mid 1977. Professor Fergusson is the author of over 350 scientific articles and books. His recent work has included research into: childhood sexual and physical

abuse; family violence; cannabis and other illicit drug use; antisocial behaviour and young adult mental health and adjustment. He is a fellow of the Royal Society of New Zealand, honorary fellow of the New Zealand Psychological Society, honorary fellow of the Royal Australasian College of Physicians and recipient of the University of Otago Distinguished Research Medal.

Dr Kathryn Franko
Liggins Institute, The University of Auckland
Dr Kathryn (Kate) Franko completed her BS in biological sciences at Cornell University in 2001. There, she was a Presidential Research Scholar and a member of the Varsity rowing team. She went on to win a Gates Cambridge Scholarship and completed her PhD in perinatal physiology at the University of Cambridge in 2007. Having moved out of the laboratory, Kate is now analysing the economic consequences of poor health during pregnancy and in early life as a Postdoctoral Research Fellow.

Professor Sir Peter Gluckman KNZM, FRSNZ, FMedSci, FRS
Liggins Institute, The University of Auckland
Professor Sir Peter Gluckman was the founding Director of the Liggins Institute and is one of New Zealand's best known scientists. His research has won him numerous awards and international recognition. He is the only New Zealander elected to the Institute of Medicine of the National Academies of Science (USA) and the Academy of Medical Sciences of Great Britain. In 2001 he received New Zealand's top science award, the Rutherford Medal, and in July 2009 he was appointed as the first Chief Science Advisor to the Prime Minister of New Zealand. Sir Peter is the author of over 500 scientific papers and reviews and editor of eight books, including three influential textbooks in his subject area.

Dr Denise Guy
Incredible Families Charitable Trust
Dr Denise Guy is a Child Psychiatrist who has worked in infant mental health (0-3 years)for the last 27 years. Her current roles include supervision for Infant Services, Clinical Advisor for High and Complex Needs and co-ordinating the training and supervision in Australasia of the Watch, Wait and Wonder™ Intervention for families with infants from 4 months to 4 years. She is the Clinical Advisor to Counties Manukau 'Look At You, Aroha Atu, Aroha Mai' DVD Projects for parents, whānau and professionals regarding the social and emotional needs of babies in the first 3 months and a Trustee of the Incredible Families Charitable Trust.

Professor Harlene Hayne ONZM, FRSNZ
Department of Psychology, University of Otago
Professor Harlene Hayne is the Deputy Vice-Chancellor (Research and Enterprise) at the University of Otago. Her specialist research interests include memory development, interviews with children in clinical and legal contexts, and adolescent risk-taking. Professor Hayne is a Fellow of the Royal Society of New Zealand and of the American Psychological Society. She is the Associate Editor of *Psychological Review* and of the *New Zealand Journal of Psychology* and she serves on the editorial boards of six other international journals. In 2009 she was awarded New Zealand Order of Merit for services to scientific and medical research. Professor Hayne is the Past President of the International Society for Developmental Psychobiology and is a member of the Society for Research in Child

Development, the International Society for Infant Studies, and the Society for Applied Research in Memory and Cognition. She is also a Board Member of New Zealand Genomics Limited and of the MSI Innovation Board.

Professor Gordon Harold
Centre for Research on Children and Families, University of Otago (present address: School of Psychology, University of Leicester, United Kingdom)
Professor Gordon Harold is Chair in Behavioural Genetics and Developmental Psychopathology at the University of Leicester, UK. Prior to this, he was Alexander McMillan Chair in Childhood Studies and Professor of Psychology at the University of Otago. He holds appointments as Honorary Professor of Law at Cardiff University, Affiliate Research Scientist at the Oregon Social Learning Center (USA), and is the inaugural Senior Research Fellow at the Tavistock Centre for Couple Relationships (UK). His research interests focus on the role of family conflict as a context for understanding children's normal and abnormal psychological development, the genetic origins of children's emotional and behavioural development, policy and practice applications of research relating to family influences on children, and the application of statistical modelling techniques to the analysis of longitudinal data.

Mr Jed Horner
School of Population Health, The University of Auckland (present address: School of Public Health & Community Medicine, The University of New South Wales)
Mr Jed Horner is a South African born postgraduate student who completed his Bachelor of Health Sciences at the School of Population Health, University of Auckland. He is currently undertaking his Masters of Public Health by research degree at the University of New South Wales. He has previously served as an external advisor to the Office of the Children's Commissioner and the Human Rights Commission and as Secretary of the Rotorua Ethnic Council Inc. His research interests span the social determinants of immigrant health and wellbeing and the applicability of rights-based approaches to health and wellbeing.

Dr Felicia Low
Liggins Institute, The University of Auckland
Dr Felicia Low obtained her MSc (Hons) in Biochemistry from the University of Canterbury, and her PhD in Pathology from the University of Otago, Christchurch. Felicia is currently a Research Fellow with Professor Sir Peter Gluckman in the Office of the Prime Minister's Science Advisory Committee, based at The University of Auckland's Liggins Institute. Her interests include developmental epigenetics, the developmental origins of health and disease (DOHaD) and the dissemination and translation of scientific research. She is a member of the Liggins Institute's Centre for Human Evolution, Adaptation and Disease.

Professor Stuart McNaughton
Woolf Fisher Research Centre, Faculty of Education, The University of Auckland
Professor Stuart McNaughton is Professor of Education and Director of the Woolf Fisher Research Centre at the University of Auckland. His research interests are in literacy and language development, the design of effective educational programmes for culturally and linguistically diverse populations and cultural processes in development. Publications include research on children's development through family and school literacy practices; interventions in early childhood and schools settings; and research and development

models in large scale interventions with schools. He has chaired national groups providing advice to the New Zealand Government on literacy goals and has contributed to the development of national educational assessments and resources. He consults on the design of curricula and educational interventions nationally and internationally.

