

PSYCHIATRIC DISORDER AND TREATMENT SEEKING IN A BIRTH COHORT OF YOUNG ADULTS

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Disclaimer

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FOREWORD

In recent years there has been a growing awareness of the mental health problems of young people. We have learned that some psychiatric disorders are manifesting themselves at a younger age and that prevalence is increasing. There has also been a growing awareness of the potential consequences of not addressing such problems, such as New Zealand's high rates of youth suicide.

This report is a significant contribution to our understanding of mental health problems affecting young people aged 16 to 18 years. It provides particularly valuable information about the prevalence of psychiatric disorder in this age group, the factors which contribute to the development of psychiatric disorders, data highlighting young Māori as being at higher risk, and illuminating information about treatment seeking patterns in this age group.

I hope that this report will be used as a key document for policy makers, educators, funders, service managers and providers to guide our services well into the next millennium.

The Ministry of Health is indebted to Dr Fergusson, John Horwood and their team for meticulously putting together this report and for continuing to collect and analyse invaluable information from the Christchurch Health and Development Study.

Janice Wilson
Chief Advisor, Mental Health
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OVERVIEW, SUMMARY AND MAJOR RECOMMENDATIONS

This report describes the findings of a study of the prevalence and treatment of psychiatric disorders in the birth cohort of over 1000 Christchurch-born children enrolled in the Christchurch Health and Development Study (CHDS) who have been studied at the age of 18. In general terms the aims of this investigation were to estimate the prevalence of disorder in this cohort and to examine patterns of treatment seeking over the period from 16 to 18 years. The study also examined patterns of suicidal behaviour amongst cohort members.

SUMMARY OF FINDINGS

The substantive findings of the study are presented in Chapters 3–6 and a summary of the key findings is given below.

Chapter 3

This chapter examines the prevalence of disorder in the cohort over the period from 16 to 18 years. In excess of 40% of cohort members met standardised diagnostic criteria for at least one psychiatric disorder, with the most common disorders being substance use disorders (24%), mood disorders (22%), anxiety disorders (17%) and conduct disorder (5%). These disorders were often comorbid with the result that 42% of those with disorder (18% of the total sample) met criteria for more than one disorder. These figures are likely to give an upper limit estimate of the number of young people requiring psychiatric treatment since some of those meeting criteria for disorder may not have had symptoms of sufficient severity to justify clinical treatment.

While overall rates of disorder were similar for males and females, the patterning of disorder varied with gender, with females having higher rates of internalising (mood, anxiety) disorders and males being more prone to externalising (conduct, substance use) disorders. Māori were at greater risk of all types of disorder and Māori males emerged as a group being particularly at risk owing to their elevated rates of conduct and substance use disorders.

Chapter 4

This chapter gives an account of the social, family and childhood histories of young people developing disorder. The analysis shows that risks of disorder are related to a swarm of adverse social, family and childhood factors that include: social disadvantage, impaired parenting, family dysfunction, exposure to child abuse, school difficulties, negative peer influences and prior history of psychiatric disorder. Of particular note, is the fact that the strongest predictors of disorder related to factors in the individual's immediate social environment (family, school, peers) rather than to broad social and economic factors.

Chapter 5

This chapter examines patterns of treatment seeking amongst those meeting criteria for psychiatric disorder. Only a minority (less than a quarter) of those meeting criteria for disorder had sought treatment, with the most common sources of treatment being general practitioners and counsellors. Treatment seeking was most common amongst those with mood disorders and least common amongst those with substance use disorders. Young people with disorder gave three related reasons for not seeking treatment. These were:

- the young person did not think they had a problem or could manage the problem themselves
- they believed that the problem would get better without treatment
- it did not occur to them to seek help.

Other barriers to treatment seeking including costs of treatment, lack of availability of services and reluctance to seek treatment for fear of embarrassment or stigmatisation were seldom given as a reason for failing to seek treatment. The probability that an individual meeting criteria for disorder would seek treatment was related to:

- the extent to which the disorder caused impairment
- the type of disorder
- having a previous history of disorder
- socioeconomic status, with young people from lower socioeconomic groups more frequently coming to the attention of services.

Chapter 6

This chapter gives an overview of issues relating to suicidal behaviours in the cohort. By the age of 18, just under a quarter of all cohort members reported having suicidal thoughts; just under 6% had made a suicide attempt and two cohort members (both male) had died as a result of suicide. The majority of suicide attempts were minor and only five young people were admitted to hospital as a consequence of a suicide attempt. Those making suicide attempts or dying by suicide were distinguished from other cohort members by having far greater exposure to various forms of childhood, family and related adversity and by the development of significant psychiatric disorder in adolescence. A substantial minority (35%) of those attempting or completing suicide had been in contact with treatment services prior to their attempt.

MAJOR POLICY THEMES

The major purpose of this report is to provide policy makers and others with a body of factual information about the mental health problems faced by a particular cohort of young New Zealanders in the hope that this information will provide an epidemiological context for the development and formation of more effective policy. Whilst it is not the intention of the report

to suggest specific policies, the findings suggest four major themes around which policy development should centre. These themes are:

- ***The need to develop effective mental health services for young people***

Even granting that not all of those meeting diagnostic criteria for a mental disorder will need clinical support and treatment, the high prevalence of disorder that emerges from this study very clearly suggests a potentially large demand for youth psychiatric services and the consequent need to develop an integrated and effective youth mental health service. Given the relatively large number of young people involved it seems likely that this development should centre around the improved provision of primary health care services that are capable of both recognising and effectively treating common psychiatric disorders in young people, with this primary health service being supplemented by specialist inpatient and outpatient services designed to address the problems faced by young people with severe or chronic disorders.

- ***The need to improve treatment seeking and the recognition of psychiatric disorder in young people***

It is clear from this analysis that many young people who may potentially benefit from professional support fail to seek treatment. The reasons for failure to seek treatment appear to centre around issues relating to the threshold at which young people believe treatment seeking is justifiable. The major route to resolving this issue is likely to involve policies and programmes that improve the recognition and awareness of mental health problems in young people and which provide clear advice about the various pathways to treatment and support.

- ***The need for programmes that address the social, family and related antecedents of mental health problems***

The life histories of many young people who develop a psychiatric disorder, and particularly those who show severe and chronic problems, are marked by a history of adversity involving social, family, school and peer related factors. It seems likely that if there is to be any hope of reducing the numbers of young people developing mental health problems, this hope lies with the development of integrated and multi-compartmental prevention programmes that address the social, family and related factors that apparently contribute to risks of disorder in young people.

- ***The need to address issues of Māori mental health***

In this study, Māori and particularly Māori males, emerged as being at consistently higher risk of mental health problems than non-Māori. This finding clearly suggests the need for further investment in programmes and policies designed to provide effective and culturally appropriate methods of preventing, managing or treating mental health problems in young Māori.

CHAPTER 1: INTRODUCTION

BACKGROUND AND RESEARCH ISSUES

In recent years there have been growing concerns about a range of issues relating to the mental health or psychological adjustment of young New Zealanders. These concerns have spanned issues such as youth suicide (Coggan and Norton 1994; Maskill 1991; Ministry of Health 1994, 1996c); adolescent mental health (McGeorge 1995; Maskill 1991; Ministry of Health 1994, 1996c); alcohol and drug abuse (Howden-Chapman et al 1994; Maskill 1991; Ministry of Health 1996a); truancy and antisocial behaviours (Education and Science Committee 1995). These concerns have been accompanied by parallel concerns about a range of social and family issues including child abuse (Department of the Prime Minister and Cabinet 1996; Ministry of Health 1996b); domestic violence (Department of the Prime Minister and Cabinet 1996; Leibrich et al 1996); dysfunctional and 'at-risk' families (Chapple et al 1994; Public Health Commission 1995); unemployment (Bethwaite et al 1990; Macky 1987; Shirley et al 1990); poverty and welfare dependence (Moore 1996; Waldegrave 1994; Waldegrave and Coventry 1987). In turn these concerns about psychosocial issues relating to young people have led to a search to identify the origins of these problems and to develop policies, strategies and interventions to address these difficulties.

A prerequisite of effective policy development in the area of youth mental health and psychosocial adjustment is clearly the provision of well-collected evidence on psychosocial issues as they relate to young New Zealanders. Whilst there have been an increasing number of studies of psychosocial problems in New Zealand published in the scientific literature, much of this material may be difficult to access by a wider audience of policy makers, professionals, teachers, parents and, of course, young people who have a stake in these issues. Our intentions in writing this report were to provide an accessible and reader friendly account of the findings of a large study of the mental health status of a sample of over 1000 Christchurch-born children studied at the age of 18. In this analysis we seek to examine the following issues:

1. *Prevalence and incidence*

What fraction of young people aged 16–18 meet standard diagnostic criteria for common psychiatric disorders including mood disorders, anxiety disorders, conduct problems and substance use disorders? To what extent do risks of disorder vary with gender and ethnicity?

2. *Psychosocial profile*

What social, economic, family and related factors distinguish between those who develop psychiatric disorders and those who do not?

3. *Treatment seeking*

To what extent do young people meeting criteria for psychiatric disorders seek treatment for these conditions? What sources of treatment and support are used and what factors distinguish between those who seek treatment and those who do not?

4. *Youth suicide*

What fraction of young people engage in suicidal behaviours including suicidal thoughts and suicide attempts? What factors distinguish those young people who make suicide attempts from those who do not make such attempts?

APPROACH AND METHODOLOGY

In general we have attempted to present the findings of this research using methods of tabular statistical analysis and have avoided wherever possible the use of multivariate methods. Whilst this approach limits detailed examination of a number of issues, it has the advantage of making the information accessible to a wide readership.

The methodology used in this research has been broadly modelled on the methods of a growing number of epidemiological studies of mental health issues and has strong parallels with the methodologies used in the Dunedin Multidisciplinary Health & Development Study (Anderson et al 1987; Feehan et al 1994; McGee et al 1990). This approach may be seen as having advantages or liabilities depending on the reader's methodological perspectives. The advantages of epidemiological studies using standardised diagnostic criteria and methods are well known and include standardisation of measurement methods, uniformity of definitions and the possibility of making between-study comparisons (Regier et al 1984; Young et al 1987). The adoption of this methodology has resolved many of the problems that beset psychiatric research prior to the introduction of standardised methods. However, it has recently been argued that the apparent advantages of these methods may be purchased at the cost of overlooking or trivialising the qualitative experiences of those who experience mental health problems and also may impose 'Eurocentric' definitions of mental health on culturally pluralistic societies (Durie 1994; Rolleston 1989; Walker 1996).

It is almost impossible to reconcile these alternative views of epistemology and methodology. At the same time it is our belief that many of these epistemological and methodological debates may be more apparent than real. Inspection of the findings and themes that emerge from this study shows the presence of a broad but pervasive consensus between the major findings of this study and claims made on the basis of other approaches. This convergence may suggest that the interpretation of evidence may not be as sensitive to choice of research methods as is sometimes claimed and that a similar destination may be reached by a variety of routes. This point is not made to detract from claims that insights into mental health issues may be obtained by a variety of methodological approaches, rather it is our position that the strongest evidence in this area is likely to result from a convergence of conclusions from studies using different methodologies. In this report we set out to provide a snapshot of the mental health of a large and well-studied birth cohort using an epidemiological perspective.

CHAPTER 2: METHODS

INTRODUCTION

The data described in this report were gathered as part of the ongoing assessment of the cohort of young people enrolled in the Christchurch Health and Development Study (CHDS). In this study a birth cohort of 1265 children born in the Christchurch urban region during a four-month period in mid-1977 has been studied at birth, four months, one year and annual intervals to the age of 16 and again at 18 years using a combination of methods including: parental interview; teacher report; interviewing and psychometric testing of the subject; information from medical records and other sources. In very general terms the aims of the study have been to build up a running record of the life history, social circumstances, health and development of a large cohort of New Zealand children growing up in the 1980s and 1990s. A detailed description of the study and its methodology have been provided in previous reports (Fergusson et al 1989; Fergusson, Horwood and Lynskey 1993).

The results described here are based on analyses of the mental health and adjustment of cohort members over the period from 16–18 years assessed when subjects were aged 18. These data have been supplemented by information from earlier phases of the study describing the social, family, individual and related characteristics of cohort members and their prior history of psychosocial adjustment up to the age of 16 years. In this chapter we briefly summarise the measures used in the analyses and describe the characteristics of the sample studied at age 18. A detailed description of all measures used in the analysis is given in the Appendix.

ASSESSMENT OF MENTAL HEALTH FROM 16–18 YEARS

At age 18, cohort members were interviewed on a structured interview schedule which lasted between one to three hours and examined a wide range of topics relating to the individual's life history, mental health and adjustment over the period from 16–18 years. All interviews were conducted in private and each young person gave signed consent agreeing to participation in the research. The study also received ethical review and approval from the Canterbury Ethics Committee.

As part of the 18-year interview, detailed information was obtained on the following aspects of the young person's mental health.

Psychiatric Disorder (16–18 years)

Study participants were questioned about their history of psychiatric symptoms over the period from 16–18 years using a questionnaire based on the Composite International Diagnostic Interview (CIDI, World Health Organization 1993) supplemented by an instrument based on the Self Report Delinquency Instrument (SRDI, Elliott and Huizinga 1989). The CIDI items were used to assess mood disorders, anxiety disorders, and substance use disorders in the

sample, while the SRDI was used to assess conduct disorder. Using this information DSM-IV criteria (American Psychiatric Association 1994) were used to construct a series of diagnoses of psychiatric disorder for each participant over the period from 16–18 years. Specifically, the following diagnoses were obtained:

- mood disorders including: current major depression at age 18; major depression in past year (17–18 years) and any major depression from 16–18 years
- anxiety disorders including: generalised anxiety disorder; social phobia; specific phobia; panic disorders and agoraphobia
- conduct disorder
- substance use disorders including: alcohol abuse or dependence; cannabis abuse or dependence; other substance abuse or dependence (but excluding nicotine dependence).

Treatment Seeking

All young people meeting criteria for psychiatric disorder were asked a further series of questions relating to treatment seeking for their mental health problems or difficulties including:

- whether the young person had sought or received treatment, counselling or some other form of help for their problems
- for those who had sought treatment, their reasons for seeking treatment, the source, nature and outcome of their treatment
- for those who failed to seek treatment, their reasons for failing to seek treatment and, in particular, any barriers to treatment seeking.

Suicidal Behaviour

Sample members were questioned about the following aspects of suicidal behaviour over the period from 16–18 years:

- suicidal ideation: the frequency and nature of any suicidal thoughts or plans
- suicide attempt: the occurrence of any suicide attempts; the circumstances and events surrounding each attempt; the nature and outcome of any attempt; the nature of any medical treatment/intervention received.

This information was supplemented by additional information on suicidal behaviours gathered during earlier phases of the research to produce a measure of the cumulative incidence of suicide ideation and suicide attempt by age 18 years.

PSYCHOSOCIAL RISK FACTORS ASSOCIATED WITH MENTAL HEALTH PROBLEMS

In order to examine the various family, social, individual and other factors that were associated with increased risks of mental health problems from 16–18 years, a series of additional measures describing the young person's social and family circumstances, life history and related factors prior to age 16 was abstracted from the database of the study. These measures included the following:

- measures of family social and economic circumstances: maternal age; maternal education; family socioeconomic status; family type; family income
- measures of family stability/conflict: changes of parents; step parenthood; parental conflict; changes of residence; changes of school
- measures of child abuse: experience of childhood sexual abuse; parental use of physical punishment
- measures of parental adjustment: parental history of alcoholism/problems with alcohol; parental history of criminal offending; parental history of psychiatric disorder; parental use of illicit drugs
- individual characteristics: gender; ethnicity; cognitive ability; early conduct problems; self-esteem
- measures of educational achievement: standardised tests of word recognition, reading comprehension and scholastic ability; leaving school without formal educational qualifications
- measures of parent/peer relationships: parental attachment; parental bonding; affiliations with delinquent or substance using peers during adolescence
- mental health problems prior to age 16 years: history of mood, anxiety, conduct/oppositional and substance use disorders from 14–16 years.

A more detailed description of these measures may be found in the Appendix.

SAMPLE SIZE AND SAMPLE BIAS

The analyses in this report are based on the sample of 1025 young people who were studied at the age of 18 years. This sample represents 81.0% of the original sample of 1265 children and 92.3% of the sample members who were still alive and resident in New Zealand at the age of 18 years. The reasons for loss to follow up included: outmigration from New Zealand (56.3%), refusal to participate in the research (35.4%) and death (8.3%).

While these response rates are excellent for such a long-term study, the rates of sample loss raise the issue of the extent to which the results reported here may be subject to sample selection bias. To examine this issue, Table 2.1 shows a comparison of the obtained sample of 1025 subjects with the remaining 240 sample members who were not studied at age 18 years

on a series of measures of the sociodemographic characteristics of the sample collected at birth.

