Te Rau Hinengaro: The New Zealand Mental Health Survey

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Foreword

Up until now, policy development in New Zealand has relied largely on information from overseas, augmented by some local information. This has served us well. In a general sense, all developed countries have faced similar mental health issues, and have relied on broad-brush information to plan for more and better services for people affected by mental disorder.

Much progress has occurred since the first National Mental Health Plan and we are now entering a new phase of development with a greater emphasis on producing high quality information with which to build services that support consumer recovery.

Around the world, countries are responding to the need for better information about the numbers of people with mental disorders, the impact that illness has on their lives, and the barriers to health service use. This interest has led to the development of the World Mental Health Surveys Consortium involving more than 28 countries, including New Zealand. One of the notable differences in New Zealand has been the approach to designing and implementing the survey with input from Māori, Pacific and consumer perspectives. This approach reflects the unique cultural landscape of New Zealand and has been one of the many success stories of this survey.

This final report represents a significant undertaking by a large group of people over a long period of time. There is a wealth of information in this report and much more to make available as further analysis is undertaken on the information collected during the survey. Everyone is to be congratulated for the commitment of their time and energy. In particular the Ministry offers special thanks to the 13,000 people who agreed to participate in the survey and who were willing to share often very personal information about their lives.

This is the first time that a national survey to gather information about how many people experience problems with their mental health has been conducted in New Zealand. The contributions made by those New Zealanders who took part in it will offer an excellent base of information to support the implementation of the Second New Zealand Mental Health and Addiction Plan, *Te Tāhuhu: Improving Mental Health 2005–2015*.

Pete Hodgson

Hon Pete Hodgson
Minister of Health

Whakataukī

Ahakoa te momo mate, whakanuia tangata

This whakataukī or proverb is an expression of hope;
regardless of illness or disease, people deserve dignity and respect
and the opportunity to become well again.

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Executive Summary

Objectives of the survey

The four main objectives of Te Rau Hinengaro: The New Zealand Mental Health Survey (see 1.5) were, for the total New Zealand, Māori and Pacific populations living in New Zealand, to:

- describe the one-month, 12-month and lifetime prevalence rates of major mental disorders among those aged 16 and over living in private households, overall and by sociodemographic correlates
- describe patterns of and barriers to health service use for people with mental disorder
- describe the level of disability associated with mental disorder
- provide baseline data and calibrate brief instruments measuring mental disorders and psychological distress to inform the use of these instruments in future national health surveys.

Results related to the fourth aim are not included here and will be reported separately.

Te Rau Hinengaro literally translates as ‘the many minds’ and is a reference to how the mind may be thought of as having many different states or levels. It is used to capture the objective of the survey to measure mental disorder.

Content of this report

This report, *Te Rau Hinengaro: The New Zealand Mental Health Survey*:

- provides important and not previously available information about the prevalence of mental disorders and their patterns of onset and impact for adults in New Zealand
- explores the relationship between mental disorders and physical disorders
- provides information about the patterns of health and non-health service use by people with mental health problems
- examines the relationship between sociodemographic correlates and the probability of people meeting criteria for a mental disorder or accessing care
- describes the prevalence and correlates of suicidal behaviour.

This report has been written to meet the aims of the survey and to interpret findings; it does not advocate actions or policies.

Chapter 1 provides the background to the report. It briefly describes relevant mental health policy and strategic planning initiatives, presents the findings from previous community mental health surveys in New Zealand and from other countries, and presents other New Zealand research and service provision data. Chapter 11 places the survey in a policy context and explains its strengths and limitations. Chapter 12 explains the methods, including the survey design, the sampling frame, the interview, the conduct of the fieldwork, data management and data analyses. This chapter also explains the key terms used in the report.

The contents and key results from chapters 2 to 10 are summarised below.

The appendices contain supporting information, including the guiding principles for the Kaitiaki Group and research team (Appendix C) and the consent form for participants (Appendix D), and a list of the background documents available from the website (http://www.mhrds.govt.nz) (Appendix E). The references conclude the report.

The interview

The New Zealand interview was based on the Composite International Diagnostic Interview (CIDI 3.0). The CIDI is a fully structured interview suitable for use by trained lay interviewers. Diagnoses of mental disorders were made from responses to the symptom questions. Laptops were used for Computer Assisted Personal Interviews; interviewers read questions off the laptop screen and entered responses.

Four groups of mental disorders were assessed: anxiety disorders (panic disorder, agoraphobia without panic, specific phobia, social phobia, generalised anxiety disorder, post-traumatic stress disorder and obsessive-compulsive disorder), mood disorders (major depressive disorder, dysthymia and bipolar disorder), substance use disorders (abuse of or dependence on alcohol or other drugs) and eating disorders (anorexia and bulimia).

Other modules assessed suicidal behaviours, health service use, chronic physical conditions, disability, psychological distress and alcohol use and its consequences in the past 12 months.

Survey design and sample

The target population was people aged 16 and over living in permanent private dwellings throughout New Zealand. The survey design was for a nationally representative sample. To improve the precision of estimates for Māori and Pacific people, oversampling was used. The number of Māori was doubled and the number of Pacific people was quadrupled compared with that expected without oversampling. Nonetheless, unbiased estimates for the whole population could be made because of the appropriate weighting of participants.

The National Research Bureau, under contract to the Ministry of Health, carried out the fieldwork in late 2003 and 2004.

The response rate was 73.3%.

The total number of interviews was 12,992. The number of participants reporting Māori ethnicity was 2,595 and the number reporting Pacific ethnicity was 2,374.

Prevalence of disorder

Prevalences are reported in chapters 2, 3 and 4 with some additional reports in the Māori chapter (chapter 9) and the Pacific chapter (chapter 10).

Prevalences across the whole population

Mental disorder is common in New Zealand: 46.6% of the population are predicted to meet criteria for a disorder at some time in their lives, with 39.5% having already done so and 20.7% having a disorder in the past 12 months.

Sociodemographic correlates

Younger people have a higher prevalence of disorder in the past 12 months and are more likely to report having ever had a disorder by any particular age.

Females have higher prevalences of anxiety disorder, major depression and eating disorders than males, whereas males have substantially higher prevalences for substance use disorders than females.

Prevalences are higher for people who are disadvantaged, whether measured by educational qualification, equivalised household income or using the small area index of deprivation (NZDep2001).

Ethnic comparisons

The prevalence of disorder in any period is higher for Māori and Pacific people than for the Other composite ethnic group. For disorder in the past 12 months the prevalences are 29.5% for Māori, 24.4% for Pacific people and 19.3% for Others, which indicates that Māori and Pacific people have a greater burden due to mental health problems. Much of this burden appears to be due to the youthfulness of the Māori and Pacific populations and their relative socioeconomic disadvantage.

After adjusting for sociodemographic correlates no ethnic differences in the prevalence of anxiety disorders in the past 12 months are apparent, but even with adjustments the prevalence of bipolar disorder remains higher for Māori and Pacific people (Māori, 3.4%; Pacific people, 2.7%; Others 1.9%), and substance use disorder is higher for Māori (6.0%) (Pacific people, 3.2%; Others, 3.0%). Major depression shows a different pattern: after adjustment Māori and Others have very similar prevalence (5.7%, 5.8%), whereas Pacific people have lower prevalence (3.5%).

Health service use

Chapters 2 and 8 report health service use, with some additional reports in the Māori chapter (chapter 9) and the Pacific chapter (chapter 10).

Health service use across the whole population

People with more serious mental disorder in the past 12 months are more likely to have visited the healthcare sector for mental health reasons, including for problems with their use of alcohol or other drugs, in that period. However, the proportion making a mental health visit to the healthcare sector is low (only 58.0% of those with serious disorder, 36.5% of those with moderate disorder and 18.5% of those with mild disorder), which indicates under-treatment.

Sociodemographic correlates

In contrast to the marked differences in prevalence across sociodemographic correlates, only a few small differences exist in the percentage seeking help, and these are sometimes not in the same direction as for prevalence. For example, the youngest age group had a much higher prevalence of disorder in the past 12 months than the oldest age group, but almost identical percentages from both groups made contact with treatment services, when the distribution of severity in these two age groups was taken into account. These findings indicate that, given a need for treatment, no marked inequality of access to healthcare treatment in relation to sociodemographic correlates is apparent. However, people with lower educational attainment and people resident in rural centres or areas had lower rates of visits to the mental health specialty sector.

Ethnic comparisons

Pacific people and, to a lesser extent, Māori are less likely than Others to make contact for mental health reasons with services. For those with disorder in the past 12 months 25.4% of Pacific people, 32.5% of Māori and 41.1% of Others made a mental health visit. The extent of these disparities is little affected by adjustment for sociodemographic correlates. This indicates barriers to access for Māori and Pacific people that are not explained by youthfulness or socioeconomic disadvantage.

Comorbidity

Chapter 5 reports comorbidity, with some additional reports in the Māori chapter (chapter 9) and the Pacific chapter (chapter 10).

Comorbidity of mental disorders (the co-occurrence of two or more disorders) is common, with 37.0% of those experiencing 12-month disorders having two or more disorders. Mood disorders and anxiety disorders are most likely to co-occur. Comorbidity is associated with suicidal behaviour and increases service use.

There is also comorbidity between mental and physical disorder. People with mental disorders have higher prevalences of several chronic physical conditions compared with people without mental disorders of the same age. People with chronic physical conditions are also more likely to experience mental disorders compared with those without physical conditions.

Disability

Chapter 6 reports disability, with some additional reports in the Māori chapter (chapter 9) and the Pacific chapter (chapter 10).

Mental disorders are associated with impairment in several domains of functioning. Mood disorders are reported to be more disabling than either anxiety disorders or substance use disorders. The experience of multiple mental disorders is associated with greater role impairment than is associated with single disorders. Mental disorders and chronic physical conditions are, on average, associated with similar degrees of disability, and the combination of the two is more disabling than either alone.

Suicidal behaviour

Chapter 7 reports on suicidal behaviour, with some additional reports in the Māori chapter (chapter 9) and the Pacific chapter (chapter 10).

Prevalence across the whole population

Of the population, 15.7% reported ever having thought seriously about suicide (suicidal ideation), 5.5% had ever made a suicide plan and 4.5% had ever made an attempt.

In the past 12 months, 3.2% experienced suicidal ideation, 1.0% made a suicide plan and 0.4% made a suicide attempt.

Sociodemographic correlates

The risk of suicidal ideation in the past 12 months was higher in females, younger people, people with lower educational qualifications and people with low household income, and among people living in more deprived areas (measured using the small area descriptor of socioeconomic adversity, the New Zealand Index of Deprivation) and in urban areas. The risk of making a suicide plan or suicide attempt was more common among younger people, people with low household income, and people living in more deprived areas. The risk of making a suicide attempt was higher in people in urban areas.

Mental disorders

Individuals with a mental disorder had elevated risks of suicidal behaviour, with 11.8% of people with any mental disorder reporting suicidal ideation, 4.1% making a suicide plan and 1.6% making a suicide attempt.

Mood disorders, anxiety disorders, eating disorders and substance use disorders were all associated with suicidal ideation, suicide plan and suicide attempt. Of individual disorders, major depressive episode had the strongest association with suicidal ideation, suicide plan and suicide attempt.

Ethnic comparisons

Māori and Pacific people had higher prevalences of suicidal ideation, suicide plans and suicide attempts in the past 12 months than Others.

After adjustment for sociodemographic correlates differences in suicidal ideation disappeared, but Māori and Pacific people still had higher prevalences of suicide plans (Māori 0.9%; Pacific people 1%; Others 0.3%) and suicide attempts (Māori 0.7%; Pacific people 0.8%; Others 0.3%).

Overall summary

Mental disorder is common in New Zealand, but is much more common in some groups in the population than in others.

Access to healthcare for mental health problems is low, but for people with a need for such care it is fairly equitable across population groups, except for Pacific people and, to a lesser extent, Māori. Both these ethnic groups are less likely to have had access to services.

People with a mental disorder frequently have more than one disorder. There is also a relationship between mental disorder and chronic physical conditions.

Mental disorder can severely impact people's lives.

Suicidal behaviours are more common in some groups in the population than in others.

Strengths of the survey

The survey's key strengths are as follows.

- The researchers used a survey design and sample frame consistent with best practice, so the survey generates estimates of acceptable precision that can be generalised to the New Zealand adult population.
- Māori and Pacific people were selected at higher rates to allow (for the first time) estimates of acceptable precision for those communities.
- The diagnostic instrument used is known to have acceptable reliability and validity for community surveys.
- The fieldwork conformed to best practice standards and incorporated quality controls to ensure adherence to best practice.
- The data were extensively checked for quality.
- The analysis took account of the complex sample design appropriately.

Limitations of the survey

The survey's key limitations are as follows.

- The survey does not provide useful prevalence rate estimates for people with a severe low-prevalence disorder, because the:
  - diagnostic interview used does not generate diagnoses for specific psychotic disorders such as schizophrenia or schizoaffective disorder
  - sample frame does not include people within institutions, so people with such severe but uncommon disorders are likely to be under-represented.
- The survey does not provide estimates of rates of dementia and associated cognitive impairment in older people (for similar reasons as above).
- While an initial attempt was made to translate the survey questionnaire into languages other than New Zealand English, for reasons of cost and logistics this was not possible.
- People living in institutions (such as rest homes, hospitals, sheltered accommodation, university colleges, prisons and armed forces group accommodation) and homeless people were not included in the sampling frame.
- The diagnostic instrument used does not incorporate Māori or Pacific peoples' beliefs about health, as the systems of disease classification it follows are the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* and the International Classification of Diseases, reflecting Western or Eurocentric conceptualisations and beliefs about mental disorder.
- The study is quantitative and aggregates information across individuals to arrive at estimates for the population and subgroups within the population, so it does not capture each person's unique experience.

Background to the report

Key organisations and people

Many organisations and people have been involved with this survey.

- The Mental Health Research and Development Strategy initiated the survey.
- The Ministry of Health, Health Research Council of New Zealand, Mental Health Research and Development Strategy, and Alcohol Advisory Council funded the survey.
- The research team comprised researchers from the universities of Auckland, Otago, Massey, New Zealand, and Monash, Australia, and included separate Māori and Pacific research groups. The research team was contracted to Auckland UniServices, University of Auckland.

- The World Mental Health Survey Initiative Consortium (sponsored by the World Health Organization and Harvard University) assisted with the survey.
- The Public Health Assessing Committee, Health Research Council of New Zealand, reviewed and approved the survey protocol.
- All 14 New Zealand regional ethics committees reviewed and approved this survey.

Key people who contributed to this survey are listed in the acknowledgements.

Pilot study

The main survey (originally called the New Zealand Survey of Mental Health and Wellbeing) was preceded by a pilot study that involved community consultation. The survey firm that undertook the survey did field testing to ensure the duration of the interview would be acceptable to participants and that an adequate response rate was likely to be achieved for the main survey.

1 Introduction

1.1 Content of the chapter

This chapter provides the background to Te Rau Hinengaro: The New Zealand Mental Health Survey. It briefly describes the relevant mental health policy and strategic planning initiatives that provide the context in which the findings of the survey will be used. The origins and objectives of the survey are presented, then the main features of the survey itself. A detailed description of methods, including the survey design, the sampling frame, the questionnaire, the conduct of the fieldwork, data management and data analyses, is provided in chapter 12.

This chapter also presents the findings from previous community mental health surveys in New Zealand and from overseas, presents other New Zealand research and service provision data, illustrating the place of Te Rau Hinengaro in relation to this body of work.

Key terms used in this report are defined at the end of this chapter (see 1.10). The audience for this report is expected to be mainly mental health professionals, but to make it accessible to a wider audience a brief introduction to mental disorders is provided in Appendix A.

Te Rau Hinengaro literally translates as ‘the many minds’ and is a reference to how the mind may be thought of as having many different states or levels. It is used to capture the objective of the survey to measure mental disorder.

1.2 Survey overview

This report, *Te Rau Hinengaro: The New Zealand Mental Health Survey*, provides important and not previously available information about the prevalence of mental disorders, their patterns of onset and their impact for adults in New Zealand. The survey explored the relationship between mental disorders and that between mental disorders and physical disorders (comorbidity). In addition, it provided information about the patterns of health and non-health service use of people with mental health problems. It examined the relationship between sociodemographic factors and the probability of people meeting criteria for a mental disorder or accessing care. It also investigated suicidal behaviour.

Of particular note is that the survey design enabled the participation of sufficient numbers of Māori and Pacific people to allow estimates of acceptable precision for these ethnic groups.

1.3 Policy framework

In *Te Tāhuhu – Improving Mental Health 2005–2015: The Second New Zealand Mental Health and Addiction Plan*, it was noted that the provision of information about rates of mental disorder and health service use is important to inform policy makers, service funders, service providers, and consumers and their families (Minister of Health 2005). Good-quality information can assist in the development of an environment of transparency and trust, which will facilitate good decision making. *Te Rau Hinengaro* can contribute to the development of such an environment.

Te Tāhuhu – Improving Mental Health 2005–2015 highlighted the importance of improving Māori mental health and improving the responsiveness of services to Māori and Pacific people. Both *Te Puāwaitanga: Māori Mental Health National Strategic Framework* (Ministry of Health 2002), and *Whakatātaka: Māori Health Action Plan 2002–2005* (Minister of Health and Associate Minister of Health 2002), noted the probable excess burden attributable to mental disorders borne by Māori and the need for more population-based information to inform decision making. Similarly, in *Te Orau Ora: Pacific Mental Health Profile* (Ministry of Health 2005b), the lack of information about Pacific communities' mental health status was seen as limiting planning for those communities. This report addresses these information gaps.

Te Tāhuhu – Improving Mental Health 2005–2015 also stressed the importance of further developing primary mental healthcare and improving the alignment between the delivery of mental health services and other government-funded social services. This report provides information about health service use across the mental health, general medical, human services, and complementary and alternative medicine sectors. Such information will assist in the development of primary mental health services and inform the alignment of mental health and social services.

Te Tāhuhu – Improving Mental Health 2005–2015 recognised that the mental health needs of children, young adults and older people need increased attention. As this survey covered people aged 16 and over and asked about their lifetime experience, it provides information on young adults, which will supplement information from other New Zealand studies, and information on older people.

The first National Mental Health Plan (Minister of Health 1997; Ministry of Health 1994) prioritised the provision of care for the estimated 3.0% of the population who had a major mental health disorder. This estimate was based on projections from overseas studies (Andrews 1991). *Te Tāhuhu – Improving Mental Health 2005–2015* re-emphasises the importance of ensuring that people with the highest need can access specialist services, but it is also a plan that covers the mental health needs of all New Zealanders. This study provides estimates for serious, moderate and mild disorder based on nationally representative data. These data will assist with service planning for those with the highest need and the wider population.

Finally, the survey provides useful information on suicidal ideation, plans and attempts in order to supplement the information from other sources. Reducing the rates of suicide and attempted suicide is an important goal of the New Zealand Health Strategy (Minister of Health 2000).

1.4 Origins of the study

The Mental Health Research Development and Strategy Steering Committee initiated this study (originally called the New Zealand Survey of Mental Health and Wellbeing). It was funded by the Ministry of Health, with additional funding from the Health Research Council of New Zealand, Mental Health Research and Development Strategy, and Alcohol Advisory Council.

A research team, comprising researchers from the University of Auckland, the University of Otago, Massey University and Monash University, designed the study, oversaw the conduct of the survey fieldwork, analysed the data and produced this report. The research team included Māori and Pacific research groups. The members of the research team are contracted to Auckland UniServices of the University of Auckland, which manages the research team’s contract with the Ministry of Health.

The Public Health Assessing Committee of the Health Research Council of New Zealand reviewed and approved the study protocol.

The survey was undertaken with the assistance of the World Mental Health (WMH) Survey Initiative, which is sponsored by the World Health Organization (WHO) and Harvard University.

Ethics review and approval was obtained from all 14 New Zealand regional ethics committees.

The main survey was preceded by a pilot study, which involved community consultation (Oakley Browne et al 2000). The survey firm that undertook the survey did field testing to ensure the duration of the interview would be acceptable to participants and that an adequate response rate was likely to be achieved.

1.5 Objectives of the survey

The objectives of Te Rau Hinengaro were, for the total New Zealand, Māori and Pacific populations living in New Zealand, to:

- describe the one-month, 12-month and lifetime prevalence rates of major mental disorders among people aged 16 and over living in private households, by sociodemographic variables
- describe patterns of and barriers to health service use for people with mental disorders
- describe the level of disability associated with mental disorder
- provide baseline data and calibrate brief instruments measuring mental disorders and psychological distress to inform the use of these instruments in future national health surveys.

This survey falls under the classification of 'official statistics', which are defined as statistics produced by government agencies, including statistical surveys. *Protocols for Official Statistics* defines the principles official statistics must adhere to (Statistics New Zealand 1998). These principles include the requirement for objectivity and impartiality in the presentation of data and that 'releasing official statistics should be separate from the advocacy of policies' (Statistics New Zealand 1998: principles 8 and 9). Therefore, this report has been written to meet the aims of the survey and to interpret findings; it does not advocate actions or policies.

The results related to the fourth objective are not included in this report and will be released separately.

1.6 The survey

A much fuller account of the survey is given in chapter 12. Only the main features are reported in this introductory chapter.

Ethical approval was obtained from all 14 regional ethics committees, with the Auckland Y Committee as the lead committee. Signed consent was obtained from all participants before interview.