Associate Professor Sally Merry
Werry Centre for Child and Adolescent Mental Health, Department of Psychological Medicine, The University of Auckland

Dr Sally Merry is a child and adolescent psychiatrist and Director of Research at the Werry Centre for Child and Adolescent Mental Health at the University of Auckland. Her job includes research teaching and clinical work. She has a longstanding interest in implementing effective interventions to improve the mental health of infants, children and adolescents. Her main area of research interest has been adolescent depression and she has conducted a number of major studies in the area. She chairs the New Zealand Branch of the Faculty of Child and Adolescent Psychiatry.

Dr Tamar Murachver
Department of Psychology, University of Otago

Dr Tamar Murachver is a senior lecturer in the Department of Psychology at the University of Otago. She obtained her PhD from the University of California, San Diego, where she received training in cognitive and developmental psychology. Her teaching and research interests include how language is used to create and maintain social groups (i.e., groups based on gender, ethnicity, or nationality); children's and adults' use of social stereotypes; and children's and adults' use of aggression in interpersonal relationships.

Professor Richie Poulton FRSNZ
Dunedin Multidisciplinary Health and Development Research Unit, and National Centre for Lifecourse Research, University of Otago

Professor Richie Poulton is Director of the University of Otago's Dunedin Multidisciplinary Health and Development Research Unit. In 2007, he established and became a Co-Director of the National Centre for Lifecourse Research based in Dunedin, but with partners located at universities across New Zealand and internationally. His major areas of interest and research are developmental psychopathology, gene x environment prediction of complex disorders, and psychosocial determinants of chronic physical disease. He has published over 150 peer-reviewed scientific papers, with many appearing in leading international journals, and he maintains numerous international research collaborations. In 2010, he was elected as a Fellow of the Royal Society of New Zealand.

Mr Philip Siataga
St John of God – Hauora Trust, Christchurch

Mr Philip Siataga is a consultant, specialising in mental health and addiction, community development and youth development fields. He is a board member of the New Zealand Drug Foundation (NZDF), a member of the Pacific Advisory Group Alcohol Advisory Council of New Zealand, a Pacific advisor to Te Rau Matatini, and has served on the board of five non-government social service and health organizations over the past 20 years. He continues to work in the community action and youth development field as a project leader for Community Action Youth and Drugs (CAYAD) Otautahi – St John of God Hauora Trust. He has served as the chairperson of Le leo o le va to the Le Va (Pasifika Mental

Health and Addictions workforce development) within Te Pou. He is the author of the 'I Am-guide for nurturing hope, resilience and happiness Pasifika style', a tool designed to enhance professional and personal development among those working with young Pacific peoples. Most importantly he is the proud father of two awesome daughters.

Dr Keren Skegg

Department of Psychological Medicine, University of Otago

Dr Keren Skegg is a psychiatrist who works as a senior lecturer in the Department of Psychological Medicine at the University of Otago Medical School. Her postgraduate training was in Oxford, England. She has published extensively on suicide and self-harm in international journals over many years. She has a particular interest in suicide prevention and is a member of the Otago Suicide Prevention Steering Group.

Dr Deborah Sloboda

Liggins Institute, The University of Auckland and National Research Centre for Growth and Development

Dr Deborah Sloboda is a fetal physiologist who did her PhD at the University of Toronto focusing on the fetal hypothalamic-pituitary adrenal axis and the effects of stress hormones during pregnancy on fetal pancreatic development. In 2001 she received a fellowship from the Women's and Infants' Research Foundation, where she became the Forrest Fetal Fellow at the University of Western Australia. Here, Dr Sloboda continued her investigations on fetal endocrine development and established a new research platform involving a prospective cohort study (The Raine Study Cohort) investigating the prenatal origins of reproductive disorders and the onset of puberty in adolescent girls. In 2006 Dr Sloboda was recruited to the Liggins Institute where she has combined her interests in fetal programming and reproduction, investigating the effects of early life nutrition on reproductive health.

Dr Karolina Stasiak

Werry Centre for Child and Adolescent Mental Health, Department of Psychological Medicine, The University of Auckland

Dr Karolina Stasiak is a Research Fellow at the Department of Psychological Medicine at the University of Auckland. Karolina has graduated with a Masters in Psychology and then completed her PhD in Psychiatry. In her doctoral project, she developed and piloted a computer-administered cognitive-behavioural therapy resource for adolescents with depression. Subsequently, she has been involved in developing and evaluating more innovative programmes to treat and prevent depression in young people. Karolina has a keen interest in harnessing the potential of new media and technology to assist youth in positive development.

Dr Trecia Wouldes

Department of Psychological Medicine, The University of Auckland

Dr Trecia Wouldes is a developmental psychologist in the Department of Psychological Medicine at the University of Auckland and a member of the Executive Board of the Werry Centre for Child and Adolescent Mental Health. The focus of her teaching and research is the health and development of children exposed to biological and/or psychological insults that occur prenatally or during early childhood. She is currently the Principal Investigator for the New Zealand arm of the largest international study investigating the developmental

outcomes of children born to mothers who used methamphetamine (street name 'P') during their pregnancy. From her research, Dr Wouldes has a developed a special interest in developing evidence-based interventions for infants, toddlers and preschool children who are often living in chaotic environments.