Statistical analysis of the comparisons shown in the table revealed no detectable tendencies for rates of sample attrition to be correlated with maternal age, child ethnicity, gender or birth order. However, there were statistically significant tendencies for the obtained sample at age 18 to be under-represented by children from families of lower socioeconomic status, children whose parents lacked formal educational qualifications and children who entered single parent families at birth. This suggests that the obtained sample may be slightly biased towards under-representation of children from more socially disadvantaged backgrounds. However, it is the cumulative experience of the CHDS that these small biases have a negligible impact on study findings. Statistical analyses conducted to correct for sample selection bias have repeatedly shown that conclusions drawn from bias-corrected analyses are essentially the same as those from analyses which ignore sample selection issues (Fergusson et al 1988; Fergusson, Horwood and Lynskey 1997b; Fergusson and Lloyd 1991). In addition, as will be shown later, these measures of disadvantage appear, at best, to be only weakly associated with risks of mental health problems from 16–18 years. Collectively, these findings would suggest that any small bias in the CHDS cohort at age 18 is unlikely to markedly influence conclusions drawn from analyses in this report.

Table 2.1: Comparison of sample members assessed at age 18 and those not assessed on measures of family sociodemographic characteristics collected at birth of survey child.

<i>Measure</i>	<i>Assessed at age 18 (N = 1025)</i>	<i>Not assessed at age 18 (N = 240)</i>
Mean age of mother (years)	25.9	25.4
% Mother lacked formal education qualifications ^a	49.0%	59.6%
% Family of semi-skilled or unskilled socioeconomic status ^a	25.0%	35.8%
% Child entered single parent family at birth ^a	6.2%	14.6%
% Female	50.7%	45.8%
% Māori	11.2%	11.3%
Mean family size	2.0	2.0

^a Comparison statistically significant ($p < .01$).

CHAPTER 3: THE PREVALENCE OF DISORDER

INTRODUCTION

The aims of this chapter are to review the incidence of psychiatric disorder in the CHDS cohort and to examine the comorbidities between disorders over the period from 16–18 years. As explained previously, data on psychiatric symptoms in the cohort was collected on the basis of self-reported symptoms using a questionnaire based on the Composite International Diagnostic Interview (CIDI, World Health Organization 1993) supplemented by an instrument based on the Self Report Delinquency Instrument (SRDI, Elliott and Huizinga 1989). The CIDI items were used to assess mood disorders, anxiety disorders and substance use disorders in the sample, while the SRDI was used to assess conduct disorder.

RATES OF DISORDER IN FEMALES AND MALES

Table 3.1 shows the rates of DSM-IV defined mood disorders, anxiety disorders, conduct disorder and substance use disorders per 100 sample members for females, males and the total sample over the period from 16–18 years. The table also shows the female: male risk ratio for each disorder comparison. Examination of the table shows:

- A substantial minority (43%) of sample members met criteria for at least one DSM-IV disorder over the period from 16–18 years: the risk of any disorder was slightly higher for females (45.6%) in comparison to males (40.8%) although this difference was not statistically significant. The most common disorders were those associated with substance abuse/dependence (24%) followed by mood disorders (22%) and anxiety disorders (17%).
- There were clear gender differences in the patterning of disorder, with females having higher rates of internalising (mood and anxiety) disorders and males having higher rates of externalising (conduct and substance use) disorders. Overall, females were 2.2 times more likely to have a mood disorder and 1.9 times more likely to have an anxiety disorder than males. In contrast males had rates of conduct disorder that were nearly 5 times greater and rates of substance use disorders that were 1.5 times greater than females. In all cases these gender differences were statistically significant. The slight excess in the risk of any disorder for females over males appears to be accounted for largely by the higher risks of mood and anxiety disorders amongst females.

Table 3.1: Rates (%) of DSM-IV defined psychiatric disorders for females, males and the total CHDS sample over the period from 16–18 years.

Disorder	Female (N = 520)	Male (N = 505)	Total sample (N = 1025)	Female: male risk ratio
Mood disorders				
Major depression – current at age 18	10.8	3.4	7.1	3.2
Major depression – past year	26.5	9.7	18.2	2.7
Any major depression – 16–18 years	30.2	13.7	22.1	2.2
Anxiety disorders				
Generalised anxiety disorder	4.2	1.6	2.9	2.7
Social phobia	9.2	6.1	7.7	1.5 ^a
Specific phobia	13.1	5.9	9.6	2.2
Panic/agoraphobic disorders	5.2	0.8	3.0	6.5
Any anxiety disorder	22.3	11.7	17.1	1.9
Conduct disorder	1.7	7.9	4.8	0.2
Substance use disorders				
Alcohol abuse/dependence	16.9	22.0	19.4	0.8
Cannabis abuse/dependence	7.5	16.2	11.8	0.5
Other substance abuse/dependence	4.0	3.4	3.7	1.2 ^a
Any substance use disorder	19.6	28.5	24.0	0.7
Any psychiatric disorder	45.6	40.8	43.2	1.1 ^a

^a Risk ratio not significantly different from 1.

ETHNIC DIFFERENCES IN DISORDER

Table 3.2 shows a comparison of the rates of DSM-IV defined disorders amongst Māori and non-Māori members of the cohort over the period from 16–18 years. In this table the classification of ethnicity has been based on descent, with children of Māori parentage being classified as Māori and the remaining sample members as non-Māori. Parallel analysis of ethnic differences using parentally defined ethnic status of the young person produced similar

results. For each comparison the table also gives the risk ratio for disorder amongst Māori in comparison to non-Māori.

Examination of Table 3.2 shows clear tendencies for Māori to have higher risks of disorder than non-Māori on all measures of disorder: risk ratios for the main disorder groups ranged from 1.2–2.8 times higher amongst Māori. Statistically significant differences in risk were found for anxiety disorders, conduct disorder and substance use disorders. However, rates of mood disorders amongst Māori and non-Māori were not significantly different. Overall, 54.8% of Māori met criteria for at least one disorder in comparison to 41.8% of non-Māori.

Table 3.2: Rates (%) of DSM-IV defined psychiatric disorders for Māori and non-Māori sample members over the period from 16–18 years.

<i>Disorder</i>	<i>Māori (N = 115)</i>	<i>Non-Māori (N = 910)</i>	<i>Māori: Non-Māori risk ratio</i>
Mood disorders			
Major depression – current at age 18	7.8	7.0	1.1 ^a
Major depression – past year	22.6	17.7	1.3 ^a
Any major depression – 16–18 years	26.1	21.5	1.2 ^a
Anxiety disorders			
Generalised anxiety disorder	7.8	2.3	3.4
Social phobia	13.0	7.0	1.9
Specific phobia	13.9	9.0	1.5 ^a
Panic/agoraphobic disorders	3.5	3.0	1.2 ^a
Any anxiety disorder	25.2	16.0	1.6
Conduct disorder	11.3	4.0	2.8
Substance use disorders			
Alcohol abuse/dependence	28.7	18.2	1.6
Cannabis abuse/dependence	20.0	10.8	1.9
Other substance abuse/dependence	7.8	3.2	2.4
Any substance use disorder	33.9	22.8	1.5
Any psychiatric disorder	54.8	41.8	1.3

^a Risk ratio not significantly different from 1.

THE JOINT EFFECTS OF GENDER AND ETHNICITY ON RISKS OF DISORDER

Figure 3.1 shows the sample classified by ethnicity and gender and for each gender/ethnicity group three measures of disorder are compared: (a) the rate of internalising disorders (mood, anxiety disorders); (b) the rate of externalising disorders (conduct disorder, substance use disorders); (c) the risk of any DSM-IV defined disorder. Examination of the figure yields the following conclusions:

- Risks of internalising disorders tended to be highest among Māori and females, with Māori females having the highest rates of disorder – over twice those of non-Māori males.
- Similarly, rates of externalising disorders varied with both gender and ethnicity, with males and Māori being at higher risk: Māori males had rates of externalising disorders that were over two and a half times higher than non-Māori females. However, the higher risk amongst Māori appeared to be gender specific: while rates of externalising disorders were similar for Māori and non-Māori females, these rates were far higher in Māori males than non-Māori males. The figure shows clearly that Māori males emerged as a group particularly prone to conduct and substance use disorders.
- Finally, the analysis of any disorder shows that while the rates of disorder were similar for males and females, Māori had higher overall rates of disorder than non-Māori. Again, Māori males appear at greatest risk.

More generally, the above findings lead to three conclusions about the relationship between ethnicity, gender and rates of psychiatric disorder.

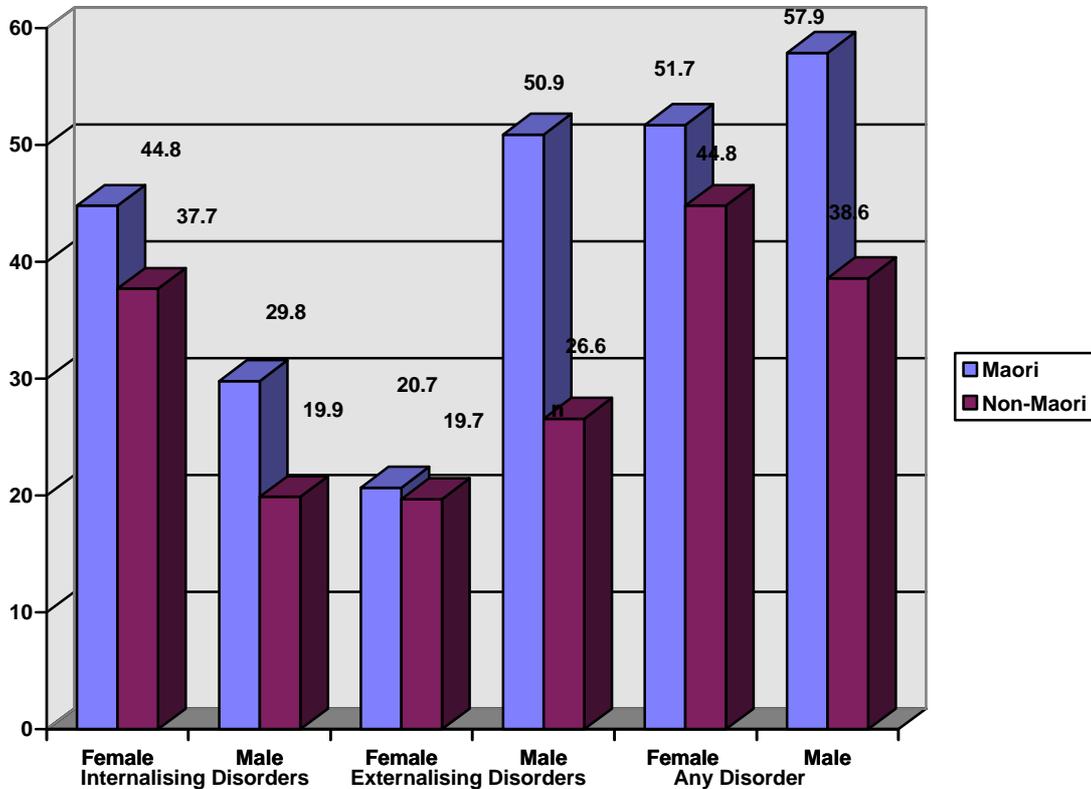
- While males and females had similar overall rates of disorder, the pattern of disorder varied, with females having higher rates of internalising disorders and males having higher rates of externalising disorders.
- For all categories of disorder, Māori had higher rates of disorder than non-Māori.
- Māori males emerged as a group with the highest rate of disorder, with the high rate of disorder in this group being attributable to the elevated rates of conduct disorder and substance use disorders in Māori males.

THE COMORBIDITY OF DISORDERS

A common finding in studies of adolescent psychiatric disorder is that frequently disorders are comorbid, that is those who meet criteria for one disorder are also at increased risk of other disorders. The extent of overlap in disorders in the CHDS cohort over the period from 16–18 years is illustrated in Figure 3.2, which shows the numbers of subjects with varying

Figure 3.1: Rates (%) of internalising disorders, externalising disorders and any disorder (16–18 years) by gender and ethnicity.

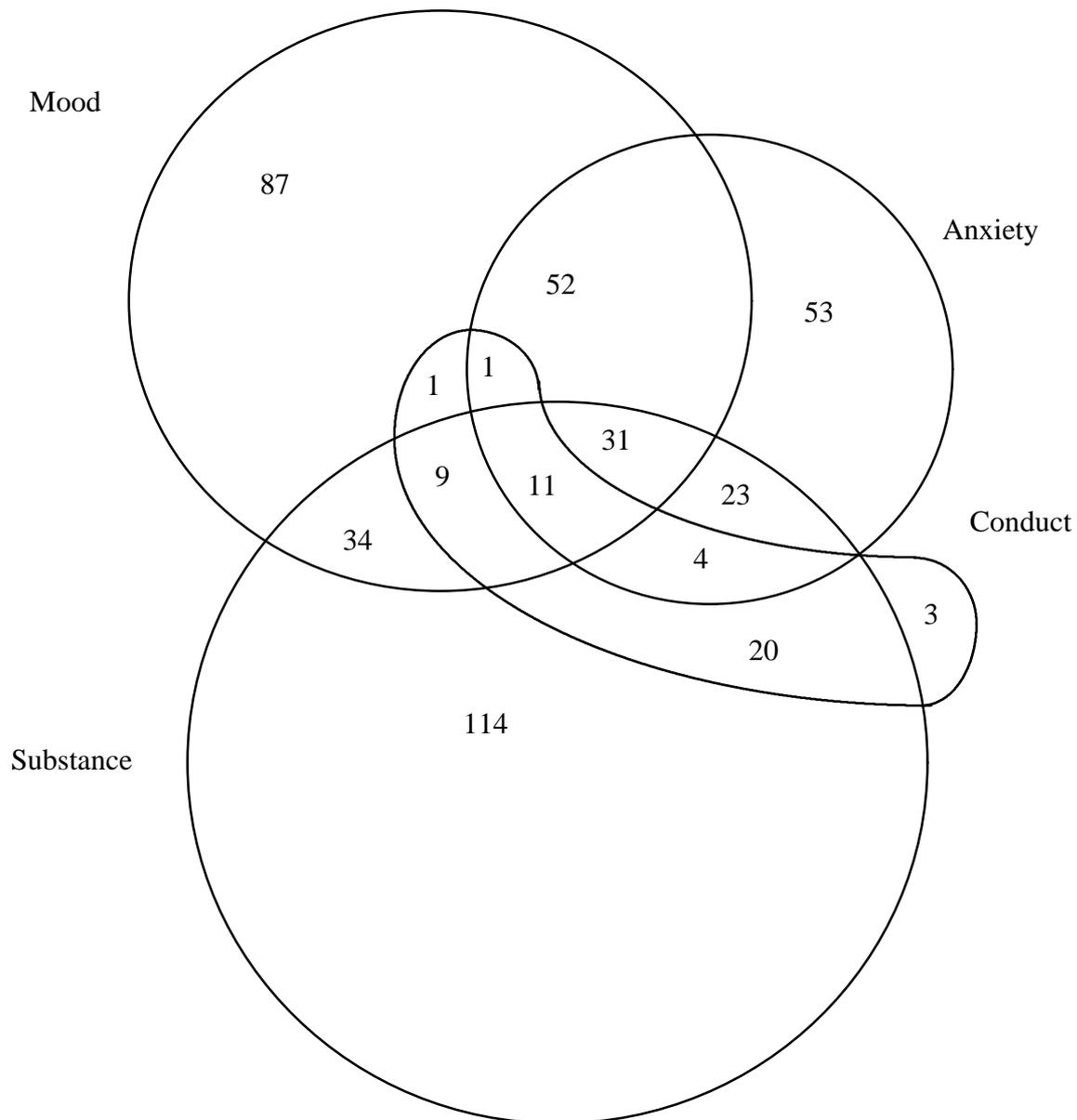
Rate per 100



combinations of disorders amongst those who met criteria for any disorder. To simplify presentation, the figure has been limited to a representation of the overlaps between the four main diagnostic groups (mood disorders, anxiety disorders, conduct disorder, substance use disorders). In this figure, the large circles represent the numbers of young people who met diagnostic criteria for any mood disorder, any anxiety disorder and any substance use disorder. The smaller oval shape represents the number of young people who met criteria for conduct disorder. Examination of the figure suggests a substantial degree of overlap or comorbidity between disorders. For example, of the 226 subjects who met criteria for a mood disorder, 95 (42%) had a comorbid anxiety disorder. Similarly, of the 49 subjects with conduct disorder, 44 (90%) had a comorbid substance use disorder.

Further consideration of the extent of overlap between disorders leads to an examination of the proportion of sample members who experienced multiple disorders. From the numbers in Figure 3.2 it is relatively easy to calculate the frequency distribution of the number of disorders. This shows that of the 443 subjects meeting criteria for disorder at age 18, 186 (42.0%) met diagnostic criteria in two or more diagnostic groups, 56 (12.6%) in three or more groups and 11 (2.5%) in all four disorder groups.

Figure 3.2: Comorbidity of disorder classifications amongst those meeting criteria for any disorder.