1.6.1 The interview

The New Zealand interview was based on the Composite International Diagnostic Interview (CIDI 3.0). The CIDI is a fully structured interview suitable for use by trained lay interviewers. Diagnoses of mental disorders were made from responses to the symptom questions. Laptops were used for computer assisted personal interviews; interviewers read questions off the laptop screen and entered responses.

Four groups of mental disorders were assessed: anxiety disorders (panic disorder, agoraphobia without panic, specific phobia, social phobia, generalised anxiety disorder, post-traumatic stress disorder and obsessive–compulsive disorder), mood disorders (major depressive disorder, dysthymia and bipolar disorder), substance use disorders (abuse of or dependence on alcohol or other drugs) and eating disorders (anorexia and bulimia).

Other modules assessed suicidal behaviours, health service use, chronic physical conditions, disability, psychological distress and alcohol use and its consequences in the past 12 months.

1.6.2 Survey design

The target population was people aged 16 and over living in permanent private dwellings throughout New Zealand. The survey design was for a nationally representative sample. A multi-stage area probability sample was selected. The first stage of selection involved sampling census meshblocks, small areas containing mostly around 40 to 70 dwellings. The second stage involved selecting dwellings within meshblocks. The final stage involved selecting one person per household.

To improve the precision of estimates for Māori and Pacific people oversampling was used. The number of Māori was doubled and the number of Pacific people was quadrupled compared with that expected without oversampling. Two techniques were used for oversampling: targeting and screening. For targeting, meshblocks with a high density of Pacific people were selected with a higher probability. Screening was carried out in the other meshblocks: in some households everyone aged 16 years and over was eligible, in some households only Māori or Pacific people were eligible, and in the remaining households only Pacific people were eligible. Targeting is efficient for fieldwork but leads to less precision in estimates, whereas screening is statistically efficient but requires extensive door-knocking.

Even with oversampling, unbiased estimates for the whole population could be made because of the appropriate weighting of participants.

1.6.3 Fieldwork

The fieldwork was carried out by the National Research Bureau in late 2003 and throughout 2004.

1.6.4 Response rate

A total of 75,340 dwellings were approached for this survey. Because of screening, many dwellings were approached but were found to be ineligible: 79% of households screened for Māori and Pacific people had no one eligible (over 13,000 households) and 88% of those screened for Pacific people only had no one eligible (over 37,000 households). These numbers show something of the additional fieldwork associated with doubling the number of Māori and quadrupling the number of Pacific people.

The overall response rate was 73.3%. Ethnic-specific response rates could not be calculated directly because while the ethnicity of participants was known, the ethnicity of non-participants was not known, except for screened households where a listing of the ethnicity of household members had been obtained.

1.6.5 The sample

The total number of interviews was 12,992. The number of participants who reported Māori ethnicity was 2,595 and the number reporting Pacific ethnicity was 2,374. There were 138 participants who reported both Māori and Pacific ethnicity.

1.7 Findings from community mental health studies

Only a small number of community studies of mental disorder have been done in New Zealand. In contrast, other countries have strong psychiatric epidemiology research traditions, especially in Europe and North America.

Knowledge about the general population epidemiology of mental disorders before the 1980s was based largely on community surveys of non-specific psychological distress. These surveys used questionnaires that generated scores on continuous scales of psychological distress, but did not provide diagnoses or numbers of ‘cases’ (Dohrenwend and Dohrenwend 1982). These early studies did not provide information about the prevalence rates of specific disorders, age of onset and course of disorders, and provided only limited information about patterns of health service use. The absence of this information limited the usefulness of these studies for policy making and service planning.

1.7.1 Epidemiologic Catchment Area Study (United States of America)

This situation changed in the early 1980s with the development of the Diagnostic Interview Schedule (DIS) (Robins et al 1981), the first fully structured diagnostic interview capable of being used by an interviewer who was not a clinician. The use of trained lay interviewers made large-scale community surveys feasible. With the DIS it was possible to make acceptably accurate diagnostic distinctions across a range of DSM-III diagnoses (see 1.10.1 about the *Diagnostic and Statistical Manual of Mental Disorders*) and to obtain information about age of onset, course, recency, disorder-specific impairments and comorbidity.

The DIS was used in the Epidemiologic Catchment Area (ECA) Study (Robins and Regier 1991), a landmark survey of nearly 20,000 people living in private dwellings and institutions in five United States (US) communities. The methods used in the ECA Study were subsequently used in several parallel surveys carried out in other countries, including Christchurch, New Zealand (the Christchurch Psychiatric Epidemiology Study or the CPES (Oakley Browne et al 1989; Wells et al 1989a)).

Studies based on the ECA Study instruments and methodology generated a great deal of information that helped reorient thinking about the place of mental disorders in the larger landscape of health and illness. Among the most important findings were:

- a very large minority of people in the community experience a mental disorder at some time in their lives (Robins et al 1984; Wells et al 1989a)
- many people meet criteria for more than one disorder (Boyd et al 1984)
- the age of onset of disorder is typically early in life (Christie et al 1988)
- only a minority of people with a mental disorder obtain professional help (Hornblow et al 1990; Narrow et al 1993; Regier et al 1993).

1.7.2 Community mental health studies in New Zealand

Christchurch Psychiatric Epidemiology Study

The CPES was a regional community survey carried out in the Christchurch urban area between April 1986 and December 1986. The household sample consisted of about 1500 adults aged 18–64. Trained lay interviewers used the DIS, which provided DSM-III diagnoses (Oakley Browne et al 1989; Wells et al 1989a).

Of participants, 14.7% had experienced an affective (mood) disorder at some time in their lives, 21.0% a substance use disorder and 10.5% an anxiety disorder. Within the 12 months before interview, 10.4% of participants had had an affective disorder, 10.5% a substance use disorder and 9.1% an anxiety disorder. The lifetime rates for the low prevalence disorders of schizophrenic disorders and eating disorders (anorexia and/or bulimia) were 0.4% and 1.2% respectively. In the six months before interview, 14.0% of the sample had visited a health service for help with mental health problems. Of participants with a mental disorder in the six months before interview, only 29.0% had visited a health professional or service for a mental health consultation over the same period, although 75% had sought healthcare. About half of those who made mental health visits went to general practitioners only and most of the rest saw a mental health specialist (Hornblow et al 1990).

Studies based on the ECA Study's methodology had limitations. The most important limitations of the CPES were:

- the survey was carried out in the Christchurch urban region and did not provide a nationally representative sample
- the adult population sampled did not have sufficient numbers of Māori and Pacific people to generate useful data for these groups
- no information on disability was obtained
- the information on service use was limited.

Despite these limitations, the key findings from this study have often been used to make estimates of national rates for New Zealand.

Otago Women's Health Study

One other major study has been undertaken in a New Zealand community: the Otago Women's Health Study (Romans-Clarkson et al 1990). This study yielded useful data on rates of mental disorder among rural and urban women and associated risk factors (Romans-Clarkson et al 1988). This study used a two-stage sampling design and different instruments to generate likelihood of caseness than the CPES used. However, the study had the same limitations as described for the CPES.

1.7.3 National Comorbidity Survey (United States)

Although no other community surveys of the adult population have been undertaken in New Zealand, important studies have been completed in other countries. A decade after the ECA, the US National Institutes of Mental Health funded the National Comorbidity Study (NCS) (Kessler 1994; Kessler et al 1994) to fill some of the information gaps in the ECA.

The three main advances of the methodology for the NCS were as follows.

- A nationally representative sample was used.
- More detailed information about risk factors and the social consequences of mental disorder was collected.
- An improved diagnostic instrument, the CIDI, was used, which generated DSM-III-R and International Classification of Diseases revision 9 (ICD-9) diagnoses (Robins et al 1988). The CIDI included modifications to the DIS, which improved participants' cooperation, attention and accuracy of responses throughout the interview. These improvements lessened the likelihood of bias in prevalence estimates (Regier et al 1998).

The NCS confirmed many of the ECA Study's findings, such as the high proportion of the adult population who met criteria for a DSM or an ICD mental disorder (Kessler et al 1994) and the small proportion of these adults who obtained treatment (Kessler et al 2005d; Kessler et al 1997c).

The NCS disconfirmed some ECA results. For instance, it showed ECA data on 12-month prevalence substantially underestimated the proportion of the population who have a clinically significant mental disorder in the course of a year (Regier et al 1998) and that the ECA data on post-traumatic stress disorder had special problems (Kessler et al 1995b).

The NCS went beyond the ECA in several important ways, including analyses of disorder subtypes (Kessler et al 1998c), comorbidities (Judd et al 1998; Kessler et al 1997b; Kessler et al 1999b; Kessler et al 1998b), and adverse social consequences of mental disorders (Kessler et al 1997a; Kessler et al 1995a; Kessler et al 1998d).

1.7.4 National Survey of Mental Health and Well-being (Australia)

In 1995, the Australian Commonwealth Department of Health and Aged Care funded an Australian national study, the National Survey of Mental Health and Well-being (Andrews et al 1999b; Whiteford 2000). The study was established to gather baseline information for policy making and planning about the prevalence of mental disorders and associated disability and patterns of health service use.

The study comprised three surveys:

- a general population survey of high-prevalence disorders in adults aged 18 and over (Andrews et al 2001; Henderson et al 2000)
- a general population survey of childhood high-prevalence disorders in children aged 4–17 (Sawyer et al 2000)
- a two-phase survey of low-prevalence disorders (psychoses) conducted in four urban sites (Jablensky et al 2000).

Like the NCS, the Australian general population survey of high-prevalence disorders was based on a nationally representative sampling frame. The version of the CIDI used provided one-month and 12-month prevalence rates, but not lifetime rates, for ICD-10 and DSM-IV diagnoses. The CIDI was programmed into a computer-assisted interview, which was administered by trained lay people. Experienced field staff of the Australian Bureau of Statistics interviewed a national household sample of 10,600 people aged 18 and over.

The key findings from this survey were as follows.

- In the past year, 17.7% of Australian adults had experienced an ICD-10 anxiety, affective or substance use disorder. Anxiety disorders were the most prevalent, followed by substance use and affective disorders.
- Disorders were more prevalent in young and middle-aged adults.
- Comorbidity was common.
- Mental disorders were associated with significant disablement in daily life.
- Of all cases in the past year, 64.6% had had no contact with health services in the previous year. Of those who had had contact, 29.4% had seen general practitioners and 7.5% had seen psychiatrists.

1.7.5 World Mental Health Survey Initiative

After the Australian national survey, other nations decided to undertake national or regional mental health surveys. Many of the lead investigators in these projects sought advice and assistance from the WHO, which took a lead role in coordinating their efforts.

The WMH Survey Initiative is a project of the Assessment, Classification and Epidemiology Group at the WHO (World Mental Health Survey Consortium 2005). This group is responsible for coordinating the implementation and analysis of general population epidemiologic surveys of mental disorders, substance use disorders and behavioural disorders in countries in all WHO regions.

The WMH Survey Initiative developed out of the findings of the WHO Global Burden of Disease Study (Murray and Lopez 1996b, 1996c). This study showed that mental and substance use disorders are among the most burdensome in the world, and this burden is projected to increase. The WMH Survey Initiative was established to provide data to confirm and refine the findings of the Global Burden of Disease Study and to inform the development of public health initiatives to address the burden of mental and substance use disorders.

As the findings of the Global Burden of Disease Study are based largely on a small number of limited studies and literature reviews, rather than cross-national epidemiologic surveys, the major task of the WMH Survey Initiative is to facilitate the conduct of general population mental health surveys. Through these surveys the initiative aims to obtain:

- accurate cross-national information about the prevalence rates of mental, substance use, and behavioural disorders
- descriptions of the impairments, adverse social consequences and patterns of help-seeking associated with these disorders.

More than 28 countries are undertaking or have undertaken nationally or regionally representative surveys and are contributing to the initiative. The participating countries are collectively known as the WMH Surveys Consortium. Of note is that all the participating countries’ surveys use similar survey methodology, the same diagnostic interview and the same quality control measures. For instance, all surveys are based on probability samples, with standardised training and supervision of the interviewers. The interviews are carried out face to face by trained lay interviewers, who administer the CIDI 3.0 (Kessler and Ustun 2004), a fully structured diagnostic interview, to assess disorders and treatment. This questionnaire generates DSM-IV and ICD-10 diagnoses. More details about the design and methods of WMH surveys are in chapter 12.

Te Rau Hinengaro is collaborating in the WMH Survey Initiative. This collaboration was recommended by the research team that undertook the pilot study for the national survey (Oakley Browne et al 2000) and included in the project tender to the Ministry of Health, the Health Research Council of New Zealand research grant application, and all applications to the regional ethics committees. Collaboration with the WMH Survey Initiative permitted the research team to access and use the consortium's technical expertise and resources. It also allows comparisons of the data from the New Zealand study with data from other nations.

Cross-national findings from World Mental Health Survey Initiative

Several nations in the consortium have published results from their national surveys. The publications are listed on the WMH Survey Initiative website (http://www.hcp.med.harvard.edu/wmh/publications.php). The European sites have published papers and the results of these are briefly described in the following section. The US has also published results from its national survey and the key findings from this survey are also presented below.

The initial cross-national findings from the first 14 countries in the consortium have been published (Demyttenaere et al 2004) and are as follows.

- The 12-month prevalence rate for any WMH-CIDI/DSM-IV disorder varied widely across countries, with an inter-quartile range of 9.1%–16.9%.
- The inter-quartile range for serious disorders was 1.1%–1.7%, moderate disorders 2.9%–6.1% and mild disorders 4.5%–6.4%.
- Serious disorders were associated with substantial disability.
- Disorder severity was correlated with the probability of treatment in most countries, although 35.5%–50.3% of serious cases in developed countries and 76.3%–85.4% in less-developed countries received no treatment in the 12 months before the interview.

European Study of the Epidemiology of Mental Disorders Project

The European Study of the Epidemiology of Mental Disorders (ESEMeD) is a cross-sectional community mental health survey undertaken in six European countries (Belgium, France, Germany, Italy, the Netherlands and Spain). The study explored the prevalence rates, associated disability and correlates of mental and substance use disorders, and the patterns of service use by people with such disorders (Alonso et al 2004a, 2004b, 2004e; Alonso et al 2002). The sample consisted of 22,000 adults aged 18 and over. Trained lay interviewers, using the CIDI 3.0, interviewed all participants in their homes. The survey was carried out in January 2001 and August 2003.

Fourteen percent of participants reported a lifetime history of any mood disorder, 13.6% any anxiety disorder, and 5.2% a lifetime history of any alcohol disorder. In the 12 months immediately before the interview, 6.0% reported any anxiety disorder, 4.2% any mood disorder, and 1.0% any alcohol disorder. Mental disorders were found to be important determinants of work role disability and quality of life (Alonso et al 2004a). Of the total sample, 6.4% had consulted formal health services in the previous 12 months. Of participants with a 12-month mental disorder, 25.7% had consulted a formal health service during that period and of these about two-thirds had contacted a mental health professional (Alonso et al 2004e).

National Comorbidity Replication Survey (United States of America)

The National Comorbidity Survey Replication (NCS-R) was a nationally representative community mental health survey carried out in the US between February 2001 and April 2003.

Trained lay interviewers used the CIDI 3.0 to conduct face-to-face interviews with participants in their own homes. The household-based sample consisted of 9,282 adults aged 18 and over (Kessler et al 2004b; Kessler and Merikangas 2004).

Twenty-eight percent of participants reported a lifetime history of any anxiety disorder, 20.8% any mood disorder, 20.8% any impulse-control disorder and 14.6% any substance use disorder. In the 12 months before interview (ie, the 12-month prevalence), 18.1% of participants met criteria for an anxiety disorder, 9.5% a mood disorder, 8.9% an impulse-control disorder and 3.8% a substance use disorder. Of these 12-month cases, 22.3% were classed as serious, 37.3% as moderate and 40.4% as mild (Kessler et al 2005c).

Of people with a disorder 12 months before the interview, 41.1% had received some treatment within that same period. Of those who received treatment, 12.3% had had contact with a psychiatrist, 16.0% with a non-psychiatrist mental health professional, 22.8% with a general medical provider, 8.1% with a human services provider and 6.8% with a complementary and alternative medicine provider (Wang et al 2005b). For people who had experienced a disorder at some time in their lives, delays to treatment contact averaged more than 10 years, although 80.1% eventually made treatment contact (Wang et al 2005a).

1.8 Information from other data sources and studies within New Zealand

There are other sources of quantitative information about rates of mental disorders in New Zealand. Two major ongoing longitudinal studies, the Dunedin Multidisciplinary Health and Development Study (DMHDS) and the Christchurch Health and Development Study (CHDS), recruited participants at birth. The methodology of such longitudinal studies makes it possible to explore the causal pathways for mental disorders, whereas a cross-sectional study such as Te Rau Hinengaro can only describe correlations with mental disorder. As the participants in such longitudinal studies are interviewed at repeat intervals, the dating of symptoms or episodes of mental disorder and any associated events or circumstances is less susceptible to bias due to problems with recall, compared with cross-sectional studies such as Te Rau Hinengaro.

Both of these studies are ongoing and have produced a large number of publications. The participants in these studies are now in adulthood (late twenties and early thirties). It is beyond the scope of this report to produce a full review of the findings of the two studies and only those results relevant to prevalence rates in late adolescence, when the participants were aged 18, are briefly presented, although both studies have produced data on mental disorders among study participants at later ages. The results at age 18 are focused on because it is the usual lower age for inclusion in most mental health surveys of adults; thus, presentation of these results complements the presentations of results from other surveys of adults.

1.8.1 Dunedin Multidisciplinary Health and Development Study

The DMHDS is a longitudinal study of 1,037 children born in Dunedin's Queen Mary Hospital between April 1972 and March 1973 (Feehan et al 1994). In the DMHDS, assessments were carried out when the participants were aged 18 between April 1990 and June 1991. These interviews included the DIS (version III-R), which provided DSM-III-R diagnoses. The most prevalent disorders over the 12 months before interview were major depressive disorder (16.7%), alcohol dependence (10.4%) and social phobia (11.1%).

The titles of publications generated from the study are available on the study's website (http://dunedinstudy.otago.ac.nz/).

1.8.2 Christchurch Health and Development Study

The CHDS is a longitudinal study of a cohort of 1,265 children born in the Christchurch urban region during a four-month period in mid-1977 (Horwood and Ferguson 1998). The participants were interviewed at age 18 with a questionnaire that included the CIDI, which provided DSM-IV diagnoses for the period 16–18 years. Over this period, the most common disorders were substance use disorders (24%), mood disorders (22%) and anxiety disorders (17%). Females had higher rates of mood and anxiety disorders than males; males had higher rates of substance use and conduct disorders than females. Māori had significantly higher rates than non-Māori for anxiety disorders, conduct disorders and substance use disorders. Less than a quarter of those meeting criteria for a mental disorder had sought treatment, with the most common source of treatment being general practitioners and counsellors.

Publications from this study are listed on the study website (http://www.chmeds.ac.nz/research/chds).

The data obtained from participants in late adolescence in both studies confirm the findings of cross-sectional surveys in adults: mental disorders are common and have early onset in the life span.

1.8.3 Mental Health and General Practice Investigation

The Mental Health and General Practice Investigation (the MaGPIe study) is a study of the prevalence and types of common mental disorders among patients attending New Zealand general practices.

Based on CIDI (version 2.1) interviews that generated DSM-IV diagnoses, the 12-month prevalence rates of general practice attendees were 11.3% for any substance use disorder, 18.1% for any depressive disorder and 20.7% for any anxiety disorder.

Depression and anxiety disorders were more common in females than males; substance use disorders were more common in males than females. Rates of disorder were highest in people aged under 44 (MaGPIe 2001, 2003).

1.8.4 New Zealand National Prison Study

The New Zealand National Prison Study explored the rates of disorder in a representative sample of prison inmates (Brinded et al 2001; Simpson et al 1999).

The CIDI was used in interviews and provided DSM-IV diagnoses. The results indicated markedly elevated prevalence rates for mental disorders in the prison population compared with the wider community.

1.8.5 New Zealand Health Survey 2002/03

The New Zealand Health Survey 2002/03 was the third national health survey of New Zealanders (Ministry of Health 2004b). It was a representative national community survey in which all people aged 15 and older residing in permanent private dwellings were eligible for selection. A separate survey of people living in institutions was also undertaken. Māori, Pacific and Asian people were oversampled. A total of 12,929 persons were interviewed face to face. The survey included self-reported physical or mental chronic illnesses which had lasted or were expected to last six months or more, although the illness could be intermittent or episodic. If someone reported having such an illness they were presented with a list on which the only mental disorders were bipolar disorder and schizophrenia. However, there was a space to specify any 'Other' illness. Overall, 2.5% of the population reported having had a serious mental disorder (ie, a depressive disorder, a bipolar disorder or schizophrenia). Depressive disorders were the most common serious mental disorder (1.9%), followed by bipolar disorder (0.5%) and schizophrenia (0.2%). The self-reports in this health survey do not generate DSM or ICD diagnoses, so it is not possible to compare these results with those of community surveys that provide prevalence rates for DSM or ICD disorders.

1.8.6 New Zealand Health Information Service information

Through the New Zealand Health Information Service, it is possible to obtain information about outpatient and inpatient attendances at specialist mental health services (New Zealand Health Information Service 2004). This information includes service contacts by age, sex and ethnicity. Broad categories of source of referrals and types of services received are also provided.

As this information does not include mental health visits at primary care, other general medical services, all non-governmental organisations, or complementary and alternative medicine providers, it captures only a proportion of the services provided for people with mental disorders. It is also not possible to calculate community prevalence rates from visits at specialist mental health services. However, it is important to note that the information available shows Māori males have the highest age-standardised contact rates compared with males from other ethnic groups.