A useful means by which to quantify the level of comorbidity between disorders is given by the odds ratio (Agresti 1990). The odds ratio measures the increase in the risk (odds) of one disorder conditional on the presence of another disorder. If disorders are not associated then the odds ratio will have a value of one, and odds ratios greater than one show increasing risk of disorder conditional on the presence of another disorder. Calculation of the odds ratios between the major disorder groups (mood disorders, anxiety disorders, conduct disorder, substance use disorders) revealed a clear pattern of comorbidity between disorders. First, there were strong tendencies for internalising (mood and anxiety) disorders to be comorbid

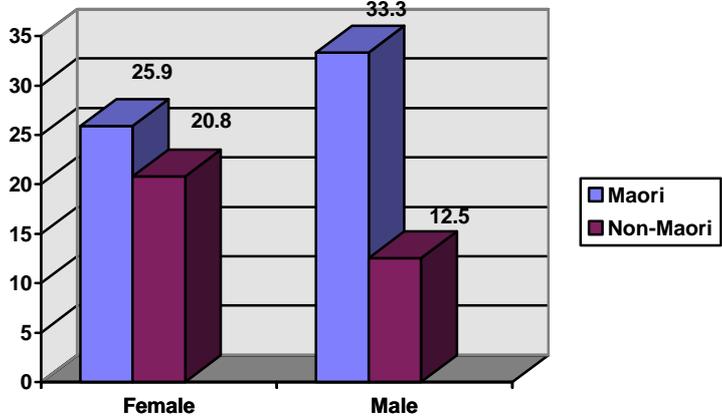
and for externalising (conduct and substance use) disorders to be comorbid. Sample members with a mood disorder had odds of a comorbid anxiety disorder that were over six times higher than those who did not have a mood disorder. Similarly, those with a conduct disorder had odds over 30 times higher of having a comorbid substance use disorder than those without conduct disorder. In addition, there were smaller odds ratios (ranging from 1.9–3.4) between internalising (mood, anxiety) disorders and externalising (conduct, substance use) disorders, indicating small tendencies for those with an internalising disorder to have higher rates of externalising disorders and vice versa.

Given the relatively large proportion of sample members with multiple diagnoses, it is of interest to consider whether there were any variations in the risk of multiple disorders with gender and ethnicity. This issue is examined in Figure 3.3 which shows, for each gender and ethnicity group, the proportion of subjects who met diagnostic criteria for multiple (2+) disorders. Examination of the figure shows that risks of multiple disorders were higher amongst Māori and amongst females. However, it was Māori males who appeared to be the group at highest risk. These findings both extend and reinforce the conclusions from the analysis of Figure 3.1. Specifically:

- While overall rates of disorder were similar for males and females, the analysis suggests that females are more likely to have comorbid patterns of disorder. This may be a reflection of the tendencies for females to have higher risks of internalising (mood, anxiety) disorders and for these disorders to be highly comorbid.
- Not only do Māori have higher overall risks of disorder, but they also have higher risks of multiple disorders than non-Māori, suggesting that as a group Māori have higher levels of psychiatric morbidity and comorbidity than non-Māori.
- Māori males emerge as a group particularly at risk, having not only the highest overall risk of disorder, but also the highest risk of multiple or comorbid disorders. Again this appears to be a reflection of the very high levels of conduct and substance use disorders in this group and the strong comorbidity between these disorders.

Figure 3.3: Rates (%) of multiple (2+) disorders (16–18 years) by gender and ethnicity.

Rate per 100



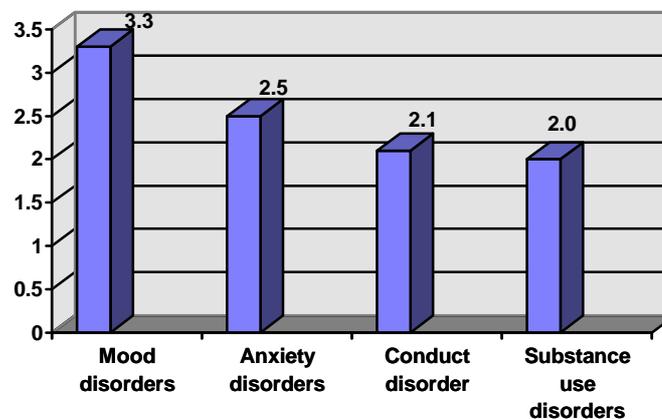
THE EXTENT OF IMPAIRMENT

While all subjects classified as meeting diagnostic criteria reported some impairment of functioning due to psychiatric symptoms, the extent of impairment reported varied from mild to severe. An approximate measure of the impact of disorder on individual functioning is given by a count of the number of areas in which the individual reported impairment. The relationship between reported impairment of functioning and type of disorder is shown in Figure 3.4. The extent of impairment was assessed in five general areas of life functioning: school/employment; relationships with family; relationships with friends; partner relationships; and other areas of functioning. The figure shows for each type of disorder the mean number of areas in which the subject experienced impairment of functioning. Examination of the figure shows a clear tendency for subjects with mood disorders to report the highest overall levels of impairment, and those with externalising disorders to report the least impairment, with the anxiety disorder group falling between these extremes.

These trends were mirrored in a parallel analysis of the proportion of sample members reporting impairment in three or more areas of functioning. Three-quarters of those with mood disorders reported impairment in three or more areas of functioning, in comparison to 41% of those with anxiety disorders and less than a third of those with conduct or substance use disorders.

Figure 3.4: Mean number of areas of impaired functioning by type of disorder.

Number of areas of impaired functioning



In further analysis we examined the association between the extent of impairment and the number of disorders reported. As might be expected, those meeting criteria for multiple disorders reported greater impairment than those reporting only one disorder, and there was a clear trend towards increasing levels of impairment with an increasing number of diagnoses. Overall, just over a third (35%) of those meeting criteria for a single disorder reported impairment in three or more areas of functioning, with this figure rising to 85% amongst those meeting criteria for two disorders and 96% amongst those meeting criteria for three or more disorders.

DISCUSSION AND CONCLUSIONS

In this chapter we have examined the prevalence and comorbidity of psychiatric disorders in the CHDS cohort over the period from 16–18 years. The principal findings and conclusions to emerge from this analysis are discussed below.

Rates of Psychiatric Disorder in Young Adults

Over 40% of young people in this study met standardised diagnostic criteria for psychiatric disorder during the period from 16–18 years: just under a quarter had a disorder associated with substance use; just over a fifth met criteria for a mood disorder; a sixth had some form of anxiety disorder. These findings suggest that a substantial minority of young New Zealanders experience problems of mental health and psychosocial adjustment in adolescence.

The high overall prevalence of disorder and the general patterning of disorders in this cohort bears a strong similarity to the findings of another New Zealand cohort study, the Dunedin Multidisciplinary Health and Development Study (Feehan et al 1994), and more generally to the results of research into other adolescent populations around the world, including studies from the USA (Kashani et al 1987; Shaffer et al 1996), Canada (Offord et al 1987), the Netherlands (Verhulst et al 1985) and Puerto Rico (Bird et al 1988). This convergence of findings from epidemiological studies of general population samples across a number of societies provides strong reassurance that the prevalence rates from this study are unlikely to be specific just to South Island samples and probably provide adequate general estimates of the risk of psychiatric disorder for other New Zealand community samples.

It should be noted that the present study did not measure the prevalence of uncommon but often severe forms of psychiatric disorder including: schizophrenia, autism, eating disorders and obsessive-compulsive disorders. The prevalence of these disorders has, however, been reviewed by Anderson and Werry (1994) who conclude:

The prevalence of 'pure' autism in the general population is relatively constant at four-to-five cases per 10,000 children under 14 years, with half being severe cases. There are many more children who show some autistic features in association with brain damage. ... Childhood schizophrenia is also rare, with similar symptoms to the same disorder presenting later in life. Prior and Werry (1986) assess the prevalence for this disorder as virtually nil before 5 years and around 1 per 1,000 until mid adolescence, after which the prevalence climbs 5- to 10-fold into early adult life ... Obsessive-compulsive disorder is ... reported in children in 0.2 percent in clinic populations and 1 percent of inpatients. ... Anorexia nervosa is a distressing and potentially life-threatening condition that usually only appears at or after puberty and overwhelmingly in girls ... Its prevalence has been estimated at 1 percent of 16-year-old girls, with anorexic-type behaviour or unwise dieting being five to six times higher.

(Anderson and Werry 1994: 323–4)

It has been drawn to our attention that while these conditions are uncommon, they nevertheless account for a very large amount of psychiatric inpatient services for young people (Werry, personal communication, 1997).

While the findings suggest a high overall level of disorder in this population, it is not necessarily the case that all those meeting criteria for disorder were in need of psychiatric treatment. A liability of epidemiological survey methods for assessing disorder is that these methods do not readily measure the extent of impairment of functioning experienced by individuals meeting clinical diagnostic criteria (Bird et al 1988; Hodges 1993; Weissman et al 1990). Amongst those meeting criteria for specific disorders there is likely to be considerable variability in terms of the severity and duration of symptomatology and the degree of impairment of life functioning. Thus, it is probably more appropriate to consider the estimates in Table 3.1 as providing an upper limit estimate of the proportion of young New Zealanders with significant psychiatric problems.

It was possible to construct an approximate measure of the extent of impairment of functioning, based on a count of the number of domains of functioning in which subjects meeting criteria for disorder were experiencing impairment. Using this measure we have been able to demonstrate that the degree of impairment of functioning varied with both type of disorder and the number of disorders. Subjects with mood disorders reported a much higher degree of impairment than those with other disorders, suggesting that depressed mood may have a greater impact on life functioning than more general tendencies to anxious or externalising behaviours. In addition, subjects with multiple disorders reported higher overall levels of impairment than those with only a single disorder, suggesting that those with multiple disorders are likely to have more significant problems and difficulties and to have greater need of treatment services. We will return to the issue of impairment in Chapter 5 in an examination of the factors associated with treatment seeking behaviours amongst those with disorder.

Gender Differences in Disorder

While overall rates of disorder did not vary significantly with gender there were clear gender differences in the patterning of disorder, with females more likely to experience internalising (mood, anxiety) disorders and males being more prone to externalising (conduct, substance use) disorders. These results parallel findings from previous studies of adult populations that have suggested that while overall rates of disorder are similar for males and females, there are clear differences in the patterning of disorder with males being more prone to externalising disorders and females to internalising disorders (Kessler et al 1994; Myers et al 1984; Wells et al 1989).

Ethnic Differences in Disorder

Despite a considerable amount of anecdotal evidence suggesting that Māori have higher rates of mental health problems than non-Māori, there is comparatively little published data on which to make comparisons of ethnic differentials in risks of disorder. The principal source of comparative information is from studies of psychiatric admission data. Comparison of Māori and non-Māori admission rates has highlighted clear differences in rates of first admission and re-admission, with Māori having consistently higher admission rates than non-Māori during adolescence, and young Māori males having the highest overall rates of admission and re-

admission (Maskill 1991; Ministry of Youth Affairs 1994; Pomare et al 1995; Sachdev 1989). However, it is generally accepted that admission data are a highly fallible and possibly biased method for comparing risks of disorder between populations. A better method for comparing ethnic differences in risks of disorder would involve a community-based study in which rates of disorder amongst Māori and non-Māori were contrasted using standardised diagnostic criteria.

It is of interest therefore that the present study, which is community based and uses standardised diagnostic criteria, produces findings which closely parallel the conclusions from studies based on admission data. Māori in this study had uniformly higher rates of disorder and higher rates of multiple disorders across all comparisons with non-Māori. In addition, Māori males emerged as a group who appeared to be at particularly high risk of psychiatric disorder, largely as a result of the very high levels of conduct and substance use disorders in this group. This convergence of findings from studies of admission data and a community-based sample suggests that as a group young Māori, and particularly Māori males, appear to be at greater risk of psychiatric disorder.

At the same time, the present study includes a comparatively small number of Māori subjects which tends to limit the precision of estimation of differences in rates of disorder between Māori and non-Māori, and it may be that community studies which include larger samples of Māori participants may produce different estimates of the extent of disorder experienced by young Māori. In addition, the study is South Island based and it has been suggested to us that ethnic differentials in the South Island may not be as great as in other parts of New Zealand. For these reasons there is clearly a need for further studies of other New Zealand samples in order to obtain a better overview of the extent and patterning of Māori and non-Māori differentials in the risk of mental health problems and psychiatric disorder.

In recent years new models of Māori health have been promoted which emphasise the need for methodologies based on traditional views of Māori health and wellbeing, the importance of culturally appropriate practices and the need for Māori ownership and involvement in the research process (Durie 1994; Rolleston 1989; Walker 1996). It could be suggested from this perspective that the use of standardised diagnostic criteria and interviews may be an inappropriate method for assessing mental health in young Māori and that there is a need to apply culturally relevant criteria for assessing Māori mental health. However, while the approach based on standardised interviews and diagnostic criteria may differ markedly from traditional Māori concepts of mental health, it may be that both approaches reach a similar destination but by different routes. In particular, despite the use of standardised interviews and diagnostic criteria, the findings of this study confirm and support the concerns expressed about Māori mental health and particularly mental health problems among young Māori males (Durie 1994; Pomare et al 1995). This convergence of conclusions deriving from different methodologies and cultural perspectives reinforces rather than detracts from current concerns about Māori mental health issues.

Comorbidity

In agreement with the findings of previous studies (Bird et al 1988; Feehan et al 1994; McGee et al 1990) there was evidence of marked comorbidity of disorders with over 40% of those with disorder having two or more disorders. These comorbidities arose predominantly by two routes. First, there were clear tendencies for conduct and substance use disorders to be comorbid and second, there were clear tendencies for mood and anxiety disorders to be

comorbid. Further analysis of multiple disorders suggested that females and Māori were at greater risk of multiple disorder. However, those at greatest risk of multiple disorder were Māori males who had rates of multiple disorder that were nearly three times higher than non-Māori males and approximately 1.5 times higher than females.

Concluding Comments

The findings of this analysis clearly reinforce contemporary concerns about mental health issues amongst young New Zealanders and suggest relatively high rates of disorder within this population. While it is open to debate whether all of those meeting criteria would have disorders of sufficient severity to require professional treatment, the high prevalence rates do suggest the need for well organised and funded mental health services to meet the mental health needs of adolescents and young adults. To the extent that Māori and particularly Māori males emerge as a high risk group it is clearly important that these services are designed in ways that make them accessible and culturally appropriate for Māori.

CHAPTER 4: PSYCHOSOCIAL RISK FACTORS

INTRODUCTION

The findings in Chapter 3 suggest that a relatively large number of members of the CHDS cohort reported some psychiatric or adjustment difficulties over the interval between 16 to 18 years. These findings raise the important issue of the ways in which those reporting disorder differed from the majority of the cohort members who did not report disorder. In this chapter we address this issue by comparing the social, family, individual and related backgrounds of those developing disorder with the backgrounds of those who did not develop disorder. An important feature of the present design is that the availability of longitudinal data means that it is possible to examine the psychosocial characteristics of those with and without disorder prior to the age of 16. This feature minimises the risks that associations between psychiatric disorder and psychosocial factors arise from recall or other biases in the reporting of childhood family and social circumstances.

In constructing the profiles below we have selected a series of variables from the CHDS database that describe childhood circumstances up to the age of 16. These measures fall into a number of blocks of related variables that include the following:

- measures of family socioeconomic background including: maternal age, education, family type, family income and occupational status
- measures of family functioning/stability including: changes of parents, the extent of parental conflict, changes of residence and changes of school
- measures of child abuse including: the young person's report of exposure to childhood sexual abuse and the extent of parental use of physical punishment during childhood
- measures of parental adjustment including: parental history of alcoholism/alcohol problems, criminal offending and psychiatric illness
- individual characteristics including measures of childhood cognitive ability, self-esteem and early conduct problems
- measures of school achievement including: standardised tests of reading comprehension, word recognition and scholastic abilities and leaving school without formal qualifications
- measures of parent/peer relationships including: the extent of parental attachment, the quality of parental care during childhood and the extent of affiliations with delinquent or substance-using peers in adolescence
- measures of mental health problems prior to 16 years including: internalising disorders, externalising disorders and multiple disorders.

These measures are described in greater detail in the Appendix. The key question to be addressed in these analyses concerns the extent to which those meeting criteria for disorder differ in these characteristics from those not meeting criteria for disorder.

PSYCHOSOCIAL FACTORS ASSOCIATED WITH EXTERNALISING DISORDERS

Table 4.1 shows the relationships between externalising disorders (conduct disorder, substance use disorder) and a series of family, social and childhood factors. In these comparisons all social, family and childhood measures have been dichotomised for ease of data display. The conventions used in forming these dichotomies are shown in the table. Each comparison was tested for statistical significance using the chi square test of independence and comparisons that were found to be statistically non-significant are indicated in the table. The table leads to a fairly clear and consistent set of conclusions about the linkages between psychosocial factors and externalising disorders during the period from 16–18 years.