1.9 Conclusions

A large number of mental health surveys have now been completed throughout the world. The methodology of such surveys is now well established, and improvements in questionnaire design, data acquisition and management techniques and data analysis have made the conduct of large-scale community mental health surveys possible for many countries. Te Rau Hinengaro was undertaken because there are limitations in the New Zealand data obtained from other surveys or routinely collected data.

The use of the prevalence of disorder alone as a measure of need for service has been criticised (Mechanic 2003). Other factors such as the severity of symptoms, associated disability, duration and recurrence of disorder, and likely benefit from treatment also need to be considered (Mechanic 2003).

Some of the variation in prevalence rates found in the earlier ECA studies and the later NCS has been attributed to the different ways in which the studies defined the clinical significance of disorder. Establishing the clinical significance of disorders in the community is essential for estimating need for treatment (Narrow et al 2002).

This New Zealand study and other WMH surveys have benefited from the experience and data obtained in earlier studies, and the CIDI 3.0 includes questions to ascertain clinical significance, severity, disability, duration and recurrence of disorder. This will allow a more valid estimation of the extent of met and unmet need for treatment. This information has not previously been available for New Zealand.

1.10 Key terms

This report includes a very detailed outline of the study's methodology and explanations of technical terms (chapter 12). However, to help the reader the following key terms, which are used frequently throughout the report, are defined below:

- *Diagnostic and Statistical Manual of Mental Disorders* (DSM) (see 1.10.1)
- Composite International Diagnostic Interview (CIDI) (see 1.10.2)
- lifetime disorder, 12-month disorder and one-month disorder (see 1.10.3)
- prevalence (see 1.10.4)
- oversampling (see 1.10.5)
- prioritised ethnicity (see 1.10.6)
- severity of disorder (see 1.10.7)
- statistical terms (see 1.10.8).

An introduction to what is meant by different disorders is provided in Appendix A. This should be consulted by readers who are unsure what is meant by a diagnosis of, for example, panic disorder or major depressive disorder or substance use dependence.

1.10.1 *Diagnostic and Statistical Manual of Mental Disorders*

To diagnose disorders it is necessary to specify criteria so that diagnoses are comparable. The criteria for mental disorders have been refined over the past century, with major clarification occurring in the late 1970s and further refinement since then. In New Zealand, clinicians use what are known as DSM criteria. The *Diagnostic and Statistical Manual of Mental Disorders* (DSM) is the American Psychiatric Association's official classification system for defining mental disorders (APA 1980, 1987, 2000).

The version of the DSM classification system is indicated by the roman numerals after the DSM abbreviation (so DSM-IV is the fourth revision of the manual).

Different survey questionnaires have used different versions of the DSM to generate prevalence rates of mental disorders. For instance, the DIS, which was used in the ECA studies, generated DSM-III diagnoses, and the NCS used the CIDI-NCS to generate DSM-III-R diagnoses. The questionnaire used in this study generated DSM-IV diagnoses. In the report, it is sometimes made explicit that a mental disorder is defined with a particular version of the DSM.

1.10.2 Composite International Diagnostic Interview

Large-scale surveys are required because the prevalence of individual mental disorders is low. Neither the personnel nor the money required are available to carry out such surveys using fully trained clinical staff. Two solutions have been used for the assessment of participants. One is to use two-phase sampling: lay interviewers administer a screening questionnaire and a proportion of participants are subsequently interviewed by trained clinical staff. This approach is used in national surveys in the UK (Jenkins et al 1997a, 1997b). The second approach has been the development of fully structured interviews that can be used by trained lay interviewers. This is the approach used in this survey and in most other surveys reported in 1.7.

The questionnaire used in this survey to make DSM-IV diagnoses is the CIDI. The CIDI is a fully structured questionnaire that asks about symptoms and their onset and offset in order to determine whether a DSM mental disorder has occurred within specific periods such as ever in someone's life before interview or in the past 12 months.

Different versions of the CIDI have been used in surveys over the past decade. This survey used the WMH-CIDI and the WHO has now accepted this as the official WHO CIDI 3.0. Throughout this report, the questionnaire is referred to as the CIDI 3.0.

1.10.3 Lifetime disorder, 12-month disorder and one-month disorder

The CIDI 3.0 generates DSM-IV diagnoses by determining whether the person has ever in their lifetime met criteria for the disorder, then determines the last time the person had an episode or key symptoms of the disorder. Throughout this report it is stated that this person (or people) had 'a lifetime disorder'. This is a short way of stating that at the time of the interview, the person had met criteria for a DSM-IV mental disorder, as ascertained with the CIDI 3.0, at some previous time in their life.

If the person has ever met criteria for a DSM-IV disorder, as ascertained with the CIDI 3.0, and experienced an episode or symptoms in the 12 months before the interview, then this is described as a '12-month disorder'. Similarly if the person ever met criteria for a DSM-IV disorder, as ascertained with the CIDI 3.0, and experienced an episode or symptoms in the month before the interview, this is described as a 'one-month disorder'.

1.10.4 Prevalence

The prevalence of a disorder is the proportion of people with the disorder in a specified population at a designated time. As the CIDI 3.0 generates DSM-IV diagnoses and determines the period in which people met criteria, it is possible to aggregate data across people to calculate prevalence. In this report, data on three prevalence periods are provided.

- *Lifetime prevalence* is the proportion of people known to have met criteria at some time in their lives before the interview.
- *Twelve-month prevalence* is the proportion of people to have ever met criteria for a disorder and to have experienced an episode of disorder or key symptoms in the 12 months before the interview.
- *One-month prevalence* is the proportion of people to have ever met criteria for a disorder and to have experienced an episode of disorder or key symptoms in the month before the interview.

As this study uses a complex survey design, the survey data are 'weighted' and the calculation of prevalence is not simple (this is discussed in detail in chapter 12). In the text and tables, 'weighted' prevalences are presented as proportions of the total population or specified subpopulations.

1.10.5 Oversampling

As previously discussed, very limited data exist about mental disorder in the community for Māori and Pacific people. An important aim of the study was to obtain data about the prevalences of mental disorders, and the associated disability and health service use for Māori, Pacific people and Other people in the New Zealand population. If Māori and Pacific people were eligible for selection and sampled from the population on the basis of their proportions in the population, there would be insufficient numbers of Māori and Pacific participants to provide estimates of disorders and service use of acceptable precision. For this reason, Māori and Pacific people were 'oversampled'. That is, the sample design was such that the probability of Māori and Pacific people being selected for participation in the study was higher than the probability of their being selected based simply on their proportions in the New Zealand population. This is explained briefly in 1.6.2 and in detail in chapter 12.

In 'weighting' the sample, these differential probabilities of eligibility for participation are taken into account, such that the estimates obtained are representative of the New Zealand adult population and the Māori, Pacific and Other subpopulations.

1.10.6 Prioritised ethnicity

To determine ethnicity, participants were asked the same questions as asked by Statistics New Zealand in the 2001 Census of Population and Dwellings. The relevant questions are in Appendix B. These questions allow participants to identify themselves as belonging to more than one ethnic group. However, for most analyses participants were assigned to one of three mutually exclusive ethnic groups.

This report used the standard New Zealand system for prioritising ethnicity: Māori ethnicity was prioritised over Pacific ethnicity; and Pacific ethnicity was prioritised over other ethnicities. That is, people who stated they identified as Māori *and* stated they identified with other ethnic groups were classified as belonging to the Māori ethnic group. People who identified as Pacific, but not Māori, were classified as Pacific people regardless of whatever other ethnicities they may also have reported. Prioritised Māori ethnicity is used in the analyses for all chapters, except when stated explicitly otherwise in chapter 10. In chapter 10 many analyses are reported for *all* Pacific people including those who also mentioned Māori ethnicity.

1.10.7 Severity of disorder

In this report, results are sometimes reported by severity of disorder. Participants who experienced any disorder in the past 12 months are classified into three levels of severity: serious, moderate or mild. Twelve-month prevalence estimates by severity are presented in chapter 2. An extended description of the severity classification is provided in 12.12.3.

There is no internationally accepted definition of 'serious', 'severe' or 'major' mental disorder and the terms are used interchangeably. In the US 'serious mental illness' (SMI) is defined by statute. The US definition requires that the person have at least one 12-month DSM disorder, other than a substance use disorder, and have serious impairment (Kessler et al 2003a; Kessler et al 2001). 'Serious impairment' is defined as a Global Assessment of Functioning score of less than 60 (APA 1994). When this definition was applied to data from the NCS, 6.2% of the US population were found to have met criteria for SMI within the past 12 months (Kessler et al 2001).

It is important to note that the use of the term 'serious' in this report is not equivalent to the use of the term 'major mental health disorder' (Minister of Health 1997) as used in previous mental health plans. The first National Mental Health Plan set a benchmark of 3.0% of the general adult and youth populations and their families as requiring access to specialist mental health services (Minister of Health 1997; Ministry of Health 1994). This 3.0% benchmark was derived from adaptations, for the New Zealand population, of estimates provided in the Australian Tolkien report (Andrews 1991). The author of this report used the available data, from international studies, on one-month prevalence estimates and health service use in the previous six months, to derive an estimate of 2.6% of the whole population (adults, youth and children) who currently require access to general mental health services (excluding forensic services, alcohol and drug treatment, and services for older people). The structure of the CIDI 3.0 is such that, in this report, estimates of severity can be provided only for 12-month disorder and cannot be provided for one-month disorder. In the CIDI 3.0, service use is assessed over 12 months and not six months. Consequently, it is not possible in this study to derive an estimate, based on the definition used in the Tolkien report, of 'major mental health disorder'.

1.10.8 Statistical terms

The precision of the survey results is indicated by the 95% confidence intervals (CIs). If multiple survey samples were obtained, even at the same time, they would provide results that differed. The 95% CI is the interval that would be expected to contain the true population value 95% of the time if many samples were taken.

Conventionally differences are said to be statistically significant if the probability (p) is less than .05. The smaller the p-value the more evidence that there is a real difference in the population, not just in the sample. However, p is affected by both the size of the difference and the size of the sample, so it is important to inspect the results themselves to ascertain if the difference is small or large.

If the 95% CIs for two groups do not overlap then the results for the two groups are statistically significantly different at the .05 level. However, the 95% CIs may overlap to some extent when p is less than .05, which is one of the reasons p-values are sometimes quoted in this report. In addition, it is possible for some multi-valued variables such as age group to have a significant effect even when individual age groups do not differ, and this is conveniently indicated by a p-value.

2 Prevalence and Severity across Aggregated Disorders

Key results

- The prevalence of disorder depended on the time period involved: 39.5% of the population had met criteria for a DSM-IV mental disorder at some time in their life before interview, 20.7% had experienced disorder within the past 12 months and 11.6% in the past month.
- Those with disorder in the past 12 months (20.7%) were classified by severity of disorder during that period. The prevalence of serious disorder was 4.7%, moderate disorder 9.4% and mild disorder 6.6%, with the remaining 79.3% of the population not diagnosed with a disorder.
- A mental health visit in the healthcare sector (mental health and general health) was made in the past 12 months by 58.0% of those with a serious disorder, 36.5% with a moderate disorder, 18.5% with a mild disorder and 5.7% of those not diagnosed with a disorder.
- The prevalence of disorder and serious disorder in the past 12 months was higher for younger people, people with less education, people with less income and people who lived in more deprived areas.
- In contrast, the sociodemographic correlates had little relationship to the percentage who made a mental health visit in the health sector in the past 12 months, after adjustment for severity. Differences were generally small and non-significant, with no clear gradients across age, income or deprivation.
- Māori and Pacific people had a higher prevalence of disorder and serious disorder in the past 12 months than was found for the Other composite ethnic group, but these differences were much reduced, particularly for Pacific people, after adjustment for sociodemographic correlates (the adjusted prevalence of disorder for Māori, Pacific and Others was 23.9%, 19.2% and 20.3% respectively). Both Māori and Pacific people were less likely than the Other group to access treatment when severity was taken into account (9.4%, 8.0% and 12.6% respectively).

2.1 Introduction

In 1977 the then United States (US) first lady, Rosalynn Carter, was authorised to assemble a mental health commission. She asked how many people had mental disorders, who was affected and what treatment they received (Freedman 1991). No comprehensive information was available, and to fill this gap the Epidemiologic Catchment Area Study (ECA) was set up with fieldwork conducted in the early 1980s. Chapter 1 describes how the ECA (Myers et al 1984; Robins et al 1984; Robins and Regier 1991) and subsequent community surveys in the US (Kessler et al 2004b;

Kessler et al 1994; Kessler and Merikangas 2004) and in other countries (Demyttenaere et al 2004; Weissman et al 1996; WHO International Consortium of Psychiatric Epidemiology 2000) have attempted to answer the questions asked by Rosalynn Carter. They have ascertained the prevalence of mental disorder, the correlates of disorder and the percentage of people with disorders who have received treatment.

In these surveys, as in clinical practice, a history of disorder is taken in addition to an assessment of current state. An important difference is that in clinical practice patients turn up when they are unwell. In community surveys interviewers turn up at a time dependent on the roll-out of the survey, not because of the potential participant's current state. Consequently in many interview schedules (Robins et al 1981; Robins et al 1988) more emphasis is placed on a history of disorder and less on current state than in clinical practice. For each disorder, participants are asked if they have ever experienced symptoms, and then about onset and recency, namely when they first experienced symptoms and when they last experienced symptoms. Reports of recency are used to calculate period prevalences, which are required to understand the course of disorder and the possible need for treatment within certain periods. Mental disorders appear at different times throughout the lifespan. Some disorders often persist for years, some disappear completely and others are recurrent. Disorders differ across individuals in severity, chronicity and recurrence. To capture this variable course it is necessary to report period prevalences: lifetime prevalence, 12-month prevalence and, sometimes, six-month prevalence or one-month prevalence.

As described in chapter 1, lifetime prevalence is the percentage of the population with a disorder at any time in their life until the time of interview (see 1.10.4). It is not lifetime risk, which is the risk of disorder over a lifetime up to some particular age such as 75 years. For surveys using the Diagnostic Interview Schedule (Robins et al 1981), the CIDI (Robins et al 1988) and the WMH-CIDI/CIDI 3.0 (Kessler and Ustun 2004) used in New Zealand, 12-month prevalence is the percentage who have ever met criteria for disorder and who have reported an episode or symptoms in the past 12 months. One-month prevalence is defined similarly. Full criteria for disorder may not have been met within the restricted period in these interviews. While one-month prevalence is the least subject to recall problems, it is imprecise. Even in large surveys the small numbers of participants with current disorder mean upper confidence limits for disorders may be several times greater than lower confidence limits.

The ECA found that 32% of American adults had met criteria in their lifetime before interview for one or more of the DSM-III mental disorders assessed and 20% had an active disorder (12-month prevalence) (Robins et al 1991). These high prevalences were accompanied by low rates of inpatient or outpatient treatment: only 21% of those with disorder in the last six months received treatment in that time. Results like these have led to debates about definitions of disorder and the need for treatment. DSM-IV (APA 1994) has added a clinical significance criterion to many disorders, requiring clinically significant distress or impairment in functioning for diagnosis. Some healthcare professionals such as Mechanic (2003) have argued that meeting criteria for disorder does not itself necessitate treatment; many cases may be mild, self-limiting and non-disabling, as often occurs for instance with viral infections. Hence it is essential that severity is assessed in order to better understand the extent of unmet need. The WMH-CIDI/CIDI 3.0 (Kessler and Ustun 2004) has extended the assessment of impairment and the World Mental Health (WMH) Survey Initiative has produced a composite measure across disorders to classify the severity of a case (APA 1994; Demyttenaere et al 2004; Kessler et al 2005c).

This chapter presents results for Te Rau Hinengaro: The New Zealand Mental Health Survey for:

- period prevalences (see 2.2)
- the distribution of severity and the percentage with a mental health visit in the past 12 months (see 2.3)
- correlates of the prevalence of any disorder, serious disorder and a mental health visit in the past 12 months (see 2.4)
- ethnic comparisons (see 2.5).

It serves as a summary of much of the rest of this report. Other chapters go into much more detail. For example, in this chapter disorders are aggregated across all disorders assessed, or at least across major disorder groups such as mood disorders. In contrast, in chapters 3 and 4 results are presented for each disorder separately. Chapter 8 investigates the different sectors people visited for treatment, the numbers of visits they made and self-reported outcomes; this chapter condenses all this down to whether or not someone made a visit in the healthcare sector for a mental health problem.

2.2 Period prevalences

The period prevalences shown in Table 2.1 are based on ever meeting criteria for disorder (lifetime prevalence) and having symptoms or an episode within the relevant period. A full list of the disorders assessed in New Zealand is given in chapters 3, 4 and 12 (see 12.4.1). There were seven anxiety disorders, including phobias, panic disorder and post-traumatic stress disorder, and three mood disorders, including major depressive disorder. Substance use disorders included abuse of or dependence on alcohol or other drugs. The number of disorders is a count of individual disorders such as social phobia, not a count of disorder groups.

Table 2.1: Lifetime, 12-month and one-month prevalences of mental disorders

	Lifetime prevalence % (95% CI)	Twelve-month prevalence % (95% CI)	One-month prevalence % (95% CI)
Disorder group			
Any anxiety disorder[2]	24.9 (23.6, 26.2)	14.8 (13.9, 15.7)	9.3 (8.6, 10.1)
Any mood disorder	20.2 (19.3, 21.1)	7.9 (7.3, 8.7)	2.3 (2.1, 2.7)
Any substance use disorder	12.3 (11.6, 13.1)	3.5 (3.0, 4.0)	1.5 (1.3, 1.8)
Any eating disorder[2]	1.7 (1.5, 2.1)	0.5 (0.3, 0.6)	0.2 (0.1, 0.4)
Individual disorders[1,2,3]			
No disorder	60.5 (58.8, 62.1)	79.3 (78.1, 80.5)	88.4 (87.6, 89.3)
One disorder	20.0 (18.8, 21.3)	13.0 (12.1, 14.0)	8.5 (7.8, 9.2)
Two disorders	9.9 (9.2, 10.6)	4.4 (3.9, 4.8)	2.0 (1.7, 2.3)
Three or more disorders	9.7 (9.0, 10.4)	3.3 (2.9, 3.7)	1.1 (0.9, 1.3)
Any disorder[2]	39.5 (37.9, 41.2)	20.7 (19.5, 21.9)	11.6 (10.7, 12.4)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Assessed in the subsample who did the long form interview, see 12.4.2.

3 See 12.4.1 (marijuana diagnoses are subsumed under drug diagnoses).

Table 2.1 shows how common it is for New Zealanders to experience mental disorder: 39.5% reported sufficient symptoms to meet criteria for at least one disorder at some time in their lives before interview. It is likely that mild episodes, or those a long time ago, may have been completely or partially forgotten, as Andrews and colleagues (1999b) and Wells and Horwood (2004) have shown for depression. Therefore, the lifetime prevalences in Table 2.1 will, to some extent, be underestimated. This may also have affected other prevalences; participants who had previously met criteria but who were not diagnosed because they had failed to recall enough symptoms, would not have been counted for other period prevalences even though they reported some symptoms.

The 12-month prevalence of any disorder was 20.7%, which implies that about half of those who have ever experienced disorder no longer had disorder in the past 12 months. Sometimes the ratio of 12-month to lifetime prevalence is called the non-recovery rate (Oakley Browne et al 1989). By this measure anxiety disorders, with a non-recovery rate of 59.4%, are seen to be more persistent than mood or substance use disorders (39.1% and 28.5%).

Overall the one-month prevalence of any disorder was 11.6%. Comparison of one-month and 12-month prevalences shows the highest ratio for anxiety disorders, which again implies greater chronicity for these disorders than for mood disorders, which are mostly episodic, or for substance use disorders. The one-month prevalence is the closest estimate of point prevalence. In interpreting this, though, it must be remembered that participants can delay interviews and may do so until they are feeling better. In addition, refusal rates may be higher in those with current disorder.

Comorbidity is also common. Of those who had ever experienced disorder 49.4% (almost half) had met criteria for more than one disorder at some time before interview. Even in the last year 37.1% of those with disorder had more than one disorder. Chapter 5 provides a more extensive report on comorbidity between mental disorders.

2.3 Severity, days out of role and mental health visits in the past 12 months

Participants who experienced any disorder in the last 12 months were classified into three levels of severity for that period: serious, moderate or mild. This composite measure of severity was based on all disorders experienced by an individual in that period and took account of the impairment associated with those disorders, and the presence of bipolar I disorder or substance dependence or a suicide attempt in conjunction with any disorder. An extended description of the classification is given in 12.12.3. The classification used in New Zealand was that derived for the WMH Survey Initiative (Demyttenaere et al 2004). The only change made was that in New Zealand the definition of serious disorder for substance dependence was that developed for the US WMH survey, the National Comorbidity Survey Replication (NCS-R) (Kessler et al 2005c). Not all WMH countries had collected the impairment data needed for the NCS-R definition, which required substantial impairment in the past 12 months, not just physiological symptoms ever. In New Zealand this modification reduced the proportion whose substance dependence was classified as serious from 90.4% to 25.7%, leaving the remainder with dependence classified as moderate. Any composite measure of severity is slightly arbitrary, even when based on extensive analyses, but without such a measure it is not possible to relate treatment access to severity. As noted in chapter 1 (see 1.10.7) this classification of 12-month severity is somewhat different from that sometimes used in policy and for resource allocation, which has been based on international estimates of the one-month prevalences of certain disorders.

For each disorder, other than alcohol and drug disorders, individuals with disorder were asked how many days out of 365 in the past 12 months they were totally unable to carry out their normal daily activities because of that disorder. A conservative overall estimate for individuals with more than one disorder was obtained by using the highest number of days out of role reported for any single disorder.

A mental health visit is defined as a visit to a professional for help with problems about emotions, nerves, mental health or use of alcohol or drugs. It is a visit for a mental health problem, not just a visit to a mental health professional. Mental health visits within the past 12 months were asked about within each disorder section and in the services section of the interview. The list of professionals provided to participants included mental health professionals (eg, psychiatrist, psychologist, other mental health worker), general medical professionals (eg, general practitioner, other doctor, general nurse, physiotherapist), religious counsellors (eg, minister, tohunga) and traditional and alternative healers (eg, herbalist, homeopath). In this chapter mental health visits are reported only for the healthcare sector, including both the mental health sector and the general healthcare sector. A full breakdown of professionals contacted is given in chapter 8.

Table 2.2 shows the prevalence of the levels of severity in the past 12 months aggregated across all disorders, the mean days out of role for serious, moderate and mild cases, and the percentage with a mental health visit in the healthcare sector.
Of those with disorder in the past 12 months, 22.7% were classified as serious, 45.6% as moderate and 31.7% as mild. Therefore, the prevalences of serious, moderate and mild disorder were 4.7%, 9.4% and 6.6%. As expected, severity was strongly related to days out of role. For example, those with serious disorder had on average nearly two months completely out of role in the past 12 months (60.1 days), whereas those with mild disorder were seldom totally unable to carry out their normal activities (1.4 days).

The percentage who made a mental health visit to the healthcare sector varied appropriately with severity from 58.0% for those classified as serious, to 36.5% for those classified as moderate, 18.5% for those classified as mild, and 5.7% for those without disorder in the last 12 months. Nonetheless, 42.0% of those with serious disorder did not make any mental health visits to the health sector.

Table 2.2: Severity, days out of role and percentage with a mental health visit in the past 12 months[1]

	Twelve-month disorder[2] (95% CI)			
	Serious	**Moderate**	**Mild**	**None**
Prevalence (%)	4.7 (4.2, 5.2)	9.4 (8.7, 10.2)	6.6 (6.0, 7.2)	79.3 (78.1, 80.5)
Mean days out of role due to disorder	60.1 (50.9, 69.3)	10.3 (8.2, 12.4)	1.4 (0.5, 2.4)	NA
Percentage with at least one mental health visit in the healthcare sector (%)	58.0 (53.3, 62.6)	36.5 (32.9, 40.4)	18.5 (15.3, 22.3)	5.7 (5.0, 6.6)

1 Assessed in the subsample who did the long form interview, see 12.4.2.

2 DSM-IV CIDI 3.0 disorder with hierarchy, see 12.4.1. For severity, see 2.3 and 12.12.3.

While only a small proportion of those without disorder made mental health visits to the health sector (5.7%), because they are 79.3% of the population they constituted 38.2% of those reaching this sector for help with mental health problems. Part of this may be explained by other disorders not included in our version of the interview such as impulse control disorders other than bulimia or adult separation disorder. In addition, it is likely that many of those apparently without disorder who made mental health visits were subthreshold, had residual symptoms or were symptom free while on prophylactic treatment such as a mood stabiliser for bipolar disorder or antidepressants prescribed following recurrent depression.

It is possible some of those apparently without disorder who made mental health visits had schizophrenia or other non-affective psychoses. These disorders are extremely important but are not diagnosed in the WMH core assessment because previous validation studies have shown that they are markedly overestimated in lay-administered interviews like the CIDI (Demyttenaere et al 2004). However, these studies have also shown that nearly all participants with clinician-diagnosed non-affective psychoses meet criteria for CIDI mood, anxiety or substance use disorders, so they are still diagnosed as cases even though non-affective psychoses have not been assessed sufficiently to produce a diagnosis.

Both the probability of receiving treatment for any level of severity and the proportion of treatment users who are at each level of severity provide information on how treatment resources are utilised. When many people apparently without disorder are treated whereas 42.0% of those with serious disorder are not, this suggests a misallocation of resources or barriers to care. These are investigated briefly in the next section on correlates of disorder, severity and mental health visits, with further results in chapter 8.

2.4 Correlates of disorder, severity and treatment visits in the past 12 months

To allocate resources in relation to need it is necessary to know what groups within New Zealand experience higher or lower rates of disorder. It is also important to consider the distribution of severity and to discover which groups are reaching treatment, taking account of severity. Table 2.3 describes 12-month prevalence, the prevalence of serious disorder and the percentage with a mental health visit in the healthcare sector, adjusted for severity. It shows associations, not causes.

Many surveys have shown that the prevalence of disorder is higher, the lower the income, or education, or any other measure of social advantage. Psychiatric epidemiology has a long history of attempts to distinguish between social causation and social selection explanations of these socioeconomic gradients (Kohn et al 1998). To summarise, there is evidence for both processes. More difficult environments produce higher rates of disorder, but disorder, particularly severe disorder, interferes with usual life course and opportunities and can result in low levels of education, employment and income. As a cross-sectional study this survey adds little to this debate. There are limited data on family background and reports of onset of disorder are retrospective. Publications from the two internationally well-known longitudinal birth cohort studies in New Zealand, the Dunedin Multidisciplinary Health and Development Study (Silva 1990) (http://dunedinstudy.otago.ac.nz/) and the Christchurch Health and Development Study (Fergusson and Horwood 2001) (http://www.chmeds.ac.nz/research/chds/), provide much more information on causal pathways (see 1.8.1 and 1.8.2).

All four individual-level correlates in Table 2.3 were significantly associated with 12-month disorder ($p \leq .002$) and the same pattern was seen for serious 12-month disorder ($p < .001$). Females were more likely than males to experience any 12-month disorder (24.0% compared with 17.1%), and had a higher prevalence of serious disorder (5.4% compared with 3.9%). However, this finding is not consistent across disorder groups. As shown in chapter 3 (see Table 3.1) females had higher prevalences of anxiety and mood disorders but a lower prevalence of substance use disorders. There was a clear gradient for age from the group aged 16–24, who had the highest prevalence of any disorder and serious disorder, down to the oldest age group (aged 65 years and over), who had the lowest prevalences. People with the highest level of educational qualification had lower prevalences of disorder. Twelve-month disorder and serious disorder were more common in lower income groups. Of the area-level characteristics, deprivation showed the clearest association with prevalence: those living in more deprived areas had higher prevalences ($p < .0001$). People living in secondary centres and rural areas (the Other region) had a lower prevalence of any disorder than those in main or minor centres ($p = .008$ overall) and a similar non-significant pattern for serious disorder (p = .3 overall). The Central region had lower prevalences of disorder than the other regions (p = .02 for any disorder, p = .05 for serious disorder over all regions).

Table 2.3: Sociodemographic correlates and 12-month prevalence of any disorder, severity and mental health visits

Correlate	Twelve-month prevalence of any disorder[1,2] % (95% CI)	Prevalence of serious disorder[1,2] % (95% CI)	Percentage with a mental health visit to the healthcare sector, adjusted for severity[2,3] % (95% CI)
Individual characteristics			
Sex			
Male	17.1 (15.5, 18.8)	3.9 (3.3, 4.6)	10.1 (8.9, 11.3)
Female	24.0 (22.4, 25.6)	5.4 (4.7, 6.1)	13.4 (12.2, 14.6)
Age group (years)			
16–24	28.6 (25.1, 32.3)	7.2 (5.7, 9.0)	9.9 (7.9, 11.8)
25–44	25.1 (23.2, 27.1)	5.8 (5.0, 6.6)	12.1 (10.8, 13.4)
45–64	17.4 (15.7, 19.2)	3.8 (3.1, 4.5)	13.8 (12.3, 15.3)
65 and over	7.1 (5.7, 8.8)	1.1 (0.5, 2.0)	9.9 (7.8, 12.1)
Educational qualifications[4]			
None	21.9 (19.7, 24.3)	6.1 (5.1, 7.2)	11.2 (9.6, 12.8)
School or post-school only	22.7 (20.8, 24.8)	5.5 (4.7, 6.4)	11.2 (9.9, 12.4)
Both school and post-school	18.5 (16.8, 20.2)	3.4 (2.9, 4.1)	12.9 (11.6, 14.3)
Equivalised household income[4]			
Under half of median	27.6 (25.0, 30.4)	8.1 (6.9, 9.4)	11.5 (10.2, 12.8)
Half median to median	20.7 (18.8, 22.7)	5.1 (4.3, 6.1)	11.5 (10.1, 12.9)
Median to one and a half times median	19.6 (17.4, 22.0)	3.7 (2.9, 4.6)	12.4 (10.5, 14.4)
One and a half times median and over	16.6 (14.7, 18.8)	2.8 (2.1, 3.6)	12.4 (10.6, 14.2)
Area characteristics			
NZDep2001 deciles[4]			
9 and 10 most deprived	26.3 (23.7, 29.0)	6.9 (5.9, 8.1)	10.8 (9.3, 12.2)
7 and 8	21.4 (18.6, 24.5)	5.2 (4.1, 6.5)	12.0 (10.1, 13.9)
5 and 6	21.5 (19.0, 24.1)	5.1 (4.0, 6.3)	11.9 (10.1, 13.8)
3 and 4	19.4 (17.0, 22.1)	3.5 (2.6, 4.5)	14.0 (11.7, 16.3)
1 and 2 least deprived	15.7 (13.6, 18.0)	3.2 (2.4, 4.2)	11.0 (9.1, 12.9)

Correlate	Twelve-month prevalence of any disorder[1,2] % (95% CI)	Prevalence of serious disorder[1,2] % (95% CI)	Percentage with a mental health visit to the healthcare sector, adjusted for severity[2,3] % (95% CI)
Urbanicity[4]			
Main	21.5 (20.1, 23.0)	4.9 (4.3, 5.5)	11.9 (10.9, 13.0)
Secondary	15.2 (12.2, 18.8)	3.8 (2.2, 6.0)	10.8 (8.3, 13.3)
Minor	21.1 (17.6, 25.1)	4.9 (3.3, 7.1)	11.9 (9.5, 14.3)
Other (rural)	18.2 (15.5, 21.2)	3.8 (2.6, 5.5)	12.5 (10.1, 14.8)
Region[4]			
North	21.5 (19.5, 23.7)	4.8 (4.1, 5.7)	11.6 (10.1, 13.1)
Midland	21.8 (19.5, 24.4)	5.3 (4.3, 6.5)	11.2 (9.6, 12.9)
Central	17.2 (15.2, 19.5)	3.5 (2.7, 4.5)	11.5 (9.7, 13.2)
South	21.5 (19.1, 24.1)	5.0 (4.0, 6.2)	13.3 (11.4, 15.3)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.
2 Assessed in the subsample who did the long form interview, see 12.4.2.
3 Standardised to the distribution of severity across the population, see 12.10.2.
4 Sociodemographic correlates are defined in 12.12.1.

The percentage with a mental health visit in the healthcare sector in the past 12 months is reported for the whole population (Table 2.3), adjusted for severity across the full range of serious, moderate, mild and no disorder (see 12.10.2). Adjustment is used to ensure comparisons are made across comparable levels of need. The advantage of including the whole population is that it includes those apparently without disorder who reported a mental health visit (Table 2.2). However, because 79.3% did not have disorder, and just 5.7% of these contacted treatment, only small differences in the percentage making a mental health visit can be seen for sociodemographic correlates across the whole population.

Nonetheless, the pattern seen after adjustment for severity is often different from that for prevalence. Females were more likely than males to make a mental health visit ($p < .0001$), even taking account of their higher prevalence of disorder. However, after adjustment for severity the youngest and oldest age groups were equally likely to make a mental health visit, in contrast to the large differences in prevalences for these two age groups, whereas the group aged 45–64 had the highest percentage making a mental health visit ($p = .002$ overall). Those with the highest level of educational qualifications were only slightly and non-significantly more likely to make a mental health visit ($p = .07$ overall). Similarly, there was only a small non-significant trend for those with more income to be more likely to make a mental health visit (p = .7). The pattern for the small area descriptor of socioeconomic deprivation (NZDep2001) was not significant (p = .1) and without the gradient seen for prevalences; instead the most deprived and the least deprived quintiles had almost the same percentage making a mental health visit, which was slightly lower than for other quintiles. There were no significant differences for urbanicity or region (p = .8 and p = .3).

In summary, with the exception of the results for males and females, the patterns seen across sociodemographic correlates for prevalence differed from those seen for mental health visits.

2.5 Ethnic comparisons of disorder, severity and mental health visits in the past 12 months

To compare ethnic groups a sequence of comparisons is presented. This sequence is used throughout the report. It is described below for comparisons of prevalence but also applies to comparisons of the percentage making a mental health visit. A more technical explanation is given in chapter 12 (see 12.10.2).

The first comparison considers the prevalence of disorder, without any form of adjustment. This shows the burden for each ethnic group. The subsequent comparisons take account of various sociodemographic correlates of disorder.

The second set of comparisons takes account of age and sex. This is important for comparisons of prevalence. As shown in Table 2.3, the prevalence of mental disorder was higher in younger age groups. Prevalence also varied with sex, with females being more likely to experience disorder than males. The three main ethnic groups differ little in terms of sex ratio (see Table 12.2), but both the Māori and Pacific populations are considerably younger than the Other population. By adjustment for different age and sex distributions it is possible to see if any ethnic differences in prevalence still remain, unaccounted for by these correlates.

There are also socioeconomic correlates of prevalence: disorder was more common in people with less education and less income and who lived in more deprived areas (Table 2.3). Māori and Pacific people are worse off on all of these correlates (Table 12.2). Therefore, it is informative to see if differences in prevalence remain after taking account of socioeconomic correlates. In other words, are some ethnic groups experiencing more mental health problems even allowing for age, sex and socioeconomic correlates? Is a Māori or Pacific person more or less likely to experience disorder than a person from the Other group, even if they are of the same age and sex and have the same level of education and income? Socioeconomic correlates are defined in chapter 12 (see 12.12.1). Note that the socioeconomic correlates used are current; histories of advantage or disadvantage are not known and are not taken into account.

Each type of comparison can be thought of as answering a different question.

- Unadjusted comparisons answer the question, 'Do the ethnic groups differ in prevalence?'.
- Age- and sex-adjusted comparisons answer the question, 'Would the prevalence differ across the ethnic groups if age and sex distributions were the same for all three groups?'.
- Fully adjusted comparisons answer the question, 'Would prevalences differ if all three groups had the same distributions of age, sex, education and household income?'.

In Table 2.4, as in Table 2.3, the prevalence of any disorder is reported, then the prevalence of serious disorder, then the percentage with a mental health visit in the healthcare sector, adjusted for severity.

Māori are more likely than Pacific people to experience any disorder ($p = .02$) and serious disorder ($p = .004$), and both ethnic groups have higher prevalences than the remainder of the population, the Other group ($p < .0001$ for Māori, $p \leq .03$ for Pacific). Some of these differences arise because of the youthfulness of the Māori and Pacific populations. When educational qualifications and equivalised household income are also taken into account Māori still have the highest prevalences, but these have been reduced by adjustment: 29.5% reduced to 23.9% for the prevalence of any disorder and 8.7% reduced to 6.1% for the prevalence of serious disorder, although these are still significantly above the prevalences for the Other group ($p = .01$ and $p = .003$) and for Pacific people ($p = .01$ and $p = .002$). Pacific people have similar prevalences to those for the Other group once sociodemographic levels are taken into account ($p = .5$ and $p = .5$).

Māori and Pacific people are both significantly less likely than the Other population to make a mental health visit to the health sector, after adjustment for severity ($p < .0004$). This finding holds whether or not there is adjustment for sociodemographic correlates. These ethnicity differences are in contrast to the small or non-existent differences found with the sociodemographic correlates.

Simply comparing the percentage making a mental health visit without considering severity ignores the need for help. Overall Māori and the Other population are equally likely to make a mental health visit (12.2% compared with 12.1%) but Māori have a higher prevalence of disorder so have more need for treatment. Pacific people are the least likely to make a mental health visit (8.8%) and have higher prevalence than the Other population. Only analysis of those with disorder, as in chapter 8, or with adjustment for severity, as in Table 2.4, relates the percentage with mental health visits to the prevalence of disorder.

Table 2.4: Ethnicity and 12-month prevalence of any disorder, severity and mental health visits

Prioritised ethnicity[1]	**Unadjusted** **%** **(95% CI)**	**Adjusted for age and sex** **%** **(95% CI)**	**Adjusted for age, sex, educational qualifications**[1] **and equivalised household income**[1] **%** **(95% CI)**
Twelve-month prevalence of any disorder[2,3]			
Māori	29.5 (26.6, 32.4)	26.4 (23.7, 29.0)	23.9 (21.3, 26.4)
Pacific	24.4 (21.2, 27.6)	21.8 (18.8, 24.7)	19.2 (16.4, 22.1)
Other	19.3 (18.0, 20.6)	19.8 (18.4, 21.1)	20.3 (18.9, 21.6)
Prevalence of serious disorder			
Māori	8.7 (7.4, 10.0)	7.6 (6.4, 8.8)	6.1 (5.2, 7.1)
Pacific	6.0 (4.7, 7.4)	5.3 (4.1, 6.5)	4.1 (3.1, 5.0)
Other	4.1 (3.6, 4.6)	4.2 (3.7, 4.7)	4.5 (3.9, 5.0)
Percentage with a mental health visit to the healthcare sector, adjusted for severity[4]			
Māori	9.3 (7.9, 10.7)	9.3 (7.9, 10.7)	9.4 (7.9, 10.8)
Pacific	7.8 (6.1, 9.5)	7.9 (6.3, 9.6)	8.0 (6.3, 9.8)
Other	12.6 (11.5, 13.7)	12.6 (11.5, 13.7)	12.6 (11.5, 13.6)

1 Sociodemographic correlates are defined in 12.12.1.

2 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

3 Assessed in the subsample who did the long form interview, see 12.4.2.

4 Standardised to the distribution of severity across the population, see 12.10.2.

2.6 Conclusions

A 2004 paper on the prevalence and severity of mental disorders in the first 15 surveys in the WMH Survey Initiative project (Demyttenaere et al 2004) showed very marked differences in prevalence across countries, differences in the distribution of severity and very marked differences in the percentage treated. Nonetheless, in all countries more severe disorder was more likely to be treated. In comparison with these developed and underdeveloped countries New Zealand has high prevalences for anxiety, mood and substance use disorders, which are exceeded only by the US for anxiety and mood, and the Ukraine and the US for substance use disorders.

It is difficult to compare the distribution of severity across countries because not all disorders were used in every country. In addition, the surveys in Europe, which were the first to be carried out, were not able to produce diagnoses of bipolar disorder or drug dependence, which may partially account for the high proportion of cases reported to be mild in those countries.

The New Zealand results are broadly similar to those for other developed countries for the percentage of those with serious disorder making a mental health visit and for the percentage of those with no disorder making a mental health visit. People with serious disorder often do not make treatment contact, whereas many without disorder do so.

The correlates of disorder in New Zealand are those commonly reported in the literature (Kohn et al 1998). Younger people and those with more disadvantage are more likely to experience disorder. However, the pattern of service use is quite different from that for prevalence, in as much as this can be measured by the percentage making at least one mental health visit. Differences in the percentage making a mental health visit are small after severity is accounted for. This suggests fairly equitable access across different socioeconomic groups, although women and the middle aged are more likely to seek help.

Māori and Pacific people had higher prevalences of disorder and serious disorder in the past 12 months than the Other group, but much of this was accounted for by sociodemographic differences, particularly for Pacific people. Considering their need for treatment, Māori and Pacific people were less likely to seek help for their mental health problems. Ethnicity is related to access to treatment, whereas socioeconomic correlates are not.

3 Twelve-month Prevalence

Key results

- Anxiety disorders were the most common group of disorders in the past 12 months (14.8%), followed by mood disorders (7.9%), then substance use disorders (3.5%), with eating disorders the least common group (0.5%). Within each group the prevalence of individual disorders varied several-fold.
- Nearly all disorders were most common in the group aged 16–24 and prevalence declined across older age groups. This trend was most marked for substance use disorders. Anxiety disorders and major depressive disorder were more common in females, dysthymia and bipolar disorder occurred equally for females and males, and there was a clear male predominance for substance use disorders.
- Specific phobia produced the least interference with life, and mood disorders produced the most interference. Case severity, which included the impact of a disorder and comorbid disorders, was predominantly serious or moderate for all disorders.
- Unadjusted prevalences, which show the burden of disorder, were generally highest for Māori, intermediate for Pacific people and lowest for the Other composite ethnic group. After adjustment for age, sex, educational qualifications and equivalised household income the results were as follows: there was no difference across the ethnic groups in the prevalence of anxiety disorders; Pacific people had the lowest prevalence of major depressive disorder (3.5%) while Māori and Others had very similar prevalences (5.7% and 5.8%); Māori and Pacific people had a higher prevalence of bipolar disorder (3.4% and 2.7%) than Others (1.9%); and Māori (6.0%) had a higher prevalence of substance use disorders than Pacific people (3.2%) or Others (3.0%).