- For both conduct and substance use disorders there appeared to be generally weak and statistically non-significant associations with measures of socioeconomic disadvantage including maternal education, single parenthood, family income and occupational status. There were, however, significant tendencies for those with externalising disorders to have been born to younger mothers.
- Those with conduct and substance use disorders more often came from childhood and family backgrounds characterised by parental change, parental conflict and residential mobility.
- Those with conduct and substance use disorders were more likely to report childhood sexual abuse and regular parental use of physical punishment during childhood.
- Rates of parental adjustment problems, and in particular criminal offending, were higher amongst those with conduct and substance use disorders.
- Those with conduct and substance use disorders tended to show early onset behavioural difficulties and poorer self-esteem than other young people.
- Those with conduct disorder were more likely to experience educational difficulties including poor school performance and higher risks of leaving school without formal qualifications. Those with substance use disorders were also more likely to leave school without formal qualifications, but levels of school performance were less compromised than for those with conduct disorder.
- During adolescence those with conduct and substance use disorders were more likely to report lower levels of attachment to parents, poorer overall levels of parental care and higher rates of affiliation with delinquent or substance-using peers.
- Those with conduct and substance use disorders were also more likely to have a history of psychiatric disorder prior to age 16 years and in particular a prior history of externalising disorder.

More generally the psychosocial profiles of those with conduct disorder and substance use disorders suggest that these groups were pervasively influenced by a combination of risk factors involving: family dysfunction; parental adjustment problems; adverse childhood experiences; early onset behavioural difficulties; poor school achievement; impaired parenting

behaviours; adverse peer affiliations and previous tendencies to psychopathology. These results clearly suggest that the development of these conditions represents the end-point destination of a complex mix of family, individual and other factors that, in varying combinations, conspired to place young people at risk of conduct disorders and substance use disorders in adolescence.

Table 4.1: Relationships between externalising (conduct, substance use) disorders and measures of family, social, childhood and related factors.

<i>Measure</i>	<i>Conduct disorder</i>		<i>Substance use disorder</i>	
	<i>Yes (N = 49)</i>	<i>No (N = 976)</i>	<i>Yes (N = 246)</i>	<i>No (N = 779)</i>
Socioeconomic background				
% Mother aged < 25 years at birth of child	53.1	38.4	47.6	36.5
% Mother lacked formal educational qualifications	59.2	48.5 ^a	50.4	48.5 ^a
% Family of semi-skilled/unskilled occupational status	36.7	24.4 ^a	28.1	24.0 ^a
% Child entered single-parent family at birth	6.1	6.2 ^a	7.7	5.7 ^a
% Family in lowest quartile of average family income	34.0	23.4 ^a	25.4	23.4 ^a
Family functioning/stability				
% > 2 Changes of parents (0–15 years)	35.0	16.9	24.9	15.5
% In upper quartile of parental conflict scale (0–10 years)	47.6	22.4	31.8	21.0
% > 5 Changes of residence (0–15 years)	35.6	22.8	28.8	21.7
% 5+ Changes of school (5–15 years)	25.0	16.3 ^a	19.6	15.8 ^a
Child abuse				
% Experienced contact sexual abuse before age 16 years	20.4	7.5	15.9	5.7
% Parents regularly used physical punishment during childhood	30.6	10.6	19.9	8.9

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Table 4.1 continued

Measure	Conduct disorder		Substance use disorder	
	Yes (N = 49)	No (N = 976)	Yes (N = 246)	No (N = 779)
Parental adjustment				
% Parental history of alcoholism/alcohol problems	17.8	11.6 ^a	18.6	9.7
% Parental history of criminal offending	26.7	11.7	19.5	10.1
Individual factors				
% In lower quartile of cognitive ability (8 years)	37.5	23.5 ^a	23.0	24.3 ^a
% In upper quartile of early conduct problems score (8 years)	61.7	23.5	35.8	22.1
% In lower quartile of self-esteem score (15 years)	38.6	22.1	30.7	20.3
School achievement				
% In lower quartile on reading comprehension (12 years)	43.3	22.0	24.1	22.5 ^a
% In lowest quartile on Burt reading test (13 years)	44.8	24.6	30.3	24.0 ^a
% In lowest quartile on Test of Scholastic Abilities (13 years)	51.7	24.0	29.0	23.9 ^a
% Left school with no formal qualifications	51.0	17.6	29.7	15.9
Parent/peer relationships				
% In lower quartile of parental attachment score (15 years)	40.9	22.3	34.7	19.5
% In lower quartile of maternal care score (16 years)	40.0	24.4	35.2	21.8
% In lower quartile of paternal care score (16 years)	55.0	22.8	35.7	20.6
% In upper quartile of affiliations with delinquent or substance-using peers score (16 years)	56.1	22.7	52.0	15.3

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Table 4.1 continued

<i>Measure</i>	<i>Conduct disorder</i>		<i>Substance use disorder</i>	
	<i>Yes</i> (<i>N = 49</i>)	<i>No</i> (<i>N = 976</i>)	<i>Yes</i> (<i>N = 246</i>)	<i>No</i> (<i>N = 779</i>)
Prior history of disorder (14–16 years)				
% Internalising disorder	36.4	34.5 ^a	42.7	31.9
% Externalising disorder	45.5	13.9	38.4	7.9
% Multiple disorders	40.9	15.0	34.1	10.4

^a Percentages for those with and without disorder not significantly different ($p > .05$) based on chi square test of independence.

PSYCHOSOCIAL FACTORS ASSOCIATED WITH INTERNALISING DISORDERS

Table 4.2 shows the relationships between internalising (mood and anxiety) disorders and a range of social, family and childhood factors. Again the social, family and childhood factors have been dichotomised for ease of data display, and each comparison has been tested for statistical significance using the chi square test of independence. Examination of the table leads to a clear set of conclusions about the linkages between psychosocial factors and internalising disorders during the period from 16–18 years.

- Those with mood and anxiety disorders were more likely to have been born to younger mothers. In addition, there were detectable tendencies for those with anxiety disorders to be more likely to come from families of lower socioeconomic status and lower income families. However, risks of mood disorder appeared to be generally unrelated to other measures of family socioeconomic conditions.

- Those with mood or anxiety disorders more often came from childhood and family backgrounds characterised by parental change, parental conflict, residential and school mobility.
- Those with mood or anxiety disorders more frequently experienced childhood sexual and physical abuse.
- Parental adjustment problems including parental alcoholism/problems with alcohol and criminal offending were more frequent amongst those with mood and anxiety disorders. In addition, a parental history of psychiatric illness was more common amongst those with mood disorder.
- Those with mood or anxiety disorders were more likely to have experienced problems with poor self-esteem. In addition, there were small tendencies for those with anxiety disorders to be of lower cognitive ability and to have displayed early onset conduct problems.
- Those with mood or anxiety disorders were more likely to have left school without formal qualifications. In addition, there were small tendencies for those with anxiety disorders to have experienced poorer outcomes in other aspects of school performance.
- Those with mood or anxiety disorders were more likely to report poorer parental attachment during adolescence, lower levels of parental care during childhood, and greater affiliations with delinquent or substance-using peers in adolescence.
- Those with mood or anxiety disorders were more likely to have a prior history of mental health problems before age 16 years.

More generally, the psychosocial profiles of those with mood and anxiety disorders suggest that these groups were pervasively influenced by a combination of risk factors including: social disadvantage; family dysfunction; adverse childhood experiences; impaired parenting and parental psychopathology; adverse peer affiliations; compromised school achievement and previous mental health problems. These profiles bear a strong similarity to the profiles for those with externalising disorders and again suggest that to a large extent the development of these conditions represents the end-point destination of a complex mix of family, social and other risk factors that combine in various ways to place young people at risk of mental health problems.

Table 4.2: Relationships between internalising (mood, anxiety) disorders and measures of family, social, childhood and related factors.

<i>Measure</i>	<i>Mood disorder</i>		<i>Anxiety disorder</i>	
	<i>Yes</i> (<i>N</i> = 226)	<i>No</i> (<i>N</i> = 799)	<i>Yes</i> (<i>N</i> = 175)	<i>No</i> (<i>N</i> = 850)
Socioeconomic background				
% Mother aged < 25 years at birth of child	48.7	36.4	54.3	36.0
% Mother lacked formal educational qualifications	51.8	48.2 ^a	52.6	48.2 ^a
% Family of semi-skilled/unskilled occupational status	29.7	23.7 ^a	34.3	23.1
% Child entered single-parent family at birth	6.6	6.0 ^a	7.4	5.9 ^a
% Family in lowest quartile of average family income	27.2	23.0 ^a	30.2	22.6
Family functioning/stability				
% > 2 Changes of parents (0–15 years)	29.2	14.8	23.2	16.7 ^a
% In upper quartile of parental conflict scale (0–10 years)	38.0	19.8	30.1	22.3
% > 5 Changes of residence (0–15 years)	33.5	20.7	31.2	21.8
% 5+ Changes of school (5–15 years)	26.6	14.2	27.2	14.7
Child abuse				
% Experienced contact sexual abuse before age 16 years	20.8	4.5	20.0	5.7
% Parents regularly used physical punishment during childhood	19.9	9.1	20.0	9.8
Parental adjustment				
% Parental history of alcoholism/alcohol problems	17.7	10.3	19.3	10.4
% Parental history of criminal offending	20.2	10.3	24.8	9.9
% Parental history of psychiatric illness	38.9	27.4	31.7	29.5 ^a

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Table 4.2 continued

<i>Measure</i>	<i>Mood disorder</i>		<i>Anxiety disorder</i>	
	<i>Yes</i> (<i>N</i> = 226)	<i>No</i> (<i>N</i> = 799)	<i>Yes</i> (<i>N</i> = 175)	<i>No</i> (<i>N</i> = 850)
Individual factors				
% In lower quartile of cognitive ability (8 years)	20.9	24.8 ^a	31.5	22.8
% In upper quartile of early conduct problems score (8 years)	29.9	24.2 ^a	32.1	24.1
% In lower quartile of self-esteem score (15 years)	42.4	17.6	44.2	18.6
School achievement				
% In lower quartile on reading comprehension (12 years)	20.8	23.4 ^a	31.5	21.4
% In lowest quartile on Burt reading test (13 years)	22.9	26.0 ^a	34.6	23.8
% In lowest quartile on Test of Scholastic Abilities (13 years)	22.2	25.8 ^a	30.8	24.1 ^a
% Left school with no formal qualifications	23.9	17.9	30.9	16.8
Parent/peer relationships				
% In lower quartile of parental attachment score (15 years)	37.9	19.2	32.7	21.3
% In lower quartile of maternal care score (16 years)	28.6	24.2 ^a	32.0	23.7
% In lower quartile of paternal care score (16 years)	34.6	21.4	35.9	21.9
% In upper quartile of affiliations with delinquent or substance-using peers score (16 years)	35.9	21.1	31.4	22.8
Prior history of disorder (14–16 years)				
% Internalising disorder	60.5	27.6	71.2	27.3
% Externalising disorder	25.5	12.7	25.6	13.3
% Multiple disorders	36.5	10.8	39.1	11.7

^a Percentages for those with and without disorder not significantly different ($p > .05$) based on chi square test of independence.

THE EXTENT OF CHILDHOOD ADVERSITY AND RISKS OF DISORDER

The profiles in Tables 4.1 and 4.2 clearly suggest that risks of all types of disorder were broadly related to a common series of measures of childhood adversity. These findings in turn suggest that risks of disorder were likely to vary with the overall mix or density of adverse childhood experiences, so that those with the greatest exposure to impaired, compromised or dysfunctional childhood experiences were likely to have the greatest risk of subsequent disorder. To examine this issue further an approximate measure of the extent of childhood adversity was constructed by computing for each subject a count of the number of disadvantageous social, family, childhood and related measures experienced by the subject from the list of measures shown in Tables 4.1 and 4.2. Using this adversity score it was then possible to examine the relationship between the extent of childhood adversity prior to age 16 years and risks of psychiatric disorder from 16–18 years.

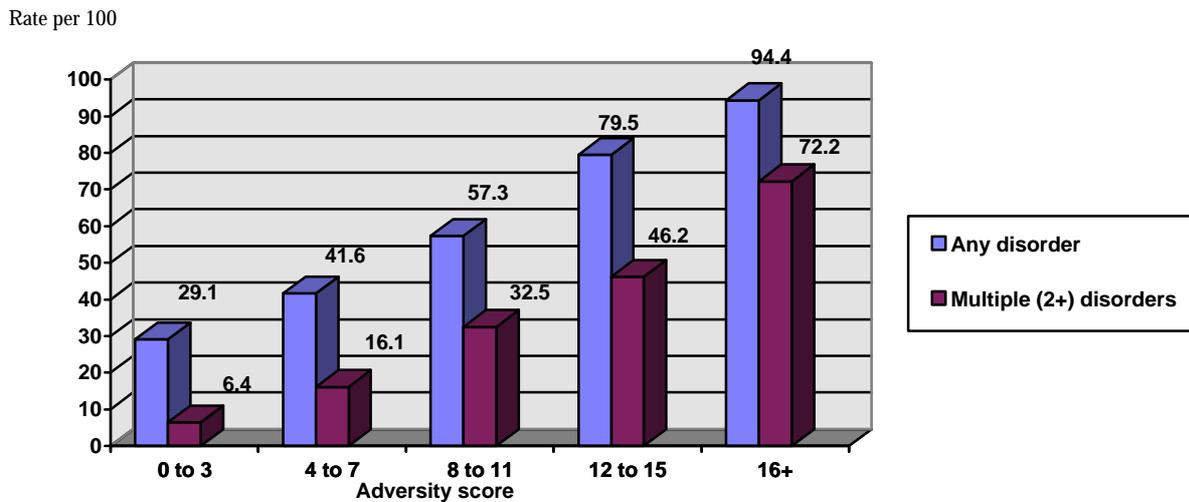
Figure 4.1 shows the relationship between the adversity score and two measures of disorder: (a) the rate of any psychiatric disorder from 16–18 years; (b) the rate of multiple (2+) disorders from 16–18 years. For simplicity of presentation, the adversity score has been classified into a series of class intervals and the figure shows rates of disorder for those sample members whose adversity scores placed them in each class interval. Just under half (47%) of the sample had adversity scores of 0–3, 32% had scores of 4–7, 15% had scores of 8–11, 5% had scores of 12–15 and only 2% of the sample had scores of 16 or higher. The figure shows evidence of very strong tendencies for risks of disorder to increase with increasing childhood adversity. Amongst those with the highest adversity scores, 94% met criteria for at least one psychiatric disorder from 16–18 years, and over 70% met criteria for two or more disorders. In contrast less than 30% of those with the lowest adversity scores met criteria for any disorder and less than 10% for multiple disorders. These findings clearly suggest the presence of strong linkages between the nature and quality of childhood experiences and life circumstances and overall rates of psychiatric disorder.

At the same time, it should be noted that not all of those with disorder came from backgrounds marked by adversity. For example, of those with multiple disorders, over 40% had adversity scores of seven or less. This result highlights the fact that while exposure to childhood adversity plays an influential role in determining risks of disorder, there are clearly other factors present that may act to increase or decrease risks of disorder.

DISCUSSION AND CONCLUSIONS

In this chapter we have presented a psychosocial profile of young people meeting criteria for common adolescent psychiatric disorders including conduct disorder, substance use disorders, mood disorders and anxiety disorders. In very general terms the results suggest that those meeting criteria for disorder were distinguished from other cohort members by a swarm of social, family and related factors with these factors appearing to be diffusely related to risks of disorder.

Figure 4.1: Rates (%) of psychiatric disorder and multiple (2+) disorders (16–18 years) by childhood adversity score.



The profile that emerges for all disorders is that those most likely to present with disorder in adolescence were characterised by a combination of social disadvantage, dysfunctional family circumstances, exposure to impaired childrearing environments, parental psychopathology and difficulties, impaired parent/child relationships, educational failure or underachievement and the formation of relationships with deviant peers in adolescence. Interestingly, these factors appeared to be similar for all types of disorder suggesting that singly or in combination they act as sources of vulnerability to a wide range of disorders.

The extent of linkages between childhood and related factors and risk of disorder was approximately illustrated by considering the relationships between the number of adverse factors present in childhood and risks of disorder. This showed a clearly increasing risk with the number of childhood adversities present. Whilst children with low exposure to various forms of childhood adversity had low rates of disorder, amongst those with high exposure to adversity nearly all met criteria for at least one disorder and over 70% for two or more disorders. These results clearly suggest the presence of strong linkages between the general nature and quality of the individual's childhood experiences, family environment, life course and risks of disorder in which disorder appears to be the end-point of an accumulation of unsatisfactory life experiences and circumstances. Underlying these relationships there are no doubt far more complex causal chains and sequences in which combinations of factors act in concert to increase or decrease risks of disorder. The analysis of such causal chain sequences is well beyond the scope of this report but some of the complexities that may be addressed using the CHDS data are illustrated by a number of analyses of causal patterns within these data (Fergusson and Horwood 1996, 1997; Fergusson, Horwood and Lynskey 1994, 1996, 1997c). Nonetheless, for the present purposes the profiles presented previously clearly suffice to illustrate the general class of childhood factors that in combination are likely to encourage risks of adolescent disorder.