3.1 Introduction

This chapter reports on 12-month prevalence for individual disorders and disorder groups. The 12-month prevalence of a disorder is the proportion of the population who have ever met criteria for a disorder and who have experienced symptoms or an episode in the past 12 months (see 1.10.3 and 1.10.4). This is the period prevalence most commonly reported in community surveys (Bijl et al 2003; Demyttenaere et al 2004; Robins and Regier 1991). It is useful for health service planning. It also provides a reasonable balance between recall requirements and the precision of prevalence estimates (see 2.1). This is particularly important for estimating the prevalence of individual disorders, some of which are uncommon.

Interference with life and severity are also reported for individual disorders. Secondary analyses (Narrow et al 2002) of earlier surveys have suggested that many 12-month cases are mild. Hence in the WMH-CIDI/CIDI 3.0 (Kessler and Ustun 2004), scales were added to each disorder to measure impact in the past 12 months. A composite measure of severity was developed to take account of all disorders experienced in that period. Therefore, in New Zealand both interference with life and severity were measured. Interference with life is reported for each disorder itself from answers to questions about interference with home responsibilities, work or study, close relationships and social life (see 12.12.2). In contrast, severity is defined for an individual, not a disorder (see 2.3 and 12.12.3). When severity is reported for a particular disorder it shows the overall levels of severity of people with that disorder, including the impact of any comorbid disorders. It indicates the severity of the 'cases', not the severity of the disorder.

Age and sex differences in prevalences of individual disorders are reported. Twelve-month prevalence has been found to decrease with age (Kessler et al 1994; Myers et al 1984). While the overall rates of disorder are often similar for men and women, this depends on what disorders are assessed. Men have been found to have higher prevalence of substance use disorders, whereas women have higher prevalence of depression and anxiety (Kohn et al 1998).

Ethnic differences, at least in the United States (US), have been somewhat inconsistent across surveys (Breslau et al 2005; Kessler et al 1994). Non-Hispanic Blacks were found to have lower rates of most disorders than Non-Hispanic Whites, which would not be expected from their socioeconomic position. However, the results for Hispanics were different across the surveys (the Epidemiologic Catchment Area Study compared with the National Comorbidity Survey). In spite of these inconsistencies it is clear that disadvantaged ethnic minorities do not necessarily have higher rates of disorder. In this chapter ethnic comparisons are reported for disorder groups (anxiety disorders, mood disorders and substance use disorders) without adjustment, with adjustment for age and sex, and with adjustment for age, sex, educational qualifications and equivalised household income. In addition, ethnic differences are reported for major depressive disorder and bipolar disorder separately because of the different patterns shown for these two mood disorders.

This chapter reports:

- 12-month prevalence overall and by age and by sex (see 3.2)
- 12-month prevalence and interference with life (see 3.3)
- 12-month prevalence and severity (see 3.4)

- 12-month prevalence and ethnicity (see 3.5)
- comparisons with other surveys (see 3.6).

3.2 Twelve-month prevalence overall and by age and by sex

3.2.1 Twelve-month prevalence overall

Table 3.1 shows that anxiety disorders (14.8%) were the most common disorder group, followed by mood disorders (8.0%) and substance use disorders (3.5%), with a low prevalence of eating disorders (0.5%). The prevalence of individual disorders ranged from 7.3% for specific phobia to less than 0.1% for anorexia and varied several-fold within each disorder group.

The most common anxiety disorders were specific phobia (7.3%) and social phobia (5.1%). Agoraphobia without panic and obsessive–compulsive disorder (OCD) were the least common (0.6%).

Major depressive disorder was the most common mood disorder (5.7%). A broad definition of bipolar disorder was used (see 12.4.1). The diagnosis of bipolar disorder was made on the basis of mania, hypomania or depression ever experienced: bipolar I disorder required full criteria for mania to have been met at some time; bipolar II disorder required hypomania and major depression. Bipolar subthreshold included everyone else who had met criteria for hypomania without major depression. Bipolar disorder in the past 12 months required an episode of mania, hypomania or depression in that period. The 12-month prevalence of bipolar disorder of 2.2% can be subdivided into bipolar I (0.6%; 0.5, 0.8), bipolar II (0.4%, 0.3, 0.6), and subthreshold (1.1%, 0.9, 1.4).

Alcohol disorders were more common than drug disorders. Alcohol abuse (2.6%) was 2.3 times more prevalent than drug abuse (1.2%) and alcohol dependence (1.3%) was 1.8 times more common than drug dependence (0.7%).

Expressing the prevalence of disorder as a percentage of users provides a different perspective. Alcohol was used in the past 12 months by 79.1% and drugs by 13.7%. Among those who drank alcohol in the past 12 months, 3.3% had alcohol abuse and 1.6% had dependence, whereas 8.1% of those who used drugs in that period had drug abuse and 5.0% had drug dependence. Drug users were much more likely to experience disorder than alcohol users, but alcohol caused more disorder in the population because of its more widespread use.

Drug users tended to be young and male, both characteristics associated with abuse and dependence of any substance. Everyone who used drugs in the past 12 months also used alcohol, and these drug users experienced more alcohol abuse and dependence (12.7%, 6.5%) than drug abuse and dependence (8.1%, 5.0%). Therefore, these results show that alcohol caused more disorder than did drugs both in the overall population and in the subpopulation of drug users.

The prevalence of marijuana abuse and dependence was a little below that for drug disorders, indicating that about 0.4% to 0.5% of the population had experienced drug disorders without a marijuana disorder. Those with a marijuana disorder who also used other drugs may or may not have met criteria for drug disorder because of their use of other drugs as well as their use of marijuana; all that is known is that they were positive for a drug diagnosis in general and for marijuana when asked about symptoms due specifically to marijuana. Among those who used only marijuana in the past 12 months, 6.8% had marijuana abuse and 3.6% had marijuana dependence.

The prevalence of some disorders may have been underestimated. For alcohol and separately for drugs, participants who did not report ever experiencing any symptom of abuse were not asked dependence questions. A study by Hasin and Grant (2004) suggests this will have resulted in underestimation. In 2005 the CIDI 3.0 was revised because of concern about underestimation of OCD (WMH, personal communication). The New Zealand interview was before this revision. The observed prevalence of anorexia may have been particularly affected by refusal to participate or disclose. In addition, the recency questions asked about when the participant was last at their lowest weight and had problems. Someone currently at low weight with problems, but not at their lowest weight, would not have been counted for 12-month prevalence.

Table 3.1: Twelve-month prevalence of mental disorders,[1] overall and by age and by sex

Disorder groups	Total % (95% CI)	Age group (years) % (95% CI)				Sex % (95% CI)	
		16–24	25–44	45–64	65 and over	Male	Female
Anxiety disorders							
Panic disorder	1.7 (1.4, 1.9)	2.4 (1.7, 3.6)	2.1 (1.7, 2.6)	1.2 (0.9, 1.6)	0.6 (0.3, 1.1)	1.3 (1.0, 1.7)	2.0 (1.7, 2.4)
Agoraphobia without panic	0.6 (0.5, 0.8)	0.7 (0.3, 1.2)	0.8 (0.6, 1.2)	0.6 (0.3, 0.9)	0.2 (0.0, 0.5)	0.4 (0.3, 0.7)	0.8 (0.6, 1.1)
Specific phobia	7.3 (6.8, 7.8)	9.3 (7.6, 11.3)	8.3 (7.5, 9.3)	6.9 (6.0, 7.8)	3.2 (2.4, 4.3)	4.3 (3.7, 5.0)	10.1 (9.2, 10.9)
Social phobia	5.1 (4.6, 5.6)	7.0 (5.6, 8.8)	6.3 (5.6, 7.1)	4.2 (3.5, 5.1)	1.4 (1.0, 2.0)	4.5 (3.8, 5.2)	5.6 (5.0, 6.3)
Generalised anxiety disorder	2.0 (1.7, 2.3)	1.6 (0.9, 2.6)	2.8 (2.3, 3.4)	1.8 (1.3, 2.3)	1.0 (0.6, 1.5)	1.4 (1.1, 1.8)	2.6 (2.2, 3.1)
Post-traumatic stress disorder[2]	3.0 (2.6, 3.4)	2.4 (1.6, 3.6)	3.5 (2.9, 4.3)	3.2 (2.5, 4.1)	1.7 (0.8, 3.0)	1.6 (1.1, 2.2)	4.2 (3.6, 4.9)
Obsessive–compulsive disorder[2]	0.6 (0.4, 0.9)	1.5 (0.6, 3.0)	0.8 (0.5, 1.2)	0.2 (0.0, 0.4)	0.1 (0.0, 0.5)	0.7 (0.4, 1.2)	0.5 (0.3, 0.8)
Any anxiety disorder[2]	14.8 (13.9, 15.7)	17.7 (15.1, 20.6)	18.2 (16.6, 19.9)	13.2 (11.8, 14.7)	6.0 (4.7, 7.6)	10.7 (9.5, 12.0)	18.6 (17.3, 20.0)
Mood disorders							
Major depressive disorder	5.7 (5.2, 6.2)	8.7 (6.8, 11.0)	6.3 (5.6, 7.2)	5.2 (4.4, 6.2)	1.7 (1.2, 2.4)	4.2 (3.5, 5.0)	7.1 (6.3, 7.8)
Dysthymia	1.1 (0.9, 1.4)	1.5 (0.7, 2.6)	1.2 (0.9, 1.7)	1.2 (0.8, 1.6)	0.4 (0.2, 0.9)	1.0 (0.7, 1.4)	1.3 (1.0, 1.6)
Bipolar disorder	2.2 (1.9, 2.5)	3.9 (2.9, 5.4)	2.8 (2.3, 3.3)	1.4 (1.1, 1.9)	0.2 (0.1, 0.6)	2.1 (1.6, 2.6)	2.3 (1.9, 2.8)
Any mood disorder	8.0 (7.4, 8.6)	12.7 (10.4, 15.4)	9.2 (8.3, 10.2)	6.8 (5.9, 7.9)	2.0 (1.5, 2.7)	6.3 (5.5, 7.2)	9.5 (8.7, 10.5)
Substance use disorders							
Alcohol abuse	2.6 (2.3, 3.0)	7.1 (5.7, 8.9)	3.2 (2.6, 3.9)	0.8 (0.6, 1.2)	<0.1 (0.0, 0.2)	3.7 (3.1, 4.4)	1.6 (1.3, 2.1)
Alcohol dependence	1.3 (1.1, 1.5)	3.0 (2.2, 4.1)	1.7 (1.3, 2.2)	0.4 (0.2, 0.7)	<0.1 (0.0, 0.1)	1.7 (1.4, 2.2)	0.9 (0.6, 1.1)
Drug abuse	1.2 (0.9, 1.4)	3.8 (2.8, 5.1)	1.2 (0.9, 1.6)	0.2 (0.1, 0.5)	<0.1 (0.0, 0.1)	1.6 (1.2, 2.0)	0.8 (0.6, 1.1)
Drug dependence	0.7 (0.5, 0.9)	2.1 (1.3, 3.2)	0.9 (0.6, 1.2)	0.1 (0.0, 0.3)	<0.1 (0.0, 0.1)	1.1 (0.7, 1.5)	0.4 (0.2, 0.5)
Marijuana abuse[3]	0.9 (0.7, 1.1)	3.2 (2.3, 4.4)	0.9 (0.7, 1.3)	0.2 (0.1, 0.4)	<0.1 (0.0, 0.1)	1.3 (0.9, 1.7)	0.6 (0.4, 0.9)
Marijuana dependence[3]	0.5 (0.3, 0.6)	1.5 (0.9, 2.4)	0.6 (0.3, 0.9)	<0.1 (0.0, 0.2)	<0.1 (0.0, 0.1)	0.8 (0.5, 1.1)	0.2 (0.1, 0.3)
Any substance use disorder	3.5 (3.1, 4.0)	9.6 (7.9, 11.5)	4.2 (3.6, 5.0)	1.2 (0.9, 1.6)	<0.1 (0.0, 0.2)	5.0 (4.3, 5.8)	2.2 (1.8, 2.7)
Eating disorders							
Anorexia nervosa[2]	<0.1 (0.0, 0.1)	<0.1 (0.0, 0.3)	<0.1 (0.0, 0.2)	<0.1 (0.0, 0.1)	<0.1 (0.0, 0.3)	<0.1 (0.0, 0.1)	<0.1 (0.0, 0.2)
Bulimia[2]	0.4 (0.3, 0.6)	0.6 (0.2, 1.3)	0.7 (0.4, 1.0)	0.3 (0.1, 0.6)	0.1 (0.0, 0.5)	0.3 (0.1, 0.5)	0.6 (0.4, 0.9)
Any eating disorder[2]	0.5 (0.3, 0.6)	0.6 (0.2, 1.3)	0.7 (0.4, 1.1)	0.3 (0.1, 0.6)	0.1 (0.0, 0.5)	0.3 (0.1, 0.5)	0.6 (0.4, 0.9)

Disorder groups	Total % (95% CI)	Age group (years) % (95% CI)				Sex % (95% CI)	
		16–24	25–44	45–64	65 and over	Male	Female
Any disorder							
Any disorder[2]	20.7 (19.5, 21.9)	28.6 (25.1, 32.3)	25.1 (23.2, 27.1)	17.4 (15.7, 19.2)	7.1 (5.7, 8.8)	17.1 (15.5, 18.8)	24.0 (22.4, 25.6)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Assessed in the subsample who did the long form interview, see 12.4.2.

3 Those with marijuana disorder are a subgroup of those with drug use disorder. They may or may not have met criteria for abuse or dependence on other drugs.

3.2.2 Twelve-month prevalence, by age and by sex

Table 3.1 shows that the prevalence of any 12-month disorder declined across the age groups from 28.6% in the youngest age group to 7.1% in the oldest age group. It also shows that this pattern was seen within most individual disorders. The oldest age group always had the lowest prevalence.

For anxiety disorders the pattern of a monotonic decline was clear ($p < .0001$) for panic disorder, specific phobia, social phobia and OCD, with the youngest age group having prevalences about three times higher than those of the oldest age group. However, the prevalence of generalised anxiety disorder (GAD) was higher in the group aged 25–44 than in the youngest age group (2.8% compared with 1.6%; $p < .02$) and a similar trend was seen for post-traumatic stress disorder (PTSD) (3.5% compared with 2.4%; $p < .1$). Agoraphobia without panic differed little across the two youngest age groups (0.7%, 0.8%).

The prevalence of all three mood disorders also declined with age ($p < .002$ for all), with a three-fold higher prevalence in the youngest age group relative to the oldest for dysthymia, and a five-fold difference for major depressive disorder. For bipolar disorder there was a similar decline in prevalence with age. Bulimia was uncommon in all age groups but particularly in those aged 45 and over.

The 12-month prevalence of alcohol and drug disorders declined dramatically with age, with very few cases among those aged 65 and over ($p < .0001$ for all). For example, for alcohol abuse the prevalences were 7.1%, 3.2%, 0.8% and less than 0.1% across the four age groups. For dependence, the decline with age may be exaggerated because of the version of the CIDI interview used in New Zealand, which skipped dependence questions if there were never symptoms of abuse. Therefore, as reported lifetime abuse declined with age, older participants were less likely to be asked about dependence. For drug dependence, the decline with age must also reflect the lower proportions who had ever used drugs.

The overall prevalence of any 12-month disorder was higher for females than for males (24.0% compared with 17.1%; $p < .0001$). However, in contrast to age, where a fairly similar pattern was seen across disorders, sex predominance varied markedly across disorders.

For all anxiety disorders except OCD females had significantly higher prevalences than males. The ratio of prevalences was highest for specific phobia (10.1% compared with 4.3%; $p < .0001$) and PTSD (4.2% compared with 1.6%; $p < .0001$).

Within mood disorders two patterns of sex differences were found. Major depressive disorder was much more common for females than for males (7.1% compared with 4.2%; $p < .0001$), whereas there were no significant differences between females and males in the prevalence of dysthymia (1.3% compared with 1.0%; $p = .2$) or bipolar disorder (2.3% compared with 2.1%; $p = .5$). Bulimia showed a higher prevalence for females than for males (0.6% compared with 0.3%; $p = .02$).

For alcohol and drugs there was a clear and significant male predominance for abuse and dependence, with males having prevalences around double those for females ($p < .0001$ for all comparisons). For example, for any substance use disorder the prevalence for males was 5.0% (4.3, 5.8) but 2.2% (1.8, 2.7) for females.

The joint effects of age and sex are such that overall prevalences can conceal markedly higher prevalences in some subgroups. This is particularly true for substance use disorders. The overall twelve-month prevalence of substance use disorder was 3.5% but it was 12.5% (9.6, 15.4) in males aged 16–24 and in young Māori males it was 22.0% (14.8, 29.3).

3.3 Twelve-month prevalence and interference with life

Interference with life was assessed for each disorder over four domains (home responsibilities, work or study, close relationships and social life) using a modified version of the Sheehan Disability Scales (Demyttenaere et al 2001; Leon et al 1997). At the end of each disorder section, participants who had experienced symptoms or episodes in the past 12 months reported for the worst month in that period how much that disorder had interfered with their life in each domain. The specific questions are in 12.12.2. The verbal descriptors and scores for interference with life were ‘none’ (0), ‘mild’ (1–3), ‘moderate’ (4–6), ‘severe’ (7–9) and ‘very severe’ (10). The interference with life measure is specific to a particular disorder, in as much as people were able to separate out what impact a single disorder had on their lives.

The overall prevalences in Table 3.1 are repeated in Table 3.2 to enable easy comparison of interference with life and prevalence. Table 3.2 shows that disorders affected all four domains assessed, generally at similar levels except that for social phobia the home maintenance domain mean was only 2.0 (mild) but the mean for the social life domain was 5.1 (moderate).

For specific phobia the mean interference with life was 1.7, well within the mild range of 1–3. Social phobia had mean interference on the border between mild and moderate (3.8), whereas all the other anxiety disorders had means within the moderate interference range of 4–6 (panic disorder, 4.1; agoraphobia without panic, 4.2; GAD, 4.5; PTSD, 4.1; and OCD, 4.7).

Table 3.2: Twelve-month prevalence and interference with life from mental disorders

Disorder groups[1]	**Twelve-month prevalence**[1] **% (95% CI)**	**Interference with life**[2] **Mean (95% CI)**				
		Home	**Work or study**	**Intimacy**	**Social life**	**Mean across all four domains**
Anxiety disorders						
Panic disorder	1.7 (1.4, 1.9)	3.4 (2.9, 3.9)	4.1 (3.6, 4.7)	4.4 (3.8, 4.9)	4.6 (4.1, 5.2)	4.1 (3.7, 4.6)
Agoraphobia without panic	0.6 (0.5, 0.8)	2.5 (1.7, 3.3)	3.7 (2.8, 4.6)	4.7 (3.6, 5.8)	5.4 (4.5, 6.3)	4.2 (3.4, 5.0)
Specific phobia	7.3 (6.8, 7.8)	1.8 (1.5, 2.0)	1.7 (1.5, 2.0)	1.5 (1.3, 1.7)	1.9 (1.7, 2.1)	1.7 (1.6, 1.9)
Social phobia	5.1 (4.6, 5.6)	2.0 (1.7, 2.3)	3.5 (3.2, 3.9)	4.2 (3.8, 4.5)	5.1 (4.7, 5.4)	3.8 (3.5, 4.0)
Generalised anxiety disorder	2.0 (1.7, 2.3)	4.1 (3.7, 4.5)	4.7 (4.2, 5.3)	4.5 (4.1, 4.9)	4.9 (4.4, 5.3)	4.5 (4.2, 4.9)
Post-traumatic stress disorder[3]	3.0 (2.6, 3.4)	3.8 (3.2, 4.3)	4.0 (3.5, 4.5)	4.0 (3.5, 4.6)	4.5 (3.9, 5.1)	4.1 (3.7, 4.5)
Obsessive–compulsive disorder[3]	0.6 (0.4, 0.9)	3.6 (2.5, 4.6)	5.2 (4.2, 6.2)	4.8 (3.9, 5.7)	5.1 (4.2, 6.0)	4.7 (3.9, 5.4)
Mood disorders						
Major depressive disorder	5.7 (5.2, 6.2)	5.1 (4.8, 5.3)	5.5 (5.3, 5.8)	5.1 (4.9, 5.4)	5.9 (5.6, 6.1)	5.4 (5.2, 5.6)
Dysthymia	1.1 (0.9, 1.4)	5.5 (4.6, 6.3)	6.0 (5.3, 6.6)	5.7 (5.0, 6.4)	5.8 (5.1, 6.4)	5.7 (5.1, 6.3)
Bipolar disorder	2.2 (1.9, 2.5)	5.1 (4.7, 5.5)	5.5 (5.1, 5.9)	5.5 (5.1, 6.0)	5.4 (4.9, 6.0)	5.3 (5.0, 5.7)
Depression only	0.4 (0.3, 0.5)	5.3 (4.5, 6.0)	5.8 (5.0, 6.5)	5.7 (4.8, 6.5)	5.8 (4.8, 6.7)	5.6 (4.9, 6.3)
Mania or hypomania only	1.1 (0.9, 1.4)	3.7 (3.1, 4.2)	4.1 (3.5, 4.7)	4.2 (3.5, 4.8)	3.9 (3.2, 4.6)	4.0 (3.5, 4.5)
Both depression and mania or hypomania	0.7 (0.5, 0.9)	7.1 (6.5, 7.7)	7.4 (6.9, 7.8)	7.7 (7.3, 8.1)	7.7 (7.1, 8.4)	7.4 (7.0, 7.7)

Disorder groups[1]	Twelve-month prevalence[1] % (95% CI)	Interference with life[2] Mean (95% CI)				
		Home	Work or study	Intimacy	Social life	Mean across all four domains
Eating disorders						
Anorexia[3,4]	< 0.1 (0.0, 0.1)	–	–	–	–	–
Bulimia[3]	0.4 (0.3, 0.6)	2.2 (1.2, 3.2)	1.9 (1.1, 2.8)	2.4 (1.4, 3.4)	2.7 (1.7, 3.8)	2.3 (1.5, 3.1)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Based on Sheehan Disability Scales reported for an individual disorder, see 12.12.2.