The analysis also raises a number of specific issues that bear consideration and discussion. These include:

The Role of Social and Economic Disadvantage in Risks of Disorder

In literature on health issues in New Zealand considerable emphasis has been placed on the role of economic deprivation, poverty and related factors as determinants of both mental and physical health (Bethwaite et al 1990; Macky 1987; Moore 1996; Royal Commission on Social Policy 1988; Shirley et al 1990; Waldegrave and Coventry 1987). The results of the present study suggest that the linkages between socioeconomic factors and risks of disorder were relatively weak. While it was almost invariably the case that those with disorder were more likely to come from socially and economically disadvantaged backgrounds, these differences were not large and, in many cases, failed to reach statistical significance. In contrast, factors relating to the individual's family environment, parental characteristics, early behaviour, school performance and peers, all showed far stronger associations. These results clearly suggest that, in the case of adolescent disorders, proximal (family, school, individual, peer) factors play a far stronger role in determining vulnerability to disorder than more distal general social and economic factors. It may be, however, that the weak associations between socioeconomic factors and risks of disorder reflect the age at which the cohort was studied. There is increasing evidence to suggest that the impacts of socioeconomic factors on individual risks vary over the life course and tend to weaken during adolescence, only to reappear in later life (McGee, personal communication, 1997; West 1997). This may be because school, peer and youth culture influences have their peak effects in adolescence and these influences may override the effects of social disadvantage in adolescence (McGee, personal communication, 1997). Irrespective of the reasons for the generally weak correlations between socioeconomic factors and risks of disorder the results of this study clearly suggest that attempts to reduce rates of disorder centred around general socioeconomic change are unlikely to have an appreciable impact on rates of disorder in adolescence and that it may be more preferable to focus on approaches that target more proximal family, school, individual and peer factors.

The Sources of Associations Between Childhood Environment and Risks of Disorder

The most straightforward interpretation of the results presented in this chapter is that the linkages between social, family and related factors and risks of disorder reflect a general process in which young people who are exposed to adverse or difficult environments in childhood show a greater susceptibility to later disorder. However, a challenge to this apparently straightforward explanation comes from recent research which is increasingly suggesting that genetic factors may play a substantial role in influencing individual vulnerabilities to psychiatric disorder (Plomin et al 1994; Rutter et al 1990). From this perspective it could be argued that the linkages between childhood and family factors and risks of later disorder recorded above may, in fact, reflect the effects of common genetic factors that are associated with the child's environment and which independently influence

risks of disorder. In particular, it could be argued that the higher rates of disorder amongst children experiencing various forms of childhood adversity arise because these adverse environments are symptomatic of families who are genetically predisposed to psychiatric disorder. Using the present design it is difficult to determine which associations reflect the direct effects of environmental factors on individual adjustment and the extent to which these associations may reflect underlying genetic factors that are correlated with both environmental adversity and risks of disorder. Nonetheless, it seems reasonable as a working hypothesis to assume that environmental adversities and particularly those relating to the family, school and early adjustment, play an important role in the development of disorder.

Implications for Prevention and Management of Psychiatric Disorder

Finally, the analysis suggests an overarching conclusion that has important implications for the development of mental health policies directed at the prevention and management of psychiatric disorders in young people. This conclusion is that the aetiology of these disorders is likely to be complex, involving genetic, family, social, educational, peer and related factors. Given this complexity, it seems likely that changes in any single factor by itself are unlikely to lead to appreciable changes in the risk of disorder within the adolescent population. Rather, what appears to be required is the development of multicompartamental programmes and policies that in various ways act to minimise the exposure of young people to the dysfunctional, adverse and difficult social environments that appear to be associated with increased risks of adolescent disorder. An overview of the mix of policy strategies likely to reduce adolescent risk has been given by Fergusson, Horwood and Lynskey (1997a).

The results also caution against the naive acceptance of solutions that promise reductions in adolescent problems as a result of some single and simple social change which will reduce adolescent risk. Popular debate and the academic literature is littered with examples in which single causes and single cures have been invoked as solutions to adolescent problems. Among the causes that have been suggested have been single parenthood, violent television, child abuse, unemployment, television advertising and food colouring. The cures proposed have amounted to the abolition of these factors. Whilst there is no doubt a grain of truth in most of these claims, reflection on the likely origins and aetiologies of adolescent disorders suggests that what is likely to succeed are broad-based policies which work in many ways to improve the general quality and nature of the social, family, school and other environments to which children are exposed, rather than policies that relentlessly seek to abolish some specific factor or set of factors that are alleged to be the root causes of unhappiness and maladjustment in young people.

CHAPTER 5: TREATMENT SEEKING

INTRODUCTION

The findings in Chapter 3 show that a substantial proportion of the CHDS cohort met criteria for at least one psychiatric disorder over the period from 16–18 years. In this chapter we examine the extent to which those meeting diagnostic criteria sought treatment. The key questions to be addressed in this analysis are:

1. What proportion of young people with psychiatric disorder seek treatment?
2. What sources of treatment are used?
3. Does treatment seeking vary with the type of disorder?
4. What reasons are given for failing to seek treatment?
5. What factors distinguish those who seek treatment from those who fail to seek treatment?

RATES AND SOURCES OF TREATMENT SEEKING

As part of the 18 year assessment, all subjects who met criteria for any disorder over the period from 16–18 years were asked whether they had sought treatment for their condition and if so, the source and nature of the treatment received. Table 5.1 shows the rates (per 100) of treatment seeking amongst those meeting criteria for psychiatric disorder cross-tabulated by the source of treatment. Rates are shown separately for each disorder group (mood disorders, anxiety disorders, conduct disorder and substance use disorders) and for those sample members who met criteria for any disorder.

Examination of the table suggests three general conclusions about treatment seeking behaviour in the cohort:

- First, it is apparent that the great majority of those meeting criteria for disorder failed to seek treatment: in total, less than a quarter (23.5%) of those meeting criteria for any disorder sought treatment for their condition.
- In most cases, treatment was provided by primary health care providers, with general practitioners and counsellors (predominantly school counsellors) being the most frequent sources of treatment.
- There was evidence of variability in rates of treatment seeking for different types of disorder. Treatment seeking was highest amongst those with mood disorders, with over a third seeking treatment. About a fifth of those with conduct disorder sought treatment, but less than 10% of those with substance use or anxiety disorders sought treatment.

Table 5.1: Rates (%) of treatment seeking amongst those meeting criteria for disorder (16–18 years) by type of disorder and source of treatment.

<i>Source of treatment</i>	<i>Mood disorders (N = 226)</i>	<i>Anxiety disorders (N = 175)</i>	<i>Conduct disorder (N = 49)</i>	<i>Substance use disorders (N = 246)</i>	<i>Any disorder (N = 443)</i>
General practitioner	18.6	2.3	0.0	2.0	10.6
Psychiatrist	6.6	2.3	4.1	0.4	3.8
Psychologist	2.2	1.1	4.1	0.4	2.0
Counsellor	20.8	3.4	10.2	4.1	12.9
Other	4.0	2.3	10.2	2.0	5.0
Any of the above	35.4	9.7	20.4	7.3	23.5

REASONS FOR FAILING TO SEEK TREATMENT FOR DISORDER

Those subjects who met criteria for disorder but who failed to seek treatment were questioned about their reasons for failing to seek treatment. This questioning was based on the approach used by Wells and colleagues (1994) in their analysis of treatment seeking in the Christchurch Psychiatric Epidemiology Study, and examined a range of potential barriers to treatment seeking including measures of treatment fearfulness, lack of recognition of psychiatric illness or the need for treatment, and barriers to the availability of care.

Table 5.2 summarises the reasons given for failure to seek treatment, and shows for each disorder group, the percentage of those who failed to seek treatment endorsing each reason. It is very clear from the table that the major reasons given for non-treatment seeking, across all diagnostic groups, related to a general lack of recognition of psychiatric illness and the need for treatment. Overall, more than 80% of those who failed to seek treatment for disorder reported that it did not occur to them to seek help, that they did not need help or could manage this problem without assistance. In addition, 60% stated that they thought the problem would get better by itself as a reason for not seeking treatment.

In contrast only a small minority gave reasons relating to treatment fearfulness (eg, being embarrassed to seek help, fear of what others might think, etc) or felt that it was unlikely that anyone could help with their problem. Only two subjects reported that they had tried to find help but were unable to obtain assistance: in each case the subject reported approaching parents or friends for help/advice in obtaining assistance but had found them either unhelpful or unsupportive.

Table 5.2: Reported reasons for failure to seek treatment by type of disorder (numbers in table are the percentages of those failing to seek treatment who reported a given reason).

<i>Reason</i>	<i>Mood disorder (N = 146)</i>	<i>Anxiety disorder (N = 158)</i>	<i>Conduct disorder (N = 39)</i>	<i>Substance use disorder (N = 228)</i>	<i>Any disorder (N = 339)</i>
Did not need help – could handle problem by self	82.9	84.8	82.1	89.5	91.7
Did not think to seek help	61.0	79.7	79.5	76.8	81.1
Thought the problem would get better by itself	72.6	45.6	33.3	25.0	60.2
Embarrassed to seek help	15.1	16.5	2.6	2.6	12.7
Did not know where to go for help	6.8	8.2	2.6	1.3	5.3
Didn't think anyone could help	19.9	27.2	10.3	1.3	20.9
Couldn't afford to pay for advice, treatment etc	6.8	2.5	0.0	0.9	3.8
Afraid of what others might think (friends, family, etc)	11.0	8.9	2.6	1.3	7.7
Did not want to appear as if having mental health problems (mad, loopy, etc)	8.9	8.2	0.0	1.3	6.8
Afraid would be put into hospital	0.7	1.9	0.0	0.0	0.6
Tried to find help but couldn't	1.4	0.6	0.0	0.0	0.6
Other	17.1	14.6	2.6	14.0	26.3

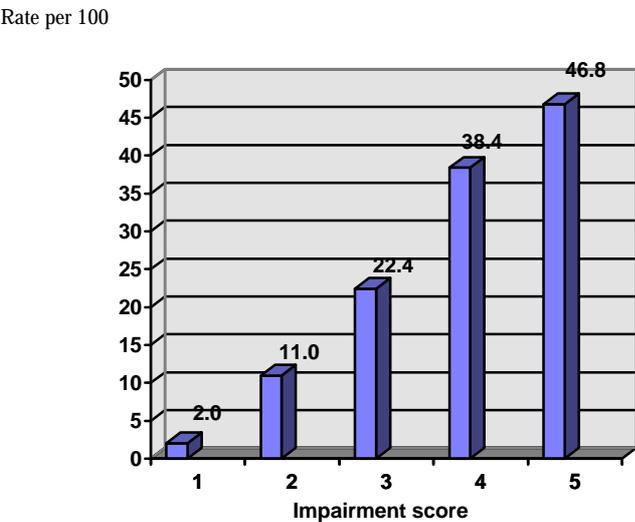
TREATMENT SEEKING AND IMPAIRMENT

One implication of the results in Table 5.2 is that the majority of young people failing to seek treatment for disorder were either unwilling to admit that they had a problem or felt that their level of symptomatology was insufficient to warrant seeking treatment. This result suggests that a major influence in treatment seeking behaviour may be factors relating to the perceived severity of psychiatric symptomatology and in particular, the extent of impairment of life functioning resulting from psychiatric disorder. This issue is examined in Figure 5.1, which shows rates (per 100) of treatment seeking amongst those meeting diagnostic criteria for at least one psychiatric disorder in relation to a measure of the reported extent of impairment. As

described previously, the extent of impairment score is based upon a count of the number of areas of life functioning in which the individual reported some degree of impairment as a result of her/his psychiatric symptomology. In formulating Figure 5.1, consideration was given to showing the relationship between impairment and treatment seeking for specific types of disorder. However, in view of the uniformly low rates of treatment seeking behaviour for all disorders except mood disorders (see Table 5.1) it has been necessary to limit this analysis of treatment seeking to the total sample who met criteria for at least one disorder.

Examination of Figure 5.1 shows clear evidence of a relationship between the extent of impairment and treatment seeking behaviours, with a strong linear trend towards increasing rates of treatment seeking with increasing levels of impairment. The strength of this association is illustrated by the fact that individuals who reported impairments in five areas of functioning had rates of treatment seeking that were approximately 23 times higher than the rates for individuals reporting impairment in only one area of functioning. This result suggests that a strong determinant of treatment seeking behaviour is the extent to which disorder leads to perceived or actual impairment in life functioning. This conclusion is generally consistent with the reports of those not seeking treatment that the major reasons for not seeking treatment were that the individual did not believe s/he had a problem, that it did not occur to them to seek help or that the individual thought the problem would get better by itself.

Figure 5.1: Rates (%) of treatment seeking amongst those meeting criteria for at least one disorder by extent of impairment.



OTHER FACTORS ASSOCIATED WITH TREATMENT SEEKING

The results in Table 5.1 and Figure 5.1 suggest that treatment seeking behaviour was related both to the type of disorder and to the perceived severity of impairment of functioning. Rates of treatment seeking were highest for young people with mood disorders and for individuals reporting higher levels of impairment. However, there may be other factors which are also related to increased or decreased risks of treatment seeking behaviour. This issue is examined in Table 5.3 which shows rates of treatment seeking amongst cohort members who met criteria for at least one disorder related to a number of other potential predictors of treatment seeking behaviour including: a count of the number of disorders experienced from 16–18 years; a measure of previous history of disorder based upon a count of the number of psychiatric disorders experienced from 14–16 years; gender; ethnicity and family socioeconomic status. These measures have been chosen partly on the basis of their potential policy relevance (eg, gender, ethnicity), but also on the basis of preliminary analyses which sought to identify the family, social, individual and other risk factors that were associated with treatment seeking behaviour.

Examination of the table suggests that rates of treatment seeking were significantly higher amongst those with multiple or comorbid disorders over the period from 16–18 years, amongst those with a previous history of psychiatric disorder, amongst females and amongst young people from families of lower socioeconomic status. However, there was no association between ethnicity and treatment seeking: rates of treatment seeking amongst Māori were almost identical to the rates for non-Māori.

In order to examine the joint effects of type of disorder, the extent of impairment and other risk factors in determining rates of treatment seeking behaviour, the data were re-analysed using multiple logistic regression methods in which the probability of treatment seeking was the dependent variable and the other measures were the predictors. This analysis revealed that only four variables made statistically significant net impacts on the probability of treatment seeking when other predictors were taken into account. These variables were: the extent of impairment; whether the subject had a mood disorder; the number of previous disorders; and socioeconomic status (SES).

Table 5.3: Rates (%) of treatment seeking amongst those meeting criteria for at least one disorder by other potential predictors of treatment seeking.

<i>Measure</i>	<i>N</i>	<i>% Seeking treatment</i>
Number of disorders (16–18 years)		
1	257	13.6
2	130	35.4
3+	56	41.1
Number of previous psychiatric disorders (14–16 years)		
0	165	11.5
1	118	28.0
2+	122	32.0
Gender		
Female	237	30.0
Male	206	16.0
Ethnicity ^a		
Māori	63	23.8
Non-Māori	380	23.4
Family socioeconomic status^b		
Levels 1, 2 (Professional, managerial)	97	18.6
Levels 3, 4 (Clerical, technical, skilled)	219	20.1
Levels 5, 6 (Semi-skilled, unskilled, unemployed)	127	33.1

^a Chi square tests of independence between each predictor and rates of treatment seeking showed that all associations in the table are statistically significant ($p < .01$) except for the comparison of Māori with non-Māori.

^b Based on Elley and Irving (1976) scale of socioeconomic status for New Zealand.

The results of the logistic regression analysis are summarised in Table 5.4 which shows for each level of each significant predictor the adjusted odds ratio for the probability of treatment seeking in relation to the baseline risk. The odds ratio measures can be approximately interpreted like a relative risk: how many times more likely is an individual with a particular score on a given variable to seek treatment in comparison to an individual with the lowest (baseline) risk for that variable. The baseline risk for each variable is indicated by an odds ratio of one. Examination of the table shows that individuals reporting impairments in all five areas of functioning had odds of seeking treatment that were 8.9 times higher than those reporting impairment in only one area; individuals with mood disorder had odds of treatment seeking that were 2.6 times those of individuals with other disorders; individuals who met criteria for 2 or more disorders from 14–16 years had odds of treatment seeking that were 2.0 times higher than those without disorder from 14–16; and young people from families of low SES had odds of treatment seeking that were 2.2 times higher than individuals from high SES families. Of the four significant predictors, by far the strongest predictor was the extent of impairment score, and this is reflected in the much higher odds ratios for this variable than for the other predictors.

These results suggest that the principal determinants of treatment seeking for psychiatric disorder amongst young people are related to the extent, severity, nature and chronicity of disorder. Those with the greatest likelihood of seeking treatment reported high levels of impairment, had a mood disorder, and had experienced multiple disorders in the past. Conversely those least likely to seek treatment reported low impairment, had a disorder other than a mood disorder, and had not met criteria for psychiatric disorder previously.

In addition, even after adjustment for these measures of the extent and nature of disorder, there remained a significant association between family socioeconomic status (SES) and rates of treatment seeking, with young people from low SES backgrounds being more likely to seek treatment than other subjects. The origins of this association are not immediately apparent. However, it may be that the processes by which young people come to attention for mental illness vary with socioeconomic status, so that, for example, young people from more disadvantaged family backgrounds may be more likely to come into contact with such services as school counsellors and other assessment services.