3 Assessed in the subsample who did the long form of the interview, see 12.4.2.

4 A dash (–) in a cell indicates fewer than 30 with the disorder.

Within mood disorders all three disorders had means in the moderate interference range (5.4, 5.7, 5.3). The moderate interference with life for dysthymia may have arisen from major depressive episodes as these could not be distinguished from dysthymia in the past 12 months for those who had ever met criteria for both major depressive disorder and dysthymia (see 12.4.1); 89.7% of those classified with 12-month dysthymia had also met lifetime criteria for major depressive disorder. Those with 12-month dysthymia had a mean interference with life of 5.9 (5.3, 6.5) if they had ever also had major depression whereas those who had only ever had dysthymia had mean interference of 4.2 (3.0, 5.4). Those with bipolar disorder were subdivided into those who experienced only depression in the past 12 months, those who experienced only mania or hypomania, and those who experienced both. Those with depression only had interference with life that was very similar to that seen for people with major depressive disorder. Those with mania or hypomania only were on the border between mild and moderate interference. Those who had both highs and lows experienced significantly more interference with life than was reported for any other disorder with a mean of 7.4, in the severe range of 7–9.

In the version of the interview used in New Zealand the Sheehan Disability Scales were not used in the substance section, although they have since been added to the CIDI 3.0. The impact of substance dependence was assessed separately for alcohol and for drugs. Five consequences of drinking or of drug use were asked about over the past 12 months with responses of ‘not at all’,’ a little’, ‘some’ and ‘a lot’ (see 12.12.2). These effects of drinking and drug use are presented for alcohol dependence and for drug dependence in Table 3.3. The full questions asked are given in 12.12.2.

Participants with alcohol dependence in the past 12 months were consistently less likely than those with drug dependence to report each consequence of their substance use (Table 3.3). For each consequence, fewer than half reported that the consequence had occurred 'a lot'. Of those with drug dependence, 29.4% were marijuana dependent and had used only marijuana in the past 12 months. This marijuana-only group experienced less impact from their drug use than those who used other drugs either with or instead of marijuana. The difference was particularly clear for the health impact of drug use (9.8% for the marijuana group, 37.2% for the whole drug dependence group).

Table 3.3: Effects on life in the past 12 months from alcohol dependence and drug dependence

Dependence[1]	**Effects on life experienced 'a lot'**[2] **% (95% CI)**				
	Health harmed	**Family hurt**	**Impulsive actions regretted**	**Failed to do things**	**Unhappy**
Alcohol dependence	22.3 (15.6, 30.8)	20.1 (14.2, 27.7)	30.8 (22.5, 40.4)	20.7 (14.5, 28.6)	24.4 (17.6, 32.9)
Drug dependence[3]	37.2 (24.4, 52.2)	36.5 (23.8, 51.4)	39.5 (26.3, 54.5)	40.0 (26.9, 54.7)	35.0 (22.2, 50.4)
Marijuana dependence in those using only marijuana in past 12 months	9.8 (2.4, 24.7)	23.8 (7.4, 49.0)	19.2 (7.1, 38.0)	24.8 (11.1, 43.6)	20.4 (8.5, 37.8)

1 DSM-IV CIDI 3.0 alcohol and drug dependence disorders, see 12.4.1.

2 See 12.12.3.

3 Those with a marijuana disorder are a subgroup of those with a drug use disorder. They may or may not have met criteria for abuse or dependence on other drugs.

3.4 Twelve-month prevalence and severity

Severity across disorders is defined as in chapters 2 and 12 (see 2.3 and 12.12.3). The severity reported for a particular disorder depends on how severely individuals with that disorder have been affected by it in the past 12 months plus the impact of any other disorders also experienced by those individuals in the past 12 months.

The 12-month prevalence of any disorder was 20.7% (Table 3.4). For these cases who had all met full criteria for disorder during their lifetime and experienced symptoms or an episode in the last 12 months, the distribution of severity was 22.7% with serious disorder, 45.6% with moderate disorder and 31.7% with mild disorder. Severity increased with the number of disorders in the past 12 months: 11.7% of those with one disorder, 27.5% of those with two disorders, and 59.6% of those with three or more disorders were classified as serious.

The rankings of disorders on the basis of interference with life from the disorder itself (Table 3.2) and severity of cases (Table 3.4) are generally similar (r = 0.49 between mean interference and percent serious). The only major exception occurred for bulimia, which had a mean interference with life in the mild range (2.3) yet 47.8% of cases with bulimia were classified as serious, indicating that for people with bulimia much of the impact on their lives came from comorbid disorders rather than from bulimia itself.

3.4.1 Anxiety disorders: twelve-month prevalence and severity

Cases with the most common disorder assessed in the survey, specific phobia, were more likely to be mild cases (39.6%) than cases with any other disorder. Nonetheless, 21.6% of those with specific phobia were classified as serious cases; this arose because specific phobia was often comorbid with other disorders (48.5% comorbid).

Social phobia had a prevalence of 5.1% and a mid-range severity distribution.

GAD and PTSD had similar prevalences (2.0% and 3.0%), very similar percentages of cases with serious disorder (34.3% and 35.9%), but very different percentages who were mild cases, with only 7.4% of GAD cases being mild whereas 27.2% of PTSD cases were mild.

Panic disorder (1.7%), OCD (0.6%) and agoraphobia without panic (0.6%) were all uncommon and serious, with 44.9%, 40.1% and 45.5% classified as serious cases. OCD had the lowest percentage of cases classified as mild across all disorders (4.6%). We have been advised by the World Mental Health (WMH) Data Coordinating Center at Harvard University (January 2006) that clinical re-appraisals have indicated that the version of the CIDI 3.0 we used underestimates the prevalence of OCD and that consequently the OCD section was revised in 2005; it is likely that milder cases were not detected in New Zealand.

Table 3.4: Twelve-month prevalence and severity of mental disorders

Disorder groups[1]	Twelve-month prevalence[1] % (95% CI)	Distribution of overall severity of cases with each disorder[1] %		
		Serious	Moderate	Mild
Anxiety disorders				
Panic disorder	1.7 (1.4, 1.9)	44.9	34.5	20.6
Agoraphobia without panic	0.6 (0.5, 0.8)	45.5	35.4	19.2
Specific phobia	7.3 (6.8, 7.8)	21.6	38.8	39.6
Social phobia	5.1 (4.6, 5.6)	30.4	48.3	21.2
Generalised anxiety disorder	2.0 (1.7, 2.3)	34.3	58.3	7.4
Post-traumatic stress disorder[2]	3.0 (2.6, 3.4)	35.9	36.9	27.2
Obsessive–compulsive disorder[2]	0.6 (0.4, 0.9)	40.1	55.3	4.6
Any anxiety disorder[2]	14.8 (13.9, 15.7)	23.8	43.3	32.9
Mood disorders				
Major depressive disorder	5.7 (5.2, 6.2)	34.7	55.9	9.4
Dysthymia	1.1 (0.9, 1.4)	50.6	34.1	15.3
Bipolar disorder	2.2 (1.9, 2.5)	54.9	36.5	8.6
Any mood disorder	7.9 (7.3, 8.7)	40.2	50.3	9.5
Substance use disorders				
Alcohol abuse	2.6 (2.3, 3.0)	25.9	36.8	37.3
Alcohol dependence[3]	1.3 (1.1, 1.5)	42.2	57.8	0.0
Drug abuse	1.2 (0.9, 1.4)	41.1	33.9	25.1
Drug dependence[3]	0.7 (0.5, 0.9)	58.8	41.2	0.0
Marijuana abuse[4]	0.9 (0.7, 1.1)	47.1	26.9	26.0
Marijuana dependence[4]	0.5 (0.3, 0.6)	62.7	37.3	–
Any substance use disorder	3.5 (3.0, 4.0)	29.5	37.1	33.4
Eating disorders				
Anorexia[2,5]	< 0.1 (0.0, 0.1)	–	–	–
Bulimia[2]	0.4 (0.3, 0.6)	47.8	29.4	22.8
Any eating disorder[2]	0.5 (0.3, 0.6)	46.2	28.5	25.3

Disorder groups[1]	Twelve-month prevalence[1] % (95% CI)	Distribution of overall severity of cases with each disorder[1] %		
		Serious	Moderate	Mild
Any disorder[2]				
Any disorder[2]	20.7 (19.5, 21.9)	22.7	45.6	31.7
One disorder[2]	13.0 (12.1, 14.0)	11.7	44.8	43.5
Two disorders[2]	4.4 (3.9, 4.8)	27.5	55.5	16.9
Three disorders[2]	3.3 (2.9, 3.7)	59.6	35.8	4.6

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1. For severity, see 2.3 and 12.12.3.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 Dependence is moderate or serious by definition, so never mild.

4 Those with a marijuana disorder are a subgroup of those with a drug use disorder. They may or may not have met criteria for abuse or dependence on other drugs.

5 A dash (–) in a cell indicates fewer than 30 with the disorder.

3.4.2 Mood disorders: twelve-month prevalence and severity

Major depressive disorder was the most common mood disorder (5.7%) with 34.7% of cases classified as serious, 55.9% as moderate and only 9.4% as mild. This distribution indicated that people who had ever met full criteria for a major depressive disorder and who had experienced an episode in the past 12 months were mostly classified as moderate or severe cases, considering their depressive episode and all comorbid disorders. For their depression itself, on average they reported moderate levels of interference with life (Table 3.2), which partly explains why so few were classified as mild on the severity classification (Table 3.4).

A similar pattern of severity was seen for those with dysthymia, with an even higher percent classified as serious (50.6%), although the prevalence (1.1%) was much lower than for major depressive disorder. The high percentage of those with 12-month dysthymia classified as serious may actually reflect major depressive episodes in those who had ever met criteria for both dysthymia and major depression (see 3.2).

The prevalence of an episode of bipolar disorder in the past 12 months was 2.2% using a broad definition of bipolar disorder (see 12.4.1). Bipolar I disorder was classified as serious regardless of reports of interference with life, so the severity distribution partly reflects the proportion of those with bipolar disorder who had ever met criteria for bipolar I disorder. However, the reports of interference with life also show that most of these episodes had non-trivial impact.

3.4.3 Substance use disorders: twelve-month prevalence and severity

Overall, cases with substance use disorders were about equally likely to be classified as serious (29.5%), moderate (37.1%) and mild (33.4%). Alcohol disorders were more common than drug disorders but were less likely to be classified as serious. By definition, dependence could not be mild. The definition of serious disorder for substance dependence (2.3, 12.12.3) was that developed for the US WMH survey, the National Comorbidity Survey Replication (NCS-R) (Kessler et al 2005c), which required substantial impairment in the past 12 months, not just physiological symptoms ever as in the WMH definition. In New Zealand use of the NCS-R definition instead of the WMH definition reduced the proportion whose substance dependence was classified as serious from 90.4% to 25.7%, leaving the remainder with dependence classified as moderate.

3.4.4 Eating disorders: twelve-month prevalence and severity

Eating disorders were uncommon, particularly anorexia. Participants reporting symptoms of anorexia at any time nearly all reported that the last time when they were at their lowest weight and had symptoms was some years ago, sometimes decades ago. It is possible that some of them were still underweight and still had problems but were no longer at their lowest weight. Because the recency question asked about when they were last at their lowest weight they were not diagnosed with 12-month disorder.

Severe low prevalence disorders are always susceptible to non-response bias, both because of refusal to participate or refusal to disclose symptoms in the interview. It is not possible to assess the extent of such bias in this survey.

The prevalence of bulimia was 0.4%, with almost half (47.8%) classified as serious cases. As their mean interference with life from bulimia was in the mild range (2.3, see Table 3.2) much of this severity must come from comorbidity.

3.5 Ethnic comparisons of prevalence

Ethnic comparisons were carried out with the sequence of adjustments outlined in chapter 2 (see 2.5) to account progressively for sociodemographic correlates. Technical details are given in chapter 12 (see 12.10.2).

3.5.1 Ethnic comparisons for anxiety disorders

Table 3.5 shows that the prevalence of any anxiety disorder was highest for Māori, followed by Pacific people, with the lowest prevalence for the Other composite ethnic group. The pattern was also seen for most individual disorders, and where it did not hold the pattern was for Pacific people and Others to have similar prevalences.

Once the prevalence of any anxiety disorder was adjusted for age and sex, the prevalence for Māori and Pacific people decreased from the unadjusted prevalence, whereas that for Others increased very slightly, showing that part of the differences in prevalence between the ethnic groups was accounted for by a predominance of younger people among Māori and Pacific people. After further adjustment for socioeconomic characteristics (education and income), the ethnic group differences were even smaller and were no longer significant (p = .2).

Māori carry a higher burden of anxiety disorders, but this is accounted for by age, education and household income. For Pacific people the burden is not significantly higher than for Others and after adjustment it is non-significantly lower.

Table 3.5: Ethnic comparisons of the 12-month prevalence of any anxiety disorder using prioritised ethnicity

Comparison[3]	**Twelve-month prevalence of any anxiety disorder**[1,2] **%** **(95% CI)**		
	Māori	**Pacific**	**Other**
Unadjusted	19.4 (17.1, 21.7)	16.3 (13.8, 18.9)	14.1 (13.0, 15.1)
Adjusted for age and sex	17.6 (15.4, 19.7)	14.8 (12.4, 17.3)	14.4 (13.3, 15.5)
Adjusted for age, sex, educational qualifications[4] and equivalised household income[4]	15.6 (13.6, 17.6)	12.9 (10.6, 15.1)	14.8 (13.7, 15.9)

1 DSM-IV CIDI 3.0 anxiety disorders, see 12.4.1.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 For the method of adjustment, see 12.10.2.

4 Sociodemographic correlates are defined in 12.12.1.

3.5.2 Ethnic comparisons for mood disorders

Comparison of prevalences for individual mood disorders across the three ethnic groups showed that aggregating across disorders concealed some different trends, so Table 3.6 presents results not just for any mood disorder but also for major depressive disorder and bipolar disorder separately.

The prevalence of major depressive disorder was lowest for Pacific people for all three types of comparison, with the difference between Pacific people and Others increasing with each adjustment. The unadjusted prevalence for Māori was significantly higher than for Pacific people (p = .01) and marginally significantly higher than for Others (p = .06). After full adjustment, prevalences for Māori and Others were the same and both were significantly higher than for Pacific people (p ≤.003).

For bipolar disorder Māori had the highest prevalence, followed by Pacific people, with both higher than Others for all types of comparison ($p \leq .008$ overall, $p \leq .006$ for Māori, $p \leq .06$ for Pacific). The difference between Māori and Pacific people was not significant with or without adjustment ($p \leq .3$).

Table 3.6: Ethnic comparisons of the 12-month prevalence of mood disorders using prioritised ethnicity

Comparison[1]	**Twelve-month prevalence of disorder % (95% CI)**		
	Māori	**Pacific**	**Other**
Any mood disorder[2]			
Unadjusted	11.6 (10.1, 13.2)	8.3 (6.6, 10.0)	7.5 (6.8, 8.2)
Adjusted for age and sex	10.1 (8.8, 11.5)	7.2 (5.8, 8.7)	7.7 (6.9, 8.4)
Adjusted for age, sex, educational qualifications[3] and equivalised household income[3]	9.3 (8.0, 10.6)	6.4 (5.1, 7.8)	7.9 (7.1, 8.6)
Major depressive disorder			
Unadjusted	6.9 (5.7, 8.1)	4.4 (3.0, 5.8)	5.6 (5.0, 6.2)
Adjusted for age and sex	6.0 (5.0, 7.1)	3.9 (2.7, 5.1)	5.7 (5.1, 6.4)
Adjusted for age, sex, education qualifications[3] and equivalised household income[3]	5.7 (4.7, 6.6)	3.5 (2.4, 4.6)	5.8 (5.2, 6.5)
Bipolar disorder			
Unadjusted	4.6 (3.6, 5.6)	3.7 (2.7, 4.7)	1.8 (1.4, 2.1)
Adjusted for age and sex	3.9 (3.0, 4.7)	3.1 (2.2, 4.0)	1.8 (1.5, 2.2)
Adjusted for age, sex, educational qualifications[3] and equivalised household income[3]	3.4 (2.7, 4.2)	2.7 (1.9, 3.6)	1.9 (1.5, 2.3)

1 For the method of adjustment, see 12.10.2.

2 DSM-IV CIDI 3.0 mood disorders, see 12.4.1.

3 Sociodemographic correlates are defined in 12.12.1.

3.5.3 Ethnic comparisons for substance use disorders

The prevalences of abuse and dependence for alcohol and for drugs were all highest for Māori, intermediate for Pacific and lowest for Others.

However, for alcohol diagnoses (abuse or dependence) the Pacific prevalence (4.2%) was midway between that for Māori (7.4%) and that for Others (2.2%), whereas for drug diagnoses the Pacific prevalence (1.3%) was only slightly and non-significantly higher than that for Others (1.0%) and well below that for Māori (4.0%). Table 3.7 presents the ethnic comparisons for any substance use disorder.

Table 3.7: Ethnic comparisons of the 12-month prevalence of any substance use disorder

Comparison[2]	Twelve-month prevalence of any substance use disorder[1] % (95% CI)		
	Māori	Pacific	Other
Unadjusted	9.1 (7.6, 10.6)	4.9 (3.6, 6.1)	2.7 (2.3, 3.2)
Adjusted for age and sex	7.1 (6.0, 8.3)	3.8 (2.8, 4.8)	2.9 (2.4, 3.4)
Adjusted for age, sex, educational qualifications[3] and equivalised household income[3]	6.0 (5.0, 7.1)	3.2 (2.3, 4.0)	3.0 (2.5, 3.6)

1 DSM-IV CIDI 3.0 substance use disorders, see 12.4.1.

2 For the method of adjustment, see 12.10.2.

3 Sociodemographic correlates are defined in 12.12.1.

The burden of substance use disorder is highest for Māori and second highest for Pacific people. However, for Pacific people full adjustment almost completely removed differences between Pacific and Others ($p = .8$). Full adjustment halved the difference between Māori and Others, but Māori still had double the prevalence of substance use disorder (6.0% compared with 3.0%; $p < .0001$) and were also significantly above the prevalence for Pacific people (3.2%; $p < .0001$).

3.5.4 Summary of ethnic comparisons

Tables 3.5–3.7 show that the ranking of prevalences across ethnic groups depends on the disorders considered and on the demographic and socioeconomic factors taken into account. The unadjusted prevalence of any disorder, as shown in chapter 2, is highest for Māori, second highest for Pacific people and lowest for Others. This pattern is seen for the unadjusted prevalences for anxiety disorders, but after adjustment all three groups have similar prevalences. For major depressive disorder Pacific people had the lowest prevalence, and after adjustment it was significantly below prevalences for both Māori and Others, who had the same prevalence, although the unadjusted prevalence for Māori was higher. A different pattern was seen for bipolar disorder, where the ranking was Māori, Pacific, Others, with Others being significantly lower than the other two groups for all types of comparison. Māori and Pacific people did not differ significantly in the prevalence of bipolar disorder. For substance use disorder the unadjusted ranking was Māori, Pacific, Others. Adjustment reduced differences, and with full adjustment the prevalence of any substance use disorder was the same for Pacific and Others, but twice as high for Māori.

3.6 Comparisons with other surveys

The prevalence of any psychiatric disorder reported from a survey depends on the definition used for the disorder, the instrument used to measure it and the response rate, as well as level of morbidity in the population. Therefore, comparisons of prevalence rates from various surveys must be made with due consideration of all these factors.

Results from other WMH Survey Initiative countries are the most comparable with those from New Zealand, as they used the same interview (CIDI 3.0), the same DSM-IV criteria and the same algorithms to calculate diagnoses. New Zealand has high 12-month prevalences of anxiety, mood and substance use disorders relative to the 15 sites reported in 2004 (Demyttenaere et al 2004). For anxiety, New Zealand was second to the US (14.7% compared with 18.2%), whereas for mood disorders the US, the Ukraine and France had higher prevalences (9.6% for the US; 9.1% for the Ukraine without bipolar disorder; 8.5% for France without bipolar disorder; 7.7% for New Zealand).

For substance use disorder the Ukraine, which did not assess drug disorder, still had a substantially higher prevalence (6.4%) than New Zealand (3.5%), with the US (3.8%) non-significantly higher than New Zealand.

Prevalences for individual disorders are available for the US (Kessler et al 2005c) and for the six European sites in the European Study of the Epidemiology of Mental Disorders (ESEMeD) combined (Alonso et al 2004b). For every disorder assessed at both sites, New Zealand had a slightly lower prevalence than the US, except for alcohol dependence (1.3% for both) and drug dependence (0.7% compared with 0.4%, $p \approx .05$). Comparisons with the six European countries showed New Zealand had higher prevalences for major depressive disorder (5.7% compared with 3.9%), GAD (2.0% compared with 1.0%), social phobia (5.1% compared with 1.2%), specific phobia (7.3% compared with 3.5%), panic disorder (1.4% compared with 0.8%), alcohol abuse (2.6% compared with 0.7%) and alcohol dependence (1.3% compared with 0.3%). However, given the variation in prevalence for disorder groups across the ESEMeD countries (Demyttenaere et al 2004), it is not straightforward to interpret the prevalences for individual disorders that have been combined across countries. The response rates in the ESEMeD countries varied from 46% in France to 79% in Spain, which may have introduced bias into prevalence estimates from those countries with a low response rate. The response rates for New Zealand and the US were 73% and 71%.

The 1997 Australian National Survey of Mental Health and Well-being (Andrews et al 2001) used a variant form of the CIDI interview that asked only about the past 12 months. A diagnosis was given only if all criteria were met within the past 12 months. All other versions of the CIDI ask about all of life before interview and then, for each disorder, ask how recently symptoms or episodes had occurred. Full criteria for a diagnosis may not have been met within the past 12 months. Therefore, the New Zealand and Australian 12-month prevalences are ascertained in different ways. Although the 12-month prevalences are very similar for many disorders, social phobia and PTSD were more common in New Zealand than in Australia (5.1% compared with 1.3% for social phobia; 3.0% compared with 1.3% for PTSD). It is likely that these differences reflect changes made to these sections in the interview, particularly to the PTSD section, as well as the need to meet full criteria in the past 12 months in Australia.

The prevalence of DSM-IV alcohol dependence was 4.1% in the Australian study, but only 1.3% in New Zealand. As Australia and New Zealand have similar per capita consumption and patterns of drinking (Rehm et al 2004: Table 12.3; WARC 2004) this difference is unexpected. The skip past dependence in the New Zealand interview may have resulted in dependence being underestimated, but this is unlikely to account all of the difference. Hasin and Grant (2004), using the AUDADIS-IV interview, found that 13.9% of those with lifetime alcohol dependence did not ever have alcohol abuse. Applying such a correction would increase the lifetime prevalence of alcohol dependence in New Zealand from 4.0% to 4.6%. Even if all those ever dependent without abuse were still dependent in the past 12 months this would raise the New Zealand prevalence only from 1.3% to 1.9%. It seems likely that the higher estimates of 12-month prevalence from the AUDADIS-IV of 3.8% and the CIDI 2.1 estimate of 4.1% arose because both interviews asked more specific questions.

The only previous New Zealand community-wide survey was the Christchurch Psychiatric Epidemiology Study (CPES) (see 1.7.2) (Oakley Browne et al 1989; Wells et al 1989a), which interviewed people aged 18–64, not 16 years and over as in the present survey. The CPES used the Diagnostic Interview Schedule on which the first CIDI interview was based. At that time DSM-III criteria were used for diagnosis and there are many differences between DSM-III and DSM-IV diagnoses. One consistent difference is that DSM-IV has a requirement for ‘substantial impairment’ in many diagnoses. Therefore, this could reduce prevalence, as appears to have happened for GAD (12.7% compared with 2.0%).

Diagnostic changes are particularly marked for substance abuse and dependence. In DSM-III, abuse is much closer to a lay concept of abuse and consists of a considerable list of symptoms of excessive use, any of which results in diagnosis. In DSM-IV, abuse requires repeated failure to meet obligations, continued use despite repeated arguments with family, friends or workmates, repeated use in situations where use could be dangerous, or repeated contact with police. Dependence has been broadened as a concept (Sellman 1994) but now requires that at least three symptoms must have occurred within one year. In addition, within the version of the CIDI 3.0 used in Te Rau Hinengaro, dependence may have been underestimated because of the failure to assess dependence in those who did not ever meet criteria for abuse. The 12-month prevalence of alcohol abuse or dependence was 9.3% in the CPES and 2.9% in the present survey. In spite of all the technical reasons for an apparent decline in prevalence a real decline may have occurred. In 1986 per capita alcohol consumption for those aged 15 and over was 11.3 litres per year. In 2004 it was 18% lower at 9.2 litres per year, having declined fairly steadily throughout the 1980s and 1990s until 1997, since when it has fluctuated slightly or risen a little (http://www.stats.govt.nz/).

3.7 Conclusions

The prevalences of 12-month disorders from this national New Zealand survey, Te Rau Hinengaro, were lower than those from the US but higher than those for most other countries. Prevalences declined with age for almost all disorders. Females had higher prevalences of anxiety and depression but males and females were equally likely to experience OCD, dysthymia and bipolar disorder. Males had double the prevalence of substance use disorders compared with females.

Across disorders the general pattern was for Māori to have the highest prevalence, followed by Pacific people, with the lowest prevalence for Others. However this pattern changed after adjustment for sociodemographic correlates. The ethnic differences that could not be accounted for by age, sex, educational qualifications and equivalised household income were bipolar disorder (higher for Māori and Pacific people) and substance use disorder (higher for Māori). For depression Māori and Others had the same prevalence after adjustment, but Pacific people had a lower prevalence.

Most people with disorder were classified as serious or moderate rather than mild. Reports of interference with life were higher for mood disorders than for anxiety disorders.

4 Lifetime Prevalence and Lifetime Risk of DSM-IV Disorders

Key results

- It is common for a person to experience a mental disorder at some time in their life, with 39.5% of people aged 16 and over meeting criteria for a disorder at some time before interview.
- The lifetime prevalence estimates for disorder groups are: anxiety disorders, 24.9%; mood disorders, 20.2%; substance use disorders, 12.3%; and eating disorders, 1.7%.
- Most people first experience their disorder early in their lives. Half of all cases have started by age 18 and three-quarters by age 34. The median age of onset of a disorder is 13 years for anxiety disorders, 31 years for mood disorders, 18 years for substance use disorders, and 17 years for eating disorders.
- The estimated lifetime risk at age 75 for any disorder is 46.6%, which is 7.0% higher than the observed lifetime prevalence. By disorder group, the estimated lifetime risks are: anxiety disorders, 28.8%; mood disorders, 28.4%; substance use disorders; 13.8%; and eating disorders, 1.9%.
- More recent cohorts have higher prevalences of any disorder than earlier cohorts. Compared with the group aged 65 and over, the other age groups have significantly higher hazard ratios for lifetime anxiety, mood, substance use and eating disorders ($p < .0001$ for all comparisons). A gradient exists across the age groups, with younger age groups having higher hazard ratios than older groups.
- Females have higher prevalences of anxiety, mood and eating disorders than males. Males have higher prevalences of substance use disorders than females. With adjustment for ethnicity and age, females compared with males have higher hazard ratios for lifetime anxiety disorders, mood disorders, eating disorders and any disorder. Males have higher hazard ratios for lifetime substance use disorders compared with females.
- When adjustment is made for age and sex, Māori have significantly higher hazard ratios for lifetime risk of all disorder groups compared with the Other composite ethnic group. Māori also have higher hazard ratios for lifetime mood disorders and substance use disorders compared with Pacific people. Pacific people have higher hazard ratios for lifetime substance use disorders and eating disorders compared with Others.

4.1 Introduction

4.1.1 Lifetime prevalences from Christchurch Psychiatric Epidemiology Study

Only one previous community survey in New Zealand, the Christchurch Psychiatric Epidemiology Study (CPES), has provided information about the lifetime prevalence of specific mental disorders (Wells et al 1989a). That survey was undertaken in 1986 in the Christchurch urban area and the sampling frame was a non-institutional household sample of people aged 18–64. The diagnostic instrument used (the Diagnostic Interview Schedule (DIS)) (Robins et al 1981) was based on the DSM-III diagnostic system, which has been superseded by the DSM-IV (see 1.10.1). The DIS was the forerunner of the CIDI (Robins et al 1988) (see 1.10.2) and the two instruments differ in structure and content.

The differences in sampling frame, diagnostic criteria and questionnaire design between the CPES and this survey make comparisons of prevalences problematic. The CPES did not provide information about lifetime prevalence in Māori or Pacific people and it is doubtful whether the results can be generalised to the national population. It is also possible that, with the passage of time, prevalences of disorders may have changed.

Of CPES participants, 14.7% had experienced an affective (mood) disorder at some time in their lives, 21.0% a substance use disorder and 10.5% an anxiety disorder. The lifetime prevalences for the low prevalence disorders of schizophrenic disorders and eating (anorexia and/or bulimia) disorders were 0.4% and 1.2% respectively.

4.1.2 Lifetime prevalences from overseas studies

The Epidemiologic Catchment Area Study (ECA), a survey of more than 20,000 adults in five United States (US) communities, was completed between 1980 and 1984 (Robins et al 1991). This survey used the DIS to generate DSM-III diagnoses (Robins et al 1981). An overall lifetime prevalence rate of 32% was found. A decade after the ECA, the National Comorbidity Survey (NCS) (Kessler 1994; Kessler et al 1994) was undertaken. In this survey a nationally representative non-institutional sample of people aged 15–54 was used. The survey instrument was the CIDI, which generated DSM-IIIR diagnoses (Robins et al 1988). In the NCS, overall lifetime prevalence rates of DSM-IIIR disorders of 48% were found (Kessler et al 1994).

The Australian National Survey of Mental Health and Well-being (Andrews et al 1999b; Henderson et al 2000) was a nationally representative household survey completed in 1997. The sample included people aged 18 and over. The survey instrument was the CIDI version 2.1 and this generated ICD-10 and DSM-IV diagnoses, but only for disorders present in the 12 months before interview. Lifetime prevalences were not obtained. The CIDI version 2.1 also differs in structure and content from the CIDI version 3.0 used in this survey.

More recently, 28 countries have collaborated in undertaking national and regional mental health surveys under the auspices of the World Mental Health (WMH) Survey Initiative. This is a project of the Assessment, Classification and Epidemiology Group at the World Health Organization (World Mental Health Survey Consortium 2005). Several nations in the consortium have published results from their national surveys, including the European sites (the European Study of the Epidemiology of Mental Disorders (ESEMeD)) and the US (the National Comorbidity Survey Replication (NCS-R)). These two surveys were based on nationally representative non-institutional samples of adult people. Both the NCS-R and ESEMeD used the same diagnostic interview as used in Te Rau Hinengaro. This instrument, the CIDI 3.0 (Kessler and Ustun 2004) generates DSM-IV and ICD-10 diagnoses. However, the surveys differed in the types of specific disorder covered, questionnaire content, and age range of participants (18 years and over in the ESEMeD and NCS-R; 16 years and over in Te Rau Hinengaro).

In ESEMeD (Alonso et al 2004d; Alonso et al 2004f; Alonso et al 2002), 14.0% of participants reported a lifetime history of any mood disorder, 13.6% of any anxiety disorder and 5.2% of any alcohol disorder (Alonso et al 2004b). In the NCS-R (Kessler et al 2004b; Kessler and Merikangas 2004), the lifetime prevalences by groups of disorder were: anxiety disorders, 28.8%; mood disorders, 20.8%; and substance use disorders, 14.6% (Kessler et al 2005b). This study found that most people had an onset of disorder early in their lives and more recent cohorts had higher prevalences of disorder than earlier cohorts.

4.1.3 Lifetime prevalences and estimated lifetime risk

Lifetime prevalence estimates are based on those people who, at the time of the interview, had ever met criteria for a disorder. In contrast, estimated lifetime risk is a projected estimate of the proportion of people in the population who would ever have experienced a disorder by the end of their lifetime (Kessler et al 2005b), or by a specified age such as 75 years.

Lifetime risk is useful when considering the burden of disease in a population and for service planning purposes. It is not possible to obtain the actual lifetime risk from cross-sectional surveys, as at the time of interview many people will not yet have experienced disorders that will occur for them later. However, if the age of onset of disorder data is obtained, it is possible to estimate the lifetime risk using survival analysis (see 12.10.3). This has seldom been done in psychiatric surveys, in part because the techniques were not available for complex survey data. Hence, earlier surveys reported only lifetime prevalence and in this report lifetime prevalences are provided for purposes of comparison. However, in the NCS-R, projected lifetime risks to age 75 years were calculated. By disorder groups these were: anxiety disorder, 31.5%; mood disorder, 28.0%; and substance use disorder, 16.3%.

4.1.4 Content of this chapter

This chapter contains information on:

- lifetime prevalence (see 4.2)
- the distribution of the age of onset for each disorder and disorder group (see 4.3)
- separate lifetime risk estimates for each birth cohort to explore whether lifetime risk is highest for those born more recently (see 4.4)
- the relationship between lifetime risk of mental disorder and age, sex and ethnicity (see 4.5).

4.2 Lifetime prevalence

The lifetime prevalence estimates for individual DSM-IV disorders are presented in Table 4.1, overall and by age and sex. Lifetime prevalences for the Māori and Pacific populations are presented in chapters 9 and 10.

The experience of a mental disorder is relatively common, with a substantial minority of the sample (39.5%) meeting criteria for a disorder at some time before the interview. Although most people experience only one disorder (20.0%), comorbid mental disorders are common, with a minority experiencing two mental disorders (9.9%) or three or more mental disorders (9.7%).

Table 4.1: Lifetime prevalence of mental disorders,[1] by age and sex

Disorder groups	Total % (95% CI)	Age group (years) % (95% CI)				Sex % (95% CI)	
		16–24	25–44	45–64	65 and over	Male	Female
Anxiety disorders							
Panic disorder	2.7 (2.4, 3.1)	2.9 (2.1, 4.1)	3.5 (3.0, 4.1)	2.4 (1.9, 3.0)	1.4 (0.9, 2.1)	2.1 (1.7, 2.6)	3.3 (2.9, 3.9)
Agoraphobia without panic	1.2 (1.0, 1.4)	1.2 (0.7, 2.0)	1.5 (1.2, 2.0)	1.1 (0.8, 1.6)	0.5 (0.2, 0.9)	0.9 (0.6, 1.2)	1.5 (1.2, 1.9)
Specific phobia	10.8 (10.2, 11.5)	11.8 (9.9, 13.9)	12.5 (11.5, 13.6)	10.9 (9.8, 12.2)	5.3 (4.3, 6.5)	7.3 (6.4, 8.2)	14.1 (13.2, 15.1)
Social phobia	9.4 (8.8, 10.1)	9.6 (8.0, 11.5)	11.3 (10.2, 12.4)	9.7 (8.6, 11.0)	3.8 (3.0, 4.8)	8.7 (7.7, 9.7)	10.1 (9.3, 11.0)
Generalised anxiety disorder	6.0 (5.5, 6.6)	3.5 (2.5, 5.0)	6.8 (6.0, 7.7)	7.0 (6.0, 8.1)	4.6 (3.7, 5.7)	4.4 (3.8, 5.2)	7.5 (6.7, 8.3)
Post-traumatic stress disorder[2]	6.0 (5.4, 6.6)	4.4 (3.3, 5.9)	6.6 (5.7, 7.6)	7.0 (5.8, 8.4)	4.1 (2.7, 6.1)	3.7 (3.0, 4.6)	8.1 (7.2, 9.1)
Obsessive–compulsive disorder[2]	1.2 (1.0, 1.6)	2.3 (1.3, 3.8)	1.8 (1.4, 2.4)	0.5 (0.2, 0.8)	0.2 (0.0, 0.8)	1.1 (0.7, 1.6)	1.4 (1.1, 1.8)
Any anxiety disorder[2]	24.9 (23.6, 26.2)	23.9 (20.9, 27.3)	28.9 (26.8, 31.0)	25.4 (23.2, 27.7)	14.2 (12.0, 16.8)	19.9 (18.3, 21.7)	29.4 (27.7, 31.3)
Mood disorders							
Major depressive disorder	16.0 (15.2, 16.8)	15.1 (12.7, 17.7)	17.0 (15.7, 18.3)	18.4 (16.9, 19.9)	9.8 (8.5, 11.3)	11.4 (10.3, 12.5)	20.3 (19.2, 21.4)
Dysthymia	2.1 (1.8, 2.4)	2.0 (1.2, 3.3)	2.2 (1.7, 2.7)	2.5 (2.0, 3.2)	1.3 (0.8, 2.0)	1.6 (1.2, 2.1)	2.6 (2.2, 3.1)
Bipolar disorder	3.8 (3.4, 4.3)	5.6 (4.3, 7.1)	4.9 (4.2, 5.6)	3.2 (2.6, 3.9)	0.6 (0.3, 1.0)	4.1 (3.5, 4.8)	3.6 (3.1, 4.1)
Any mood disorder	20.2 (19.3, 21.1)	20.7 (18.1, 23.7)	22.2 (20.8, 23.7)	22.0 (20.4, 23.6)	10.6 (9.3, 12.2)	15.6 (14.4, 16.9)	24.3 (23.1, 25.6)
Substance use disorders							
Alcohol abuse	11.4 (10.7, 12.2)	16.7 (14.6, 19.0)	13.4 (12.3, 14.6)	9.7 (8.7, 10.9)	4.0 (3.1, 5.1)	16.3 (15.1, 17.6)	6.9 (6.2, 7.7)
Alcohol dependence	4.0 (3.6, 4.5)	6.5 (5.1, 8.2)	5.0 (4.3, 5.7)	3.1 (2.5, 3.8)	0.7 (0.3, 1.2)	5.6 (4.9, 6.4)	2.6 (2.2, 3.0)
Drug abuse	5.3 (4.8, 5.8)	11.3 (9.5, 13.4)	7.2 (6.4, 8.2)	2.2 (1.7, 2.8)	0.0 (0.0, 0.1)	7.3 (6.5, 8.2)	3.5 (3.0, 4.0)
Drug dependence	2.2 (1.9, 2.5)	4.1 (3.0, 5.5)	3.3 (2.8, 4.0)	0.7 (0.4, 1.1)	0.0 (0.0, 0.1)	2.9 (2.4, 3.5)	1.5 (1.2, 1.9)
Any substance use disorder	12.3 (11.6, 13.1)	18.8 (16.6, 21.2)	14.6 (13.4, 15.9)	10.0 (8.9, 11.2)	4.0 (3.1, 5.1)	17.3 (16.1, 18.6)	7.7 (6.9, 8.5)
Eating disorders							
Anorexia[2]	0.6 (0.4, 0.8)	0.7 (0.2, 2.0)	1.0 (0.6, 1.6)	0.2 (0.0, 0.5)	0.0 (0.0, 0.3)	0.1 (0.0, 0.2)	1.0 (0.7, 1.6)
Bulimia[2]	1.3 (1.1, 1.5)	1.3 (0.7, 2.2)	2.0 (1.6, 2.5)	0.9 (0.5, 1.4)	0.1 (0.0, 0.5)	0.5 (0.3, 0.8)	2.0 (1.6, 2.5)
Any eating disorder[2]	1.7 (1.5, 2.1)	2.0 (1.1, 3.2)	2.9 (2.3, 3.6)	1.0 (0.6, 1.5)	0.1 (0.0, 0.5)	0.5 (0.3, 0.9)	2.9 (2.3, 3.5)

Disorder groups	Total % (95% CI)	Age group (years) % (95% CI)				Sex % (95% CI)	
		16–24	25–44	45–64	65 and over	Male	Female
Any disorder[2]							
Any disorder	39.5 (37.9, 41.2)	41.6 (37.4, 45.9)	45.1 (42.4, 47.9)	39.7 (36.9, 42.6)	22.4 (19.4, 25.6)	36.5 (34.2, 39.0)	42.3 (40.1, 44.5)
No disorder	60.5 (58.8, 62.1)	58.4 (54.1, 62.6)	54.9 (52.1, 57.6)	60.3 (57.4, 63.1)	77.6 (74.4, 80.6)	63.5 (61.0, 65.8)	57.7 (55.5, 59.9)
One disorder	20.0 (18.8, 21.3)	19.0 (16.1, 22.3)	22.0 (20.0, 24.1)	20.3 (18.2, 22.4)	15.4 (12.8, 18.3)	19.4 (17.6, 21.3)	20.6 (19.1, 22.2)
Two disorders	9.9 (9.2, 10.6)	11.3 (9.4, 13.5)	10.8 (9.7, 12.1)	10.6 (9.3, 12.0)	4.6 (3.7, 5.7)	8.7 (7.8, 9.8)	10.9 (10.0, 11.9)
Three or more disorders	9.7 (9.0, 10.4)	11.3 (9.4, 13.4)	12.3 (11.1, 13.6)	8.9 (7.8, 10.1)	2.4 (1.5, 3.6)	8.4 (7.5, 9.5)	10.8 (9.9, 11.8)

[1] DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

[2] Assessed in the subsample who did the long form of the interview, see 12.4.2.

4.2.1 Overall lifetime prevalences

Of the diagnostic groups, anxiety disorders are the most prevalent (24.9%), followed by mood disorders (20.2%), substance use disorders (12.3%) and eating disorders (1.7%).

Within the anxiety disorders, specific phobia is the most prevalent disorder (10.8%), followed by social phobia (9.4%), GAD (6.0%), post-traumatic stress disorder (PTSD) (6.0%), panic disorder (2.7%), agoraphobia without panic disorder (1.2%) and obsessive–compulsive disorder (OCD) (1.2%).

Within the mood disorders, major depressive episode is the most prevalent disorder with an overall lifetime prevalence rate of 16.0%. The overall lifetime rate for dysthymia is 2.1%. Bipolar disorder has an overall lifetime rate of 3.8%.

Of the substance use disorders, alcohol abuse (with or without dependence) is the most prevalent disorder with a lifetime prevalence of 11.4%. Drug abuse is the second most prevalent disorder (5.3%), followed by alcohol dependence (4.0%) and drug dependence (2.2%).

Anorexia nervosa is an uncommon disorder, with an overall lifetime prevalence rate of 0.6%. The overall lifetime prevalence rate for bulimia is 1.3%.

4.2.2 Lifetime prevalences, by age

The highest prevalences of all disorders are found in the group aged 25–44 (45.1%), followed by the group aged 16–24 (41.6%), and the group aged 45–64 (39.7%). The lowest prevalences of disorder (22.4%) are found in the oldest age group (65 and over) ($p < .0001$).