Table 5.4: Odds ratios for significant predictors of treatment seeking after adjustment for the effects of other predictors.

<i>Measure</i>	<i>Adjusted odds ratio</i>
Number of areas of impairment (16–18 years)	
1	1.0
2	1.7
3	3.0
4	5.2
5	8.9
Mood disorder (16–18 years)	
No	1.0
Yes	2.6
Number of previous psychiatric disorders (14–16 years)	
0	1.0
1	1.4
2+	2.0
Family socioeconomic status	
Levels 1, 2 (Professional, managerial)	1.0
Levels 3, 4 (Clerical, technical, skilled)	1.5
Levels 5, 6 (Semi-skilled, unskilled, unemployed)	2.2

To illustrate the variability in the risk profiles for treatment seeking behaviour implied by the four significant predictor variables, it is possible to use the logistic model parameters to estimate the theoretical probabilities of treatment seeking for subjects with the highest and lowest risk profiles. The estimated rate of treatment seeking for those with the highest risk profile (high impairment, mood disorder, 2+ previous disorders, low SES) was 67.3%: by comparison the estimated rate for those with the least likelihood of treatment seeking (low impairment, no mood disorder, no previous history of disorder, high SES background) was 2.0%. This result clearly illustrates the way in which variations in the extent and nature of psychiatric disorder and family SES can produce substantial variability in the probability of treatment seeking and failure to seek treatment amongst those with psychiatric disorder.

The results in Table 5.3 identified two other variables that had significant bivariate associations with rates of treatment seeking: the total number of disorders experienced from 16–18 years and gender. However, neither of these measures was significant in the logistic regression model. Further examination of the data provides some explanation for this result. Specifically, the association between gender and treatment seeking was largely explained by the fact that although females were more likely to seek treatment for disorder, females were also more likely to report mood disorder, and mood disorder in turn was a risk factor for treatment seeking. Similarly, the risk of multiple disorders was highly correlated with the extent of impairment and thus when the extent of impairment was taken into account the association between number of disorders and treatment seeking became statistically non-significant.

DISCUSSION AND CONCLUSIONS

In this chapter we have examined patterns of treatment seeking amongst those who met DSM-IV diagnostic criteria and the reasons for failure to seek treatment. The major conclusions that emerge from this analysis are summarised below.

Treatment Seeking

In agreement with previous studies of treatment seeking in community samples, only a minority of those meeting criteria had sought treatment (Kessler et al 1994; Leaf et al 1996; Offord et al 1987; Romans-Clarkson et al 1990; Shapiro et al 1984; Wells et al 1994). The rate of treatment seeking found in this study (23%) is similar to that reported in a parallel study reported by the Dunedin Multidisciplinary Study (McGee et al 1990). Also, in agreement with previous research (Shapiro et al 1984; Wells et al 1994), there was evidence to suggest that rates of treatment seeking varied with the type of disorder, with these rates being higher for mood disorders than for other disorders.

Most of those seeking treatment did not attend specialised psychiatric or psychological services but rather treatment was provided by a series of primary health care providers who included general practitioners and counsellors (notably school counsellors). Only two subjects in this cohort received psychiatric inpatient care over the period from 16–18 years, both for mood disorders.

Reasons for Failing to Seek Treatment and Factors Associated with Treatment Seeking

Also in agreement with previous research (Wells et al 1994), the findings of this study suggested that the major reasons for failing to seek treatment centred around individual beliefs about the need for treatment. Nearly all of those failing to seek treatment gave one of three reasons for their failure. These reasons included: that it had not occurred to them to seek help, that they did not need help and could handle any problems on their own or that they thought the problem would get better by itself without help. In contrast, other reasons relating to barriers to treatment seeking including lack of available treatment, costs of treatment or embarrassment about treatment seeking were mentioned relatively infrequently. The major impressions conveyed by the reports of those who failed to seek treatment are clearly that they felt their symptoms were not of sufficient severity or intensity to merit attention.

This conclusion was strongly supported by subsequent analyses which examined the factors that predicted treatment seeking amongst those with a psychiatric disorder. This analysis showed that treatment seeking was strongly influenced by the extent to which the individual reported that their condition led to impairments in various areas of life functioning including: school/employment; family relationships; peer relationships; partner relationships; and other areas of functioning. Only 2% of those reporting low levels of impairment as a result of their disorder sought treatment, in contrast to nearly 50% of those reporting high levels of impairment. In addition, treatment seeking was more common in those with a previous history of disorder and those with multiple disorders. Collectively, this evidence suggests that the chronicity and severity of disorder acts as a very strong determinant of treatment seeking, with those experiencing severe disorder, long-standing disorder and multiple disorders being most likely to seek treatment and those with mild disorders, single disorders and non-chronic disorders being least likely to seek treatment.

In turn these results suggest that the clear discrepancies that exist between estimates of the prevalence of disorder in young people and rates of treatment seeking may largely reflect different thresholds that are used to describe disorder. The diagnostic criteria developed by clinicians provide one set of thresholds that define consensually based opinions about the levels of symptomatology and treatment that merit clinical attention. However, the young people in this cohort appeared to hold a somewhat different set of beliefs that set the threshold of symptom levels and impairment needed for treatment at a higher level than those of clinical criteria. The results of these different perceptions of the symptom thresholds at which disorder exists appear to produce a situation in which many young people who meet diagnostic criteria for psychiatric disorder fail to seek treatment because they perceive that their levels of symptomatology, the chronicity or impairment caused by psychiatric symptoms are not at a sufficient level to merit treatment seeking behaviours.

In addition, other factors were found to influence treatment seeking behaviours. In particular, treatment seeking was more common amongst those with depressive disorders than those with conduct or substance use disorders and this result is consistent with previous studies that have suggested that individuals with externalising disorders, and particularly substance use

disorders, tend to deny that they have problems which may require attention (Wells et al 1994). Overall rates of treatment seeking were higher amongst females than males and this could suggest gender-related differences in the willingness to seek treatment and advice. However, subsequent analysis suggested that this was not the case and the higher rate of treatment seeking amongst females was explained by the higher rates of depression amongst females and the higher rates of treatment seeking amongst those with depression. When due allowance was made for gender differences in rates and types of disorder there was no evidence to suggest that females with psychiatric disorder sought treatment at any greater or lesser rate than males with these disorders.

An interesting finding was that rates of treatment seeking appeared to be very similar for Māori and non-Māori subjects and, certainly, there was no trend for ethnicity to act as a strong determinant of treatment seeking behaviours or access to services. However, a somewhat puzzling result was that rates of treatment seeking appeared to be higher amongst young people from families of low socioeconomic status. The reasons for this trend are not entirely clear but one explanation may be that school counsellors and others who deal with young people may be more sensitised to the presence of disorder amongst socially disadvantaged young people and may make greater efforts to refer these young people to services or to persuade them to seek treatment.

Policy Implications

The preceding results appear to have some very clear and obvious policy implications for encouraging greater utilisation of psychiatric services by young people. The findings suggest that the major reasons for failure to seek treatment for psychiatric disorders rest largely with beliefs held by young people about the extent of psychiatric symptomatology needed to justify treatment seeking. In this cohort those who sought treatment were predominantly those with severe, chronic and comorbid disorders whereas those least likely to seek treatment had milder and less chronic conditions. Clearly, the most important steps needed to ensure greater uptake of treatment services and thence improved management and surveillance of psychiatric disorder in young people is through the development of educational programmes that increase young people's awareness of psychiatric problems and the benefits of seeking treatment and advice for these problems. Such population education can be achieved through a variety of routes including media campaigns, school-based educational programmes and more generally through greater public awareness of psychiatric disorder in young people and the need for psychiatric problems to be treated and assessed with the same care and thoroughness as physical illness and problems.

Whilst greater education and awareness of issues of mental health in young people is likely to provide the best route for improving rates of service utilisation and treatment seeking, there are further factors that should be borne in mind. First, it seems likely that the extent to which education and awareness campaigns will increase service utilisation will vary with the nature of disorder. There is growing evidence to suggest that such campaigns may improve the

recognition and treatment of conditions such as depression (Rihmer et al 1995; Rutz et al 1992; van den Brink et al 1991). However, the extent to which such campaigns may influence treatment seeking for conduct disorders and substance use disorders is less clear since the weight of the evidence suggests individuals with externalising problems are often reluctant to admit these problems or to seek treatment (Wells et al 1994). An informal examination of the accounts of treatment seeking behaviours for externalising disorders in this cohort suggests that the major reason that young people with antisocial or substance use disorders attended treatment was because of pressures by family, the school or the law to address delinquent behaviours. These considerations suggest that in campaigns to raise awareness of issues relating to antisocial or substance use disorders, the important target audience may not be the young people with these disorders but rather those around the young person who are affected by these behaviours and are in a position to influence treatment seeking behaviours.

Whilst greater public awareness of psychiatric disorder, both by young people and those around them, may stimulate greater treatment seeking behaviours, these effects will be of little value unless adequate services are available to provide young people with professional and timely advice. It is widely acknowledged that at the present time New Zealand lacks adequate and comprehensive adolescent psychiatric services and it is clear that any attempt to stimulate awareness of the need for treatment seeking needs to be paralleled by equal efforts in developing adequate treatment services and facilities. An account of psychiatric services needed to address problems in young people is beyond the scope of this report but these issues have been reviewed by McGeorge (1995). However, the findings of the present study have some bearing on issues relating to service provision.

It is clear that given the relatively large number of young people who meet criteria for disorder, the potential demand for youth psychiatric services is high and far higher than could possibly be provided by existing psychiatric services. This suggests that most of the treatment provided to young people with problems will need to be provided by primary health care providers with general practitioners and school counsellors providing most of these services. It is also clear that if demands for treatment in this area are stimulated, there will be a corresponding need for funding and training to support these primary health care workers in dealing with what appear to be growing rates of psychiatric problems and adjustment difficulties in young people. Additionally, given the higher rates of disorder amongst Māori and particularly Māori males it is clear that such services need to be delivered in culturally appropriate ways. Whilst we have shown that Māori in this cohort used services at the same rate as non-Māori, we lack data on the extent to which these services were culturally appropriate and found to be acceptable by Māori.

CHAPTER 6: YOUTH SUICIDE AND SUICIDAL BEHAVIOURS

INTRODUCTION

In recent years there have been growing concerns about issues relating to youth suicide in New Zealand with these concerns being stimulated by international comparisons highlighting the high rate of suicide amongst young people in New Zealand (Barwick 1992; Coggan et al 1995; Coggan and Norton 1994; Ministry of Health 1994). In previous chapters, youth suicide has not been considered primarily because suicide is not a psychiatric disorder, although frequently it may be a consequence or symptom of disorder. However, because of the importance that has been attached to this issue in current mental health policy debates, this chapter provides an overview of suicidal behaviours in the CHDS cohort. In general, the chapter aims to provide an account of the incidence of suicidal thoughts and suicide attempts within the CHDS cohort and to develop a psychosocial profile of those who make youthful suicide attempts.

RATES OF SUICIDAL BEHAVIOURS IN THE CHDS COHORT

There are several ways in which variations in suicidal behaviours can be described (Diekstra 1989; Garland and Zigler 1993; Moscicki et al 1989). The most general measure of suicidal behaviour is provided by estimates of the rates at which young people report suicidal thoughts or feelings. At a more specific level, tendencies to suicide can be described by the frequency with which young people make suicide attempts. Finally, suicide can be described by the rates at which young people die from suicide attempts. Table 6.1 illustrates this spectrum of suicidal behaviour in the CHDS cohort up to the age of 18 years. In this table, subject reports of suicidal behaviours during the period from 16–18 years have been combined with reports from previous assessments up to age 16 years to produce estimates of the cumulative incidence (risk) of suicidal behaviours up to age 18 years.

Table 6.1 shows that just under a quarter (22.7%) of the cohort reported some form of suicidal behaviour before the age of 18, including suicidal ideation and suicide attempts: 17.1% reported suicidal thoughts only; 55 subjects (5.4%) reported making a suicide attempt in addition to suicidal thoughts; and two subjects died by suicide. It is likely that these figures provide an underestimate of the true rate of suicidal behaviours in the cohort since some young people having suicidal thoughts or making a suicide attempt may not have divulged these. Nevertheless, even assuming some under-reporting, the table makes it clear that holding suicidal thoughts is not an uncommon event in adolescence and that a sizeable minority of young people make a suicide attempt. These findings are generally in agreement with previous studies that have reported similar or higher rates of suicidal ideation and suicide attempt in adolescent populations (Andrews and Lewinsohn 1992; Centers for Disease Control 1991; Dubow et al 1989; Felts et al 1992; Garnefski et al 1992; Garrison et al 1991; Goldney et al 1989; Joffe et al 1988; Kienhorst et al 1990; Meehen et al 1992; Smith and Crawford 1986; Swanson et al 1992).

Table 6.1: Cumulative rates (%) of suicidal behaviours amongst CHDS cohort by age 18 (N = 1027).

<i>Behaviour</i>	<i>N</i>	<i>% of Sample</i>
No suicidal behaviour	794	77.3
Suicidal ideation only	176	17.1
Suicide attempt	55	5.4
Completed suicide	2	0.2

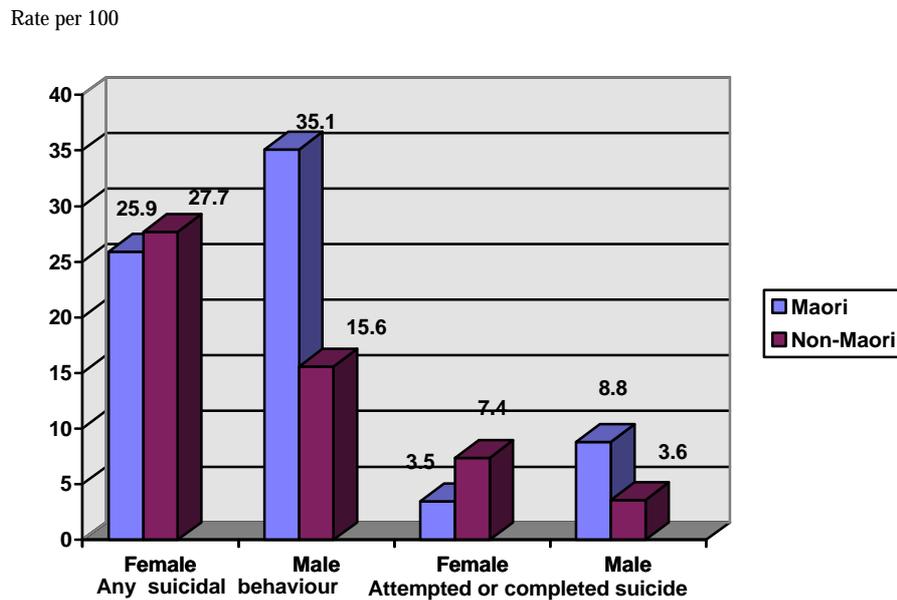
Of the 55 sample members reporting at least one suicide attempt, 20 young people reported more than one attempt and 7 reported more than 5 attempts. The most common methods used in these attempts included: drug overdose (55%), wrist cutting (28%) and attempted hanging (9%). Of the two members of the cohort who died by suicide, in one case the young person died by hanging and, in the other case, by carbon monoxide poisoning; both young people were male. Of the reported attempts, 27% resulted in attendance at the family doctor or hospital. However, only 5 subjects were admitted to hospital as a result of their attempt.

GENDER AND ETHNIC DIFFERENCES IN SUICIDAL BEHAVIOUR

The joint associations between gender, ethnicity and rates of suicidal behaviour are examined in Figure 6.1 which gives, for each gender/ethnicity group, a comparison of two measures of suicidal behaviour: (a) the rate of any suicidal behaviour, including suicidal thoughts, attempted or completed suicide; (b) the rate of attempted or completed suicide. Examination of the figure suggests the following conclusions.

- Females reported higher rates of suicidal behaviours than males. Overall, 27.5% of females reported some form of suicidal behaviour by age 18 in comparison to 17.7% of males: this difference was statistically significant. In addition, 6.9% of females reported a suicide attempt in comparison to 4.1% of males: this difference was marginally statistically significant.
- There was also some evidence to suggest that Māori rates of suicidal behaviour were higher than those of non-Māori. Overall, 30.4% of Māori reported some form of suicidal behaviour before age 18 in comparison to 21.7% of non-Māori: this difference was statistically significant. However, there were no detectable differences in rates of suicide attempt between Māori and non-Māori (6.1% vs. 5.5%).
- As in previous analyses of rates of disorder (Chapter 3), Māori males emerged as having the highest rates of suicidal behaviour and suicide attempts.

Figure 6.1: Rates (%) of suicidal behaviour up to age 18 years by gender and ethnicity.



The findings in Figure 6.1 bear some resemblance to the findings in Figure 3.1 which examined variations in rates of disorder with gender and ethnicity. In particular, the majority of those reporting suicidal behaviours were female, and females also reported higher overall rates of internalising and particularly depressive disorders. In addition, Māori males not only appear to be at particular risk for suicidal behaviours, but also for excess risks of conduct and substance use disorders. These findings suggest that a possible reason for the observed gender and ethnic variations in suicidal behaviours could be as a consequence of the overall patterning of psychiatric disorder within the cohort, and further, that were the history of psychiatric disorder taken into account, there would be no gender and ethnic variations in the risks of suicidal behaviour. To examine this possibility the data were re-analysed using logistic regression methods to adjust for prior history of psychiatric disorder. This analysis showed that when the history of disorder was taken into account there were no detectable tendencies for rates of any suicidal behaviour or rates of attempted/completed suicide to vary with gender, ethnicity or combinations of gender and ethnicity. This result suggests that the observed variations in suicidal behaviours with gender and ethnicity can be attributed to the more general patterning of risk of psychiatric disorder across these measures.

THE PSYCHOSOCIAL PROFILE OF THOSE MAKING SUICIDE ATTEMPTS

In popular presentations of youth suicide it is frequently implied that those making youthful suicide attempts are often relatively well adjusted and functioning young people who make attempts to take their lives as a result of the stresses and turmoil of adolescent adjustment (Coggan and Norton 1994; Diekstra et al 1995; Garland et al 1989). There is growing evidence to suggest that this stereotype of youthful suicidal behaviour is misleading and that

many young people making suicide attempts come from disadvantaged family backgrounds, have been exposed to adverse or dysfunctional childhood experiences and, as teenagers, have significant problems of adjustment or mental health problems (Fergusson and Lynskey 1995a, 1995b; Beautrais et al 1996b).

To illustrate these linkages between social background, family functioning, adolescent adjustment and youth suicide, Tables 6.2 and 6.3 present a profile of the psychosocial characteristics of the 57 young people who reported suicide attempts or died by suicide by the age of 18 compared with the remaining members of the CHDS cohort. Table 6.2 compares the social and family background characteristics of the two groups including measures of: family socioeconomic circumstances; parental change and parental conflict; exposure to child abuse; parental history of criminal offending, alcohol problems and illicit drug use. Table 6.3 presents profiles of mental health problems including rates of mood disorders, anxiety disorders, conduct disorders and substance use disorders defined on the basis of DSM diagnostic criteria for psychiatric disorder over the period from 14–18 years.

These profiles reveal the presence of pervasive and clear differences between the young people making suicide attempts or dying by suicide and those not making suicide attempts. These differences include:

- Those making suicide attempts were more likely to come from socially or economically disadvantaged backgrounds.
- These young people had been exposed to higher rates of family adversity including exposure to greater parental conflict and family instability.
- Those making suicide attempts were more likely to have experienced childhood sexual abuse and to be exposed to the regular use of physical punishment as children.
- In addition, these young people were more likely to have parents with a history of adjustment problems including criminal offending, alcoholism or alcohol problems and the use of illicit drugs.
- As adolescents, those making suicide attempts had substantially increased risks of all forms of psychiatric disorder, to the extent that the great majority (93%) of those who attempted/completed suicide met standardised diagnostic criteria for at least one psychiatric disorder before age 18.

Further analysis suggested that the higher rates of mental health problems amongst those attempting/completing suicide were often accompanied by other adjustment problems and difficulties including higher rates of criminal offending, greater likelihood of police contact, more frequent school dropout, early onset of sexual intercourse and low self-esteem.

The psychosocial profile that emerges from these analyses of the young people in this cohort who attempted suicide or died by suicide suggests that, as a group, these young people were exposed to multiple family and social disadvantages, to considerable adverse childhood experiences and to often highly dysfunctional family environments during childhood, and were likely to have experienced significant mental health and other psychosocial problems during adolescence.

Table 6.2: Rates (%) of disadvantageous childhood factors amongst young people who attempted/completed suicide and other sample members.^a

<i>Measure</i>	<i>Attempted/completed suicide (N = 57)</i>	<i>Other sample members (N = 920)</i>
Family social background		
Family of semi-skilled/unskilled occupational status	43.9	24.0
Family in lowest quartile of average family income level	39.3	23.1
Family functioning/stability		
> 2 Changes of parents (0–15 years)	34.7	16.8
In highest quartile of parental conflict score (0–10 years)	44.0	22.4
Step-parent entered family before age 16 years	30.8	15.8
Child abuse		
Exposed to contact sexual abuse before age 16	30.9	6.8
Parents regularly used physical punishment during childhood	30.9	10.4
Parental psychopathology		
Parental history of criminal offending	24.1	11.7
Parental history of alcoholism/ alcohol problems	27.8	11.0
Parental use of illicit drugs	42.6	23.4

^a All comparisons are statistically significant ($p < .01$) based on chi square tests of independence.

Table 6.3: Rates (%) of psychiatric disorders (14–18 years) amongst young people who attempted/completed suicide and other sample members.^a

<i>Measure</i>	<i>Attempted/completed suicide (N = 57)</i>	<i>Other sample members (N = 920)</i>
Mood disorders	73.7	25.6
Anxiety disorders	70.2	32.3
Conduct/oppositional disorders	42.1	9.3
Substance use disorders	70.2	25.5
Any disorder	93.0	55.9

^a All comparisons are statistically significant ($p < .001$) based on chi square tests of independence.

PSYCHIATRIC HISTORY AND TREATMENT PRIOR TO SUICIDE ATTEMPTS

An important issue raised by the preceding analyses concerns the number of those making suicide attempts who: (a) had a recognisable psychiatric disorder prior to the suicide attempt; and (b) had been in contact with psychiatric services prior to the attempt. Closer examination of the history of disorder and treatment seeking behaviour amongst the 57 subjects who reported a suicide attempt or died by suicide revealed that:

- 91% had a recognisable psychiatric disorder prior to the suicide attempt
- a substantial minority (35%) had been in contact with some form of psychiatric treatment service.

DISCUSSION AND CONCLUSIONS

In this chapter we have examined a number of issues relating to the spectrum of suicidal behaviours in the CHDS cohort. The principal findings of this analysis and the conclusions to be drawn are reviewed below.

The Prevalence of Suicidal Behaviour

The findings of this study show that some expression of suicidal tendencies was by no means uncommon amongst cohort members. By the age of 18, just under a quarter of all cohort members reported some form of suicidal thoughts or behaviour, over one in 20 had made a suicide attempt and two cohort members had died from suicide. These findings clearly reinforce current concerns about the prevalence of suicidal tendencies and behaviours amongst

young people in New Zealand (Barwick 1992; Coggan et al 1995; Coggan and Norton 1994; Ministry of Health 1994).

While a sizeable minority of cohort members had attempted suicide, for the most part the medical consequences of these attempts were relatively minor and did not involve serious injury. Only 27% of attempts resulted in a medical attendance and in only 5 cases was hospital admission or treatment required. These findings suggest that underlying official statistics on death and hospital admission for suicide attempts there are probably a large number of less serious suicide attempts made by young people that do not come to medical attention. The methods most commonly used in attempts by young people included overdose (55% of attempts), wrist cutting (28% of attempts) and attempted hanging (9% of attempts).

Examination of the gender and ethnic distribution of those making suicide attempts revealed trends that paralleled trends in rates of psychiatric disorder. Suicide attempts tended to be more common in females and Māori but Māori males emerged as being the highest risk group. It was further shown that gender and ethnic differences in rates of suicidal behaviours were adequately explained by ethnic and gender differences in the distribution of psychiatric disorder. The higher rates amongst females and Māori reflected the higher rates of psychiatric disorder in these groups.

The trends in suicide attempts found in this cohort are generally consistent with official hospitalisation statistics that show that rates of hospitalisation for attempted suicide tend to be higher amongst Māori and females (Coggan et al 1995). However, it is of interest to note that the ethnic and gender distribution of suicide attempts differs from that of death by suicide. Analyses of death by suicide suggest that these are more common amongst males and Pākehā, with Pākehā males having the highest death rates (New Zealand Health Information Service 1995; Skegg et al 1995). The reason for this hiatus between suicide rates and suicide attempts is likely to reflect variation in the lethality of the methods used by different gender or ethnic groups (Beautrais et al 1996a; Diekstra et al 1995), with females and Māori choosing less lethal methods than Pākehā males. This could result in a situation in which females and Māori have higher rates of suicide attempt whereas Pākehā males have higher rates of death by suicide. In this respect, it is of interest to note that both of the cohort members who died by suicide were Pākehā males.

The Psychosocial Characteristics of Those Making Suicide Attempts

An important feature of the present study was the availability of longitudinal data on cohort members and their characteristics before the suicide attempt occurred. Examination of the prospectively assessed psychosocial profiles of those making suicide attempts suggested that in many cases the suicide attempt represented the end-point of an accumulation of unsatisfactory life experiences and adjustment problems. Those making suicide attempts were characterised by a markedly increased rate of social and psychosocial disadvantages in childhood and during adolescence, and the great majority had met criteria for at least one psychiatric disorder. This profile of seriously compromised and difficult childhood circumstances coupled with a high rate of early onset psychiatric disorders is highly consistent with the findings of the Canterbury Suicide Project which found very similar profiles of risk factors in a case-control study of serious suicide attempts amongst young people (Beautrais et al 1996b). The fact that two contemporaneous studies using different methodologies (longitudinal study; case-control study) applied to the same geographical population produce very similar conclusions clearly

suggests that the associations found in this study are unlikely to be due to methodological artefact.

Findings of linkages between childhood and family circumstances, psychiatric disorder and suicide attempt risk have important implications for the planning of suicide prevention programmes. Debates about suicide prevention in New Zealand have centred implicitly around two rather different models of the aetiology of youth suicide. In the first approach a stress model of youth suicide has been assumed. This model assumes that suicide can occur in any young person as a result of exposure to the stresses and changes of adolescence. Prevention programmes based around these assumptions tend to emphasise the development of suicide awareness programmes, school-based programmes designed to foster personal competency and self-esteem and similar themes (Coggan and Norton 1994; Garland et al 1989). The alternative model has been based around the assumption that suicidal behaviours are confined to a relatively small subset of the adolescent population who are characterised by a combination of adverse life circumstances, mental health and adjustment difficulties (Garland and Zigler 1993; Shaffer et al 1988). In contrast to the stress model of youth suicide, this approach emphasises the need for targeted programmes designed to meet the mental health and other needs of this group. The essential difference between the two models rests with their aetiologic perspectives, with the stress model tending to emphasise relatively short-term circumstantial factors as provoking suicidal behaviours whereas the alternative model sees suicidal behaviours as the end-point of a life course sequence involving unsatisfactory life experiences, mental health and adjustment problems.

There is little doubt that the results of the present study resoundingly favour the life course mental health model over the adolescent stress model. What is particularly striking from the present study is that nearly all (91%) of the young people making suicide attempts or dying by suicide had exhibited significant mental health and/or adjustment problems prior to their suicide attempt and a substantial minority (35%) had, in fact, been in contact with services. Given this evidence, it is extremely difficult to sustain the view that suicide can occur to any young person as a result of exposure to adolescent stresses and difficulties. The policy implications of these results are clear and suggest that the major priorities in suicide prevention strategies should lie with programmes, policies and interventions that reduce the number of young people who are exposed to the adverse life course sequences that almost universally characterise young people making suicide attempts. These programmes and policies are likely to include:

- the development of family, school and community-based intervention programmes that attempt to reduce the number of young people exposed to the life course experiences and conditions that encourage both mental health problems and suicidal behaviours (Garland and Zigler 1993; Price et al 1989; Shaffer et al 1988)
- the development of effective child and adolescent mental health services and programmes designed to treat and manage psychiatric disorders in childhood and adolescence (Beautrais 1995; Garland and Zigler 1993)

- postvention strategies designed to address issues, difficulties and problems faced by young people after the occurrence of suicide attempt (Centers for Disease Control 1992; Diekstra et al 1995; Shaffer et al 1988).

It seems likely that this strategy will involve a mixture of both good clinical practice and public health initiatives in the area of the prevention of psychiatric disorders in young people. Perhaps the major emphasis of such policy and prevention should be to move away from the idea of specifically preventing suicide and towards policies that encourage good mental health and adjustment in children and young people (Garland and Zigler 1993).

Treatment Seeking and Service Provision

One of the more important findings to emerge from this analysis was that the great majority of those making suicide attempts had a recognisable psychiatric disorder prior to the suicide attempt. This result clearly reinforces the view that with greater treatment availability and the development of effective adolescent mental health services it may be possible to reduce risks of suicide and suicide attempts amongst young people. Furthermore, the present study suggests that over a third of those making suicide attempts had been in contact with some form of treatment service prior to the suicide attempt. This finding has encouraging and discouraging implications.

On the positive side the results suggest that a sizeable fraction of those vulnerable to suicide attempts have some level of service contact which might be capitalised upon to reduce their risks. On the negative side the results tend to suggest that current levels of service provision are not sufficient to eliminate risks of suicide attempt. Nonetheless, the findings suggest the presence of a clear window of opportunity for reducing rates of suicidal behaviour in young people by: (a) increasing the number of young people who come to the attention of services prior to their first suicide attempt; and (b) improving service provision and treatment methods with the aims of reducing rates of disorder and thence risks of future suicide attempts.

It would seem likely, given the relatively large numbers of young people meeting criteria for disorder, that the major sources of service provision will come from primary health care providers including general practitioners, school counsellors and others serving the health needs of young people. This clearly supports the need for major investments in the mental health education of these providers and their greater involvement in the planning and implementation of positive mental health and suicide prevention initiatives. Again, bearing in mind the high rate of suicide attempt seen amongst Māori males in this cohort, it clearly will be important for such developments to take into account Māori perspectives on mental health issues.

APPENDIX: DESCRIPTION OF MEASURES

This appendix provides a detailed description of the measures analysed in this report. Where appropriate, reference is made to source articles and relevant Christchurch Health and Development Study publications.

THE ASSESSMENT OF MENTAL HEALTH FROM 16–18 YEARS

As described in Chapter 2, at age 18 years subjects were interviewed on a structured schedule which examined various aspects of the individual's mental health and psychosocial adjustment from 16–18 years. As part of this interview, information was gathered on the subject's experience of psychiatric disorder, the extent of impairment of life functioning consequent on disorder and the subject's history of treatment seeking for disorder. These measures are described in detail below.

Classification of Psychiatric Disorder (16–18 years)

Subjects were questioned about their psychiatric symptoms over the period from 16–18 years using a questionnaire based upon the Composite International Diagnostic Interview (CIDI, World Health Organization 1993) supplemented by an instrument based on the Self Report Delinquency Instrument (SRDI, Elliott and Huizinga 1989). The CIDI items were used to assess mood disorders, anxiety disorders and substance use disorders in the sample while the SRDI was used to assess conduct disorder.

Using this information, DSM-IV criteria (American Psychiatric Association 1994) were used to construct a series of diagnoses of psychiatric disorder for each subject over the period from 16–18 years. These diagnoses included:

Mood Disorders

The only mood disorders assessed were those relating to major depression. These were assessed using CIDI items to define criteria for current major depression, major depression in the past year (17–18 years) and major depression in the past two years (16–18 years). Subjects were classified as having a major depressive disorder if they met DSM-IV criteria for at least one major depressive episode during the relevant period. Overall, 22.1% of the sample reported at least one major depressive episode during the period from 16–18 years, with 18.2% meeting DSM-IV criteria for major depression in the past year and 7.1% for current major depression.

Anxiety Disorders

CIDI items were used to define DSM-IV diagnostic criteria for the following anxiety diagnoses.

Generalised anxiety disorder. Subjects were classified as having generalised anxiety disorder if they reported experiencing a prolonged period (at least six months) of intense anxiety or worry about work, school or other life events/activities leading to significant impairment of social or related functioning and accompanied by at least three associated physical symptoms of anxiety (restlessness, fatigue, difficulty concentrating, irritability, sleep disturbance, or tension). In total 2.9% of sample members met criteria for generalised anxiety disorder.

Social phobia. Subjects were classified as having social phobia if they reported an excessive or unreasonable fear of social events or performance situations to the extent that such situations were either avoided or endured with extreme anxiety and the fear caused significant interference with the individual's normal routine, occupational functioning, social or other activities. The criteria for social phobia were met by 7.7% of the cohort.

Specific phobia. Subjects were classified as having a specific phobia if they reported an excessive or unreasonable fear of a specific object or situation, such that this object or situation was either avoided or endured with intense anxiety or distress to the extent that the fear interfered significantly with the individual's normal routine or other aspects of her/his functioning. The criteria for specific phobia were met by 9.6% of the cohort.

Panic disorder. Subjects were classified as having a panic disorder if they reported experiencing recurrent panic attacks from 16–18 years and at least one attack was accompanied by a persistent concern about having further attacks, worry about the implications of having an attack (eg, a feeling of 'going crazy') or a significant change in behaviour associated with the attack (eg, avoiding the situation which provoked the attack): 2.0% of the sample were classified as having a panic disorder.

Agoraphobia. Subjects were classified as having agoraphobia if they reported extreme anxiety about being in places or situations from which escape might be difficult or help might not be available in the event of a panic attack (eg, being outside the home alone, being in a crowd, on a bridge), and that such situations were either actively avoided or endured with marked distress: 1.5% of the cohort met criteria for agoraphobia.

Conduct Disorder

This was assessed using the SRDI items. Subjects were classified as having conduct disorder (CD) if they reported three or more of the 13 age-appropriate DSM-IV criteria for CD. The criteria relating to 'staying out at night despite parental prohibition' and 'often truants' were not included on the grounds that these items were not appropriate for the assessment of CD on 18 year olds. In total 4.8% of the sample were classified as having CD.

Substance Use Disorders

CIDI items were used to assess DSM-IV criteria for the following substance use disorders.

Alcohol abuse/dependence. Subjects were classified as showing alcohol dependence if they reported experiencing at least three of the following: increased tolerance for alcohol; withdrawal symptoms when alcohol was ceased; heavy drinking and overuse of alcohol; unsuccessful attempts to quit or cut down on drinking; large amounts of time spent in alcohol-

related activities; restriction of social and other activities as a result of drinking; physical or psychological problems caused by heavy and prolonged drinking. Subjects were classified as showing alcohol abuse if they did not meet criteria for alcohol dependence and reported at least one of the following: alcohol misuse had led to repeated difficulties at school or neglect of schoolwork, difficulties at work or failure to attend work; use of alcohol had placed them at physical hazard from drink driving, accident or they had been injured in a fall or accident as a result of drinking; they had been arrested or stopped by police for alcohol-related offending on at least two occasions; they had continued alcohol use despite objections from family or friends or after alcohol use had caused legal, financial or personal problems. Overall 13.8% of the sample met criteria for alcohol abuse and a further 5.7% met criteria for alcohol dependence during the period from 16–18 years.

Cannabis abuse/dependence. These diagnoses were assessed using similar criteria to those used for alcohol abuse/dependence. Overall 4.6% of the sample met criteria for cannabis dependence and a further 7.1% for cannabis abuse.

Other substance abuse/dependence (excluding nicotine). Using similar criteria to those for alcohol abuse/dependence subjects were questioned about their abuse of or dependence on other substances including solvents, prescribed medicines, opiates, hallucinogenics, plant extracts (eg, magic mushrooms, datura) and other illicit substances, but excluding nicotine. Overall, 1.0% of the cohort met criteria for other substance dependence and a further 2.7% for other substance abuse.

The Assessment of Impairment

The application of DSM-IV diagnostic criteria requires an assessment of impairment of occupational, social or other areas of life functioning. The assessment of impairment was, for the most part, based on CIDI items. However, in some instances these items were supplemented or expanded to ask questions relating to impairment in specific areas of functioning. In addition, there was considerable contextual information gathered during the course of the interview relating to the consequences of the individual's behaviour or symptomatology for her/his schooling and employment, involvement with the justice system, and relationships with friends, family and others.

Using the item responses and associated contextual information it was possible to construct an approximate measure of the extent of impairment that was applicable to all types of disorder. This was achieved as follows. First, for each subject meeting diagnostic criteria in each major disorder group (mood, anxiety, conduct or substance use disorder), an assessment was made based on the available information of whether the subject experienced significant impairment in each of five general domains of functioning: school/employment; relationships with family members; relationships with friends; partner relationships; and other areas of life functioning. An impairment score was then constructed by summing for each subject the number out of the five general domains in which impairment was recorded. The extent of impairment score thus ranged in value from 1 to 5, with a score of 1 implying impairment in only one area of functioning and a score of 5 implying impairment in all areas of functioning.

Treatment Seeking for Disorder

All subjects who met criteria for psychiatric disorder were asked a further series of questions relating to seeking treatment for their mental health problems and difficulties. First, subjects were asked if they had sought or received treatment, counselling or some other form of help or advice for their problems. Those who reported treatment seeking were then asked, for each occasion on which they had sought treatment or advice, to describe in detail their reasons for seeking treatment, whom they consulted and the outcome of their consultations. Individuals who had not sought treatment were asked their reasons for failing to seek treatment and to describe any difficulties they had experienced in attempting to access treatment resources. This questioning was based on the approach used by Wells and colleagues (1994) in their study of barriers to treatment seeking amongst the community sample studied in the Christchurch Psychiatric Epidemiology Study and a similar sample from St Louis, USA.

THE ASSESSMENT OF SUICIDAL BEHAVIOUR TO AGE 18 YEARS

At age 18, information was gathered on the following aspects of suicidal behaviour over the period from 16–18 years.

Suicidal ideation. Subjects were asked whether they had ever thought about committing suicide over the two-year period and if so, were questioned further about the frequency and nature of any suicidal thoughts or plans. Overall, 14.7% of the sample reported suicidal thoughts or plans over this period.

Suicide attempt. Subjects were asked whether they had made an attempt to kill themselves over the two-year period. If the subject reported a suicide attempt, then a detailed description was obtained of the circumstances leading up to the attempt, the means by which the subject attempted to commit suicide, the outcome of the attempt and the nature of any medical intervention/treatment received. In total, 3.6% of the cohort reported making a suicide attempt from 16–18 years. In addition, two subjects died by suicide during this period.

At ages 15 and 16 years, subjects were also questioned about suicidal thoughts and behaviours using items which closely paralleled those used at 18 years. At 15 years, subjects were asked about their lifetime experience of suicidal thoughts, plans or suicide attempts, whereas at 16 years the questioning related only to the period from 15–16 years. The patterning of suicidal behaviours up to age 16 and the factors associated with these behaviours have been described in previous reports from the CHDS (Fergusson and Lynskey 1995a; 1995b). Overall, 15% of sample members reported some form of suicidal behaviour by age 16 years and 3% reported making a suicide attempt.

For the purposes of this report, information on suicidal behaviours from the 18 year interview has been combined with information from earlier phases of the research to provide an estimate of the cumulative incidence of suicidal behaviours in the cohort. The full spectrum of suicidal behaviours by age 18 is summarised in Table 6.1.

PSYCHOSOCIAL RISK FACTORS ASSOCIATED WITH MENTAL HEALTH PROBLEMS

In order to examine the various family, social, individual and related factors that were associated with increased risks of psychiatric disorder and suicidal behaviours, a series of additional measures describing the young person's social circumstances, life history and related factors up to the age of 16 years was abstracted from the database of the study. These measures are described in detail below.

Measures of Family Socioeconomic Background

A range of measures were available to describe the family's social and economic background characteristics including:

Maternal age. This was measured in whole years at the time of the child's birth.

Maternal education. Maternal level of education was assessed at the time of the child's birth using a three-point scale which reflected the highest level of educational achievement attained. This scale was: 1, mother lacked formal educational qualifications (51.1% of mothers); 2, mother had secondary level educational qualifications (30.3% of mothers); 3, mother had tertiary/technical qualifications (18.6% of mothers).

Socioeconomic status. Family socioeconomic status at the time of the child's birth was assessed using the Elley and Irving (1976) scale of socioeconomic status for New Zealand. This scale classifies families into six levels on the basis of paternal occupation.

Family type. This is a binary measure reflecting whether the child entered a single-parent family or a two-parent family at birth: 7.7% of cohort members entered a single-parent family at birth.

Average family income level. Each year when survey children were aged 1 to 10 years, detailed information was gathered on the family's gross income. To provide a robust measure of the family's average income level over the period from 1–10 years, the measures of gross family income were first recoded into decile groups for each year and the resulting measures then averaged over the 10-year period to derive a measure of the average decile rank of the family's income over the period.

Measures of Family Stability/Conflict

To describe childhood experiences of instability and family conflict the following measures were used:

Changes of parents. Comprehensive data on changes of parents were collected at annual intervals (Fergusson et al 1992). This data was used to construct a measure of the number of changes of parents the child had experienced during the period from birth to the age of 15. A change of parent was counted if a parent left the family as a result of family breakdown or

death or entered the family as a result of remarriage or reconciliation, or if the child had any other change of custodial parents (eg, was fostered, went to live with grandparents, etc).

Step-parenthood. Using the data gathered at annual intervals on patterns of parental change, a measure of whether or not the child had lived with a step-parent at some time during the interval from birth to 15 years was constructed.

Parental conflict. Parents were questioned annually on three items which described the quality of marital relationships. These items were: a) whether the parents had engaged in prolonged arguments during the last 12 months; b) whether the child's mother reported being assaulted by her spouse in the last 12 months and; c) whether the child's mother had reported experiencing sexual difficulties in the last 12 months. These items were combined to produce a scale measure of the extent to which the child was exposed to parental conflict over the period from birth to age 10 years (Fergusson et al 1992).

Changes of residence. Each year from birth onwards information was collected on the frequency of changes of residence by the family. To provide a measure of residential stability, this information was combined to produce a count of the total number of changes of residence experienced by the child from birth to age 15 years.

Changes of school. Each year from age 5 onwards information was collected on the number of changes of school experienced by the child. This information was combined to produce a count of the total number of schools attended by the child from birth to age 15 years.

Measures of Child Abuse

Two measures of child abuse were available.

Childhood sexual abuse. At age 18 years sample members were questioned about their experience of childhood sexual abuse (CSA) prior to age 16 years. Respondents who reported CSA were asked a further series of questions relating to the extent and nature of the abuse experience (Fergusson, Lynskey and Horwood 1996). On the basis of this questioning, sample members were classified into four groups reflecting the extent of their experience of CSA: a) subjects reporting no CSA (89.8% of the sample); b) subjects reporting episodes of non-contact CSA (2.4% of the sample); c) subjects reporting episodes of contact CSA not involving intercourse or attempted intercourse (4.4% of the sample); d) subjects experiencing CSA involving completed or attempted oral, anal or vaginal intercourse (3.4% of the sample).

Parental use of physical punishment. At age 18 years sample members were questioned about the extent to which their parent(s) used physical punishment during their childhood (prior to age 16 years). Separate ratings were obtained for both the mother figure and father figure (if available). The ratings were then combined into a composite four-point scale based on the greater level of exposure to physical punishment reported by the respondent (Fergusson and Lynskey 1997). This classification was: parents never used physical punishment (10.8% of the sample); parents seldom used physical punishment (77.7% of the sample); at least one parent regularly used physical punishment (7.6% of the sample); at least one parent used physical punishment too often or too severely (3.9% of the sample).

Measures of Parental Adjustment

To describe the parental history of psychiatric disorder and adjustment problems the following measures were used.

Parental illicit drug use. When sample members were aged 11 years, their parents were questioned concerning their use of cannabis or other illicit drugs. On the basis of this questioning 24.9% of the sample were classified as having a parental history of illicit drug use.

Parental alcoholism/alcohol problems. When sample members were aged 15 years, their parents were questioned as to whether any parent had a history of alcoholism or problems with alcohol. On the basis of this questioning 12.2% of the sample were classified as having a parental history of alcoholism or problems with alcohol.

Parental psychiatric illness/suicide attempts. When sample members were aged 15 years, their parents were questioned as to whether any parent had a history of anxiety disorders, depressive disorders, other psychiatric illness or attempted suicide. On the basis of this questioning 29.9% of the sample were classified as having a parental history of psychiatric illness/suicide attempts.

Parental criminal offending. When sample members were aged 15 years, their parents were questioned concerning their history of involvement in criminal offending. On the basis of this questioning 12.1% of the sample were classified as having a parental history of criminal offending.

Individual Characteristics

From the database of the study a range of measures was available to describe aspects of the subject's individual characteristics. These included:

Gender. 50.7% of the sample interviewed at age 18 were female and 49.3% male.

Child ethnicity. Children were classified as either Māori or non-Māori on the basis of descent. If either natural parent was Māori or part Māori in descent then the child was classified as Māori, otherwise the child was classified as non-Māori. Using this definition, 11.2% of the sample were described as Māori. (An alternative measure of ethnicity was also available based on parental reports of the young person's ethnic status obtained when sample members were aged 14 years. Using this definition 9.9% of the sample were classified as Māori. However, this measure produced almost identical results to the definition based on descent and has not therefore been reported here.)

Cognitive ability (8 years). This was assessed at age 8 years using the Wechsler Intelligence Scale for Children – Revised (WISC-R, Wechsler 1974). The full scale IQ score was used in this analysis. The reliability of this scale, as assessed by split half methods, was 0.93.

Conduct problems (8 years). This was assessed using parental and teacher reports of conduct-disordered or oppositional behaviours based on items derived from the Conners (Conners 1969; 1970) and Rutter (Rutter et al 1970) parent and teacher questionnaires. These measures were combined to produce an overall measure of the extent to which the young person was reported to show conduct-disordered or oppositional behaviours (Fergusson, Horwood and Lloyd 1991; Fergusson, Lynskey and Horwood 1993). The reliability of this scale, as measured by coefficient α was 0.93.

Self-esteem (15 years). This was assessed using the Coopersmith Self Esteem Inventory (Coopersmith 1981). The full scale score was used in the analysis reported here. This score was found to have good reliability ($\alpha = 0.87$).

Measures of Educational Achievement

A range of measures of educational achievement were available including:

Reading comprehension. At age 12 years cohort members were assessed on their level of reading comprehension using a test based on the Progressive Achievement Test of Reading Comprehension (Elley and Reid 1969). Test items were selected to span an 8-year-old to a 14-year-old reading level. The resulting test score was of good reliability ($\alpha = .83$).

Word recognition. At age 13 years cohort members were assessed using the New Zealand revision of the Burt Word Reading Test (Gilmore et al 1981). The child's test score was given by the number of words correctly identified out of a possible total of 110. Test reliability assessed by coefficient alpha was .98.

Scholastic ability. At age 13 cohort members were administered the Test of Scholastic Abilities (TOSCA; Reid et al 1981). This test was scored as recommended in the test manual to give a total scholastic ability score. The reliability of this score assessed by coefficient alpha was .95.

Leaving school without formal qualifications. At age 18 cohort members were questioned about their history of attendance at secondary school and the level of qualifications obtained. For the purposes of this report subjects who had left school by age 18 without achieving at least one C grade in School Certificate were classified as having left school without formal qualifications: 18.9% of the sample met these criteria.

Measures of Parent/Peer Relationships

In order to assess the quality of parent and peer relationships during childhood the following measures were used:

Parental attachment. Parental attachment was assessed at age 15 years using the parental attachment scale developed by Armsden and Greenberg (1987). The full parental attachment scale was used in this analysis and this scale was found to have good reliability ($\alpha = .87$).

Parental bonding. To measure parental bonding, the maternal and paternal care scales of the Parental Bonding Instrument (PBI; Parker et al 1979) were administered to the young people at the age of 16 years. The young person was asked to rate each of their parents on the PBI items describing the quality of maternal and paternal care throughout their childhood. The reliabilities of the resulting scale scores were assessed using coefficient alpha and found to be good: maternal care ($\alpha = .89$); paternal care ($\alpha = .91$).

Deviant peer affiliations. At age 16 years, subjects were questioned about the extent to which their best friend and other friends used alcohol, tobacco, cannabis, truanted or broke the law. These self-report items were summed to provide a general index of the extent to which the young person affiliated with delinquent or substance using peers at age 16 years (Fergusson and Horwood 1996). The resulting scale was of moderate reliability ($\alpha = .80$).

History of Psychiatric Disorder (14–16 Years)

At ages 15 and 16 years, both parental and self reports of the subject's level of psychiatric symptomatology over the preceding year were obtained using questionnaires based on items derived from a combination of sources including: a) parent and child versions of the Diagnostic Interview Schedule for Children (DISC; Costello et al 1982); b) the Diagnostic Interview Schedule (DIS, Robins et al 1981); c) the Self Report Early Delinquency Scale (SRED, Moffitt and Silva 1988); d) the Revised Behavior Problem Checklist (RBPC, Quay and Peterson 1987); e) the Rutgers Alcohol Problems Index (White and Labouvie 1989); f) custom-written survey items designed to assess DSM-III-R diagnostic criteria (American Psychiatric Association 1987) not covered by other instrumentation.

Using a combination of parent and self reports, DSM-III-R criteria were used to construct a series of diagnoses of psychiatric disorder for each subject over the period from 14–16 years. These diagnoses included: a) mood disorders (major depression, dysthymia); b) anxiety disorders (generalised anxiety disorder, simple phobia, social phobia, separation anxiety disorder); c) disruptive behaviour disorders (conduct disorder, oppositional defiant disorder); d) substance use disorders (alcohol abuse; other substance abuse excluding nicotine). Further description of the origin of these measures can be found in other CHDS publications (Fergusson, Horwood and Lynskey 1993; Fergusson and Lynskey 1995b). Using these criteria, a total of 13.7% of the sample were classified as having a mood disorder, 29.9% as having an anxiety disorder, 9.0% as having a conduct/oppositional disorder and 12.2% as having a substance use disorder over the period from 14–16 years.

For the analyses in this report these diagnostic classifications have been used in two ways:

- i) to classify those subjects meeting criteria for internalising (mood, anxiety) disorders, externalising (conduct/oppositional, substance use) disorders over the period from 14-16 years
- ii) to derive a count of the number of psychiatric disorders for which the subject met diagnostic criteria during this period.

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