Anxiety disorders are most prevalent in the group aged 25–44 (28.9%), followed by the group aged 45–64 (25.4%), then the group aged 16–24 (23.9%). The anxiety disorders are least prevalent in the oldest age group (14.2%; $p < .0001$). Generalised anxiety disorder (GAD) is most prevalent in the group aged 45–64 (7.0%; $p < .0001$); PTSD is most prevalent in the group aged 45–64 (7.0%; $p = .002$); and OCD is most prevalent in the group aged 16–24 (2.3%; $p < .0001$). Panic disorder (3.5%; $p < .0001$), agoraphobia without panic (1.5%; $p = .002$) and specific phobia (12.5%; $p < .0001$) are most prevalent in the group aged 25–44. All the individual anxiety disorders are least prevalent in the group aged 65 and over.

For any mood disorders, the prevalence rate pattern across age groups is the same as for anxiety disorders: 25–44 years, 22.2%; 45–64 years 22.0%; 16–24 years, 20.7%; and 65 years and over, 10.6% ($p < .0001$). Major depressive disorder is most prevalent in the group aged 45–64 (18.4%) and least common in the group aged 65 and over (9.8%) ($p < .0001$). The prevalences for dysthymia follow the same pattern across age groups as major depressive disorder, with the highest prevalences in the group aged 45–64 (2.5%) and the lowest prevalences in the oldest age group (1.3%) ($p = .02$). The prevalences for bipolar disorder are highest in the youngest age groups: 16–24 years, 5.6%; and 25–44 years, 4.9%. The oldest age group has the lowest prevalences (0.6%; $p < .0001$).

Substance use disorders are most prevalent in the youngest age group (16–24 years) with prevalences of 18.8%, followed by groups aged 25–44 (14.6%), then 45–64 (10.0%). Substance use disorders are relatively uncommon (4.0%) in the oldest age group ($p < .0001$). Across all four disorders, the youngest age group has the highest prevalences of for all specific substance use disorders, while the oldest has the lowest prevalences of for all specific substance use disorders ($p < .0001$).

Eating disorders are uncommon across all four age groups, but the highest prevalences are found in the group aged 25–44 (2.9%) followed by the groups aged 16–24 (2.0%), then 45–64 (1.0%), and 65 and over (0.1%) ($p < .0001$). For anorexia nervosa, cases were found in the groups aged 16–24 (0.7%), 25–44 (1.0%) and 45–64 (0.2%) ($p < .0001$). For bulimia nervosa, the group aged 25–44 has the highest prevalences (2.0%), followed by the groups 16–24 (1.3%), 45–64 (0.9%), and 65 and over (0.1%) ($p < .0001$).

4.2.3 Lifetime prevalence, by sex

Females have higher ($p < .001$) overall prevalences of any disorder (42.3%) than males (36.5%).

Females have higher prevalences of anxiety disorders (29.4%) than males (19.9%) ($p = .0003$). Females compared with males have higher prevalences of specific phobia (14.1% compared with 7.3%; $p < .0001$), GAD (7.5% compared with 4.4%; $p < .0001$), PTSD (8.1% compared with 3.7%; $p < .0001$), agoraphobia without panic disorder (1.5% compared with 0.9%; $p = .002$) and social phobia (10.1% compared with 8.7%; $p =.02$). The prevalences of OCD are very similar and not statistically significantly different in females and males (1.4% compared with 1.1%; $p = .3$).

Females also have higher prevalences of mood disorders than males (24.3% compared with 15.6%; $p < .0001$). Females have higher prevalences than males for both major depressive disorder (20.3% compared with 11.4%; $p < .0001$) and dysthymia (2.6% compared with 1.6%; $p = .002$). The prevalences of bipolar disorder for females and males are very similar and not statistically significantly different (3.6% compared with 4.1%; $p = .2$).

Males have higher prevalences of substance use disorders than females (17.3% compared with 7.7%; $p < .0001$). Males have higher prevalences than females of alcohol abuse (16.3% compared with 6.9%; $p < .0001$), alcohol dependence (5.6% compared with 2.6%; $p < .0001$), drug abuse (7.3% compared with 3.5%; $p < .0001$) and drug dependence (2.9% compared with 1.5%; $p < .0001$).

Females have higher prevalences than males for both anorexia nervosa (1.0% compared with 0.1%; $p < .0001$) and bulimia (2.0% compared with 0.5%; $p < .0001$).

4.3 Age of onset of disorder

The ages at selected percentiles on the age of onset distributions of disorders are presented in Table 4.2. The table also includes projected lifetime risk at age 75. Calculation of projected lifetime risk for older age groups was not undertaken as the small numbers in older age groups would make such estimates inaccurate. All of these estimates were based on survival analyses (see 12.10.3).

Most people experience onset of their disorders early in their lives. For example, for panic disorder 25% of all cases will have experienced panic disorder by age 17, 50% by age 30 and 75% by age 56. Specific phobia has the earliest onset (50% by age 7) and GAD and major depressive disorder have the highest median onset ages (32 years). Half of all people who will develop any disorder have experienced disorder by age

18 and three-quarters by age 34. Median age of onset is 13 years for anxiety disorders, 32 years for mood disorders, 18 years for substance use disorders and 17 years for eating disorders.

The gap between the lifetime prevalence estimates and the projected lifetime risk estimates varies by disorder: for those disorders that typically have onset early in life, the gap is small; whereas for disorders that have onset through middle or late adulthood, the gap is larger. For instance, social phobia tends to begin early in life, with the median age of onset being 12 years and three-quarters developing the disorder before age 16. For social phobia, the lifetime prevalence is 9.4% and the lifetime risk is 10.0%, a gap of only 0.6%. This suggests only a very small number of participants, who had not experienced social phobia ever in their lives at the time of the survey interview, can be expected to develop social phobia at some time before they reach 75 years. In contrast, major depressive disorder tends to have onset through the lifespan: the median age of onset is 32 years and three-quarters will experience an episode by age 49. Consequently, for major depressive disorder, the gap between the lifetime prevalence estimates (16.0%) and the lifetime risk estimates (25.7%) is larger (approximately 10.0%). These data should be interpreted with caution, as the estimate of lifetime risk is a composite estimate derived from estimates of lifetime risk for different cohorts and it is assumed each cohort has an equal risk. When there are marked cohort effects (ie, a significant variation in risk by cohort), the lifetime risk will tend to be underestimated for younger birth cohorts and overestimated for older birth cohorts. As will be discussed in 4.4, this sample has significant cohort effects.

Table 4.2: Projected lifetime risk at age 75 and age at selected percentiles on the age of onset distributions of mental disorders

Disorder groups[1]	LT risk[2] %	Ages at selected age of onset percentiles (years)							
		5	10	25	50	75	90	95	99
Anxiety disorders									
Panic disorder	3.8	7	11	17	30	56	86	86	86
Agoraphobia without panic	1.4	4	5	12	16	25	36	45	50
Specific phobia	11.4	4	4	4	7	13	29	40	79
Social phobia	10.0	4	5	7	12	16	27	37	56
Generalised anxiety disorder	8.9	10	13	20	32	46	58	70	77
Post-traumatic stress disorder[3]	8.8	5	8	16	29	49	70	70	78
Obsessive–compulsive disorder[3]	1.4	8	12	14	18	26	40	63	65
Any anxiety disorder[3]	28.8	4	4	6	13	30	50	59	78
Mood disorders									
Major depressive disorder	25.7	12	14	20	32	49	63	74	86
Dysthymia	2.8	8	12	16	30	52	85	85	85
Bipolar disorder	4.8	12	13	17	23	37	49	62	75
Any mood disorder	28.4	12	14	19	31	48	64	75	86
Substance use disorders									
Alcohol abuse	13.0	14	15	16	19	25	39	45	61
Alcohol dependence	4.5	14	15	16	19	25	35	39	46
Drug abuse	5.6	14	14	16	18	21	25	29	37
Drug dependence	2.3	13	14	16	18	22	26	30	38
Any substance use disorder	13.8	13	14	16	18	24	37	45	61
Eating disorders									
Anorexia[3]	0.6	14	14	15	17	21	28	28	32
Bulimia[3]	1.4	10	13	15	18	23	38	46	56
Any eating disorder[3]	1.9	12	13	15	17	24	34	40	56
Any disorder[3]	46.6	4	5	10	18	34	53	67	78

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 LT risk = projected lifetime risk at age 75.

3 Assessed in the subsample who did the long form of the interview, see 12.4.2.

The estimates for lifetime risk, for any disorder, by age 75, for the total sample is 46.6%. This is approximately 7% more than the lifetime prevalence of 39.5%. In a later section in this chapter the probabilities of developing any disorder by age 75 will be considered by ethnicity, age and sex (unadjusted and adjusted for each of these three demographic correlates).

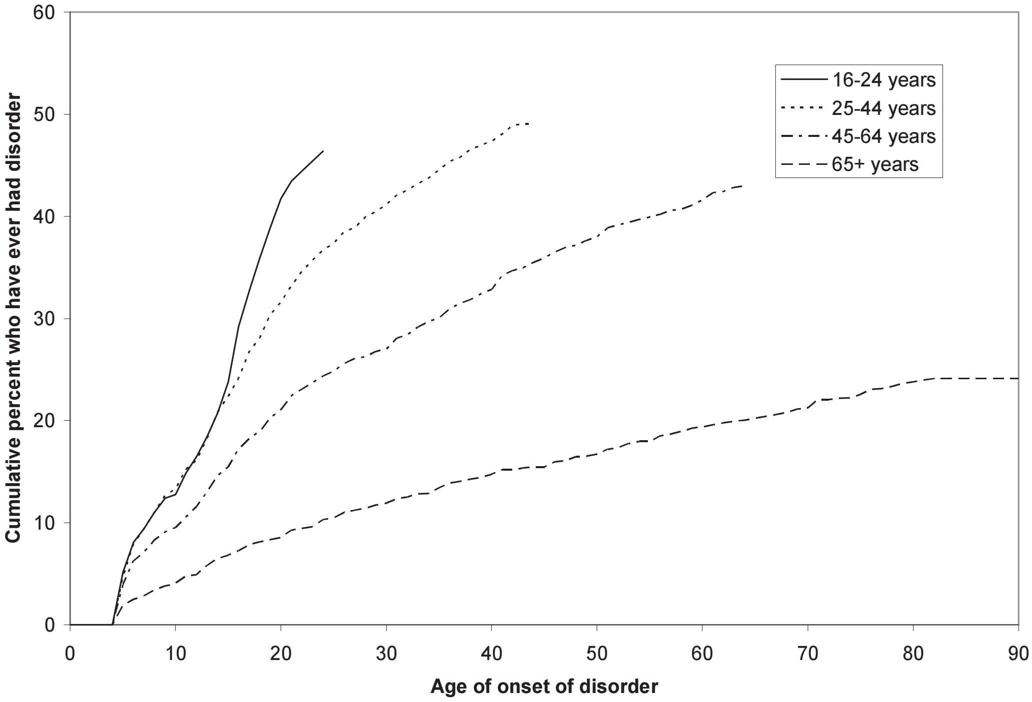
4.4 Lifetime risk across different birth cohorts

Cumulative lifetime risk curves for the onset of any mental disorder are presented in Figure 4.1. Separate onset curves are provided for the groups aged 16–24, 25–44, 45–64, and 65 and over at the time of the interview. These groups represent different birth cohorts, with the youngest age group having been born between 1978 and 1987 and the oldest age group having been born before 1939. The onset curves show that younger age groups have higher probabilities of disorder at any particular age compared with older age groups. For example, the percentages of people who have experienced any disorder by age 21 are: 43% for the group aged 16–24; 33% for the group aged 25–44; 23% for the group aged 45–64; and 9% for the group aged 65 and over.

Although this pattern may reflect a true difference in risk of disorder for younger cohorts compared with older cohorts, it is also possible that these differences are attributable to four systematic biases. These biases are as follows.

- Clear evidence exists from longitudinal studies that people often forget earlier episodes. As current disorder tends to be more prevalent in younger people, and older people have had more time to forget their earlier episodes, this can lead to older people apparently having been less likely to ever experience disorder.
- There is also a general ‘telescoping’ effect for all people asked to recall past episodes of disorder: episodes are brought forward in memory to a time closer to the time of the interview. For older age groups, this leads to an apparent lower risk earlier in their lives as they have ‘moved’ episodes in memory from earlier times in their lives to more recent times.
- It is possible different age cohorts have different conceptualisations or explanations for episodes of psychological distress or clusters of mental symptoms. People from more recent cohorts may be more likely to interpret such episodes as attributable to mental disorder, while people from older cohorts may interpret such episodes as expected reactions to circumstances and not perceive them as indicative of mental disorder.
- It is possible the degree of trust in the interviewers and associated willingness to disclose symptoms or behaviours varies by age cohort. For instance, younger people may be more prepared to admit to illicit drug use or problematic alcohol use than older people.

Figure 4.1: Onset of any disorder,[1] by age group



1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

Unfortunately, in a cross-sectional survey such as this, it is not possible to determine how much of the estimated increased risk of disorder among more recent cohorts is attributable to a 'true' difference and how much is attributable to bias.

4.5 Age, sex and ethnicity as predictors of lifetime risk

In this section sociodemographic correlates are considered as predictors of lifetime risk of any anxiety disorder, mood disorder, substance use disorder, eating disorder and any disorder. The sociodemographic factors considered are age, sex and ethnicity. Hazard functions are calculated to consider the influence of these factors on the instantaneous risk of onset of a disorder throughout a person's life.

A hazard is estimated as the proportion of individuals who have experienced an event (in this study, the onset of a disorder) in a particular time interval, given that they are known to have not experienced it previously (Everitt 1995).

The hazard ratio is a ratio of two hazards, at a defined point in time, for two groups of individuals. In these analyses, one subgroup is chosen as the reference group for the calculation of the ratios. The hazard ratio in this reference group is set to equal 1.0. For comparisons of the influence of age, the age group '65 and over' is the reference group. For sex, the reference group is males. For ethnicity the reference group is the Other composite ethnic group. If the hazard ratio for a group is higher than 1.0 then that group is at higher lifetime risk of disorder.

Table 4.3 shows the hazard ratios for lifetime disorders by ethnicity, age and sex. Ethnicity is presented both unadjusted and adjusted by age and sex. There is no adjustment for education and household income because these were measured at the time of interview and were not known throughout for the whole span of the participants' lives.

The hazard ratios do differ significantly for anxiety, mood, substance use and eating disorders across all three ethnic groups, both unadjusted ($p < .0001$ for all comparisons) and adjusted for age and sex ($p < .001$ for all comparisons). When pairwise comparisons are made between ethnic groups for specific disorders, with adjustment for age and sex, Māori have significantly higher hazard ratios for anxiety ($p < .0001$), mood ($p = .0008$), substance use disorders ($p < .0001$) and eating disorders ($p = .003$) than Others. Pacific people have higher hazard ratios for substance use ($p < .0001$) and eating disorders ($p < .0001$) compared with Others. Māori have significantly higher hazard ratios for mood ($p = .0004$) and substance use disorders ($p < .0001$) compared with Pacific people.

Table 4.3: Hazard ratios for lifetime disorders,[1] by age, sex and ethnicity (unadjusted and adjusted for the influence of age and sex)

	Hazard ratio for lifetime disorders % (95% CI)				
	Any anxiety disorder	**Any mood disorder**	**Any substance use disorder**	**Any eating disorder**	**Any disorder**
Ethnicity (unadjusted)					
Māori	1.5 (1.3, 1.7)	1.5 (1.4, 1.7)	3.1 (2.7, 3.5)	2.4 (1.6, 3.5)	1.7 (1.5, 1.9)
Pacific	1.3 (1.1, 1.5)	1.1 (1.0, 1.3)	1.8 (1.6, 2.2)	3.5 (2.3, 5.5)	1.4 (1.3, 1.6)
Other	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
Ethnicity (adjusted for age and sex)[2]					
Māori	1.3 (1.2, 1.5)	1.2 (1.1, 1.4)	2.6 (2.3, 3.0)	1.8 (1.2, 2.6)	1.4 (1.3, 1.6)
Pacific	1.1 (1.0, 1.3)	0.9 (0.8, 1.0)	1.5 (1.3, 1.8)	2.7 (1.7, 4.2)	1.2 (1.1, 1.4)
Other	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)

	Hazard ratio for lifetime disorders % (95% CI)				
	Any anxiety disorder	Any mood disorder	Any substance use disorder	Any eating disorder	Any disorder
Age group in years (adjusted for ethnicity and sex)[2]					
16–24	3.3 (2.6, 4.1)	17.4 (13.7, 22.2)	11.3 (8.6, 14.9)	76.7 (22.5, 260.8)	5.5 (4.5, 6.8)
25–44	3.2 (2.6, 3.9)	6.8 (5.6, 8.2)	5.1 (3.9, 6.5)	71.4 (22.6, 225.7)	4.1 (3.4, 4.9)
45–64	2.2 (1.8, 2.7)	3.5 (2.9, 4.1)	2.8 (2.1, 3.6)	19.6 (6.0, 64.5)	2.6 (2.1, 3.1)
65 and over	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
Sex (adjusted for ethnicity and age)[2]					
Male	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
Female	1.6 (1.4, 1.8)	1.6 (1.5, 1.8)	0.4 (0.4, 0.5)	5.5 (3.6, 8.4)	1.2 (1.1, 1.3)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 For the method of adjustment, see 12.10.2.

Table 4.3 also shows hazard ratios for age and sex. Compared with the group aged 65 and over, the other age groups have significantly higher hazard ratios for any disorder, anxiety, mood, substance use and eating disorders ($p < .0001$ for all comparisons). There is a gradient across the age groups, with younger age groups having higher hazard ratios than older age groups. Females have higher hazard ratios compared with males for any disorder ($p = .0003$). For the disorder groups, females have higher hazard ratios than males for any anxiety, mood and eating disorders, but a lower hazard ratio for substance use disorder ($p < .0001$ for all comparisons).

4.6 Conclusions

These results confirm those of other studies: mental disorders are relatively common and tend to have early onset. The New Zealand lifetime prevalence rates for the major diagnostic groups (anxiety, mood and substance use disorders) are higher than the aggregated results from the six European countries involved in the ESEMeD, but very similar to those obtained in the US NCS-R.

The estimates of lifetime risk for the New Zealand population are also similar to the estimates of lifetime risk obtained in the NCS-R. As in the NCS-R, this study found that most disorders have early age of onset and younger cohorts are at higher risk of lifetime disorder than older cohorts.

As in past and recent community studies, females have higher lifetime prevalence estimates and hazard ratios for lifetime disorder for anxiety, mood and eating disorders than males.

This study is unique in that it provides prevalence rates and hazard ratios for lifetime risk of disorder for Māori and Pacific people. The hazard ratios for lifetime disorder for Māori and Pacific people suggest these populations have an excess burden of lifetime mental disorder compared with other ethnic groups, even when adjustment is made for these ethnic groups' different population structures.

5 Comorbidity

Key results

Mental disorder comorbidity

- Some experience of mental disorder is widespread in the community (affecting 20.7% of the population), and while most (63%) people who experience a 12-month mental disorder have only one disorder, a sizeable group (37%) have more than one.
- Much of the burden of psychopathology (61.4% of all 12-month disorders) is carried by a small proportion of the population (7.7%) who experience multiple disorders.
- Mood and anxiety disorders commonly co-occur; by comparison, substance use disorders are less frequently comorbid with other categories of disorder. Comorbidity between substance use disorders was common, however, with 45.3% of those with a drug use disorder also meeting criteria for alcohol abuse and 30.7% meeting criteria for alcohol dependence.
- A clear relationship exists between the increasing number of disorders and case severity, with 59.6% of people experiencing multiple disorders classified as serious cases.
- A clear association exists between an increasing number of disorders and suicidal behaviour, especially suicide attempts.
- The more disorders experienced, the greater the likelihood of accessing health services of all kinds, particularly specialist mental health services.

Mental–physical comorbidity

- People with mental disorders have higher prevalences of several chronic physical conditions; namely, chronic pain, cardiovascular disease, high blood pressure and respiratory conditions. The prevalence of chronic disease risk factors is also higher among people with mental disorders.
- People with chronic physical conditions generally experience a higher prevalence of mental disorders compared with people without physical conditions.
- The sex difference in the prevalence of mental disorder in our survey (with females having a higher prevalence than males) is wider for people with some chronic conditions (cardiovascular disease and diabetes) compared with people without those chronic conditions.

5.1 Introduction

This chapter reports results relating to the co-occurrence of multiple disorders or conditions within individuals. The chapter is divided into two sections.

Section 5.2 is concerned with the extent to which individuals who experience mental disorder have more than one mental disorder. Previous research has indicated that this is a common phenomenon, one that has important implications for case severity and treatment.

Section 5.3 deals with the co-occurrence of mental disorders with chronic physical conditions and with the risk factors for physical disease. In addition to its principal focus on mental disorders, Te Rau Hinengaro: The New Zealand Mental Health Survey also gathered information about whether participants had one or more of a range of chronic physical conditions such as diabetes, heart disease and cancer. This allows the presentation of results on the extent of overlap between mental and physical disorders, the first such national information available in New Zealand.

5.2 Mental disorder comorbidity

5.2.1 Introduction

Since the development of psychiatric classification systems and the use of structured diagnostic interviews, studies in psychiatric epidemiology have found evidence for substantial mental disorder comorbidity (Andrews 1996; Wittchen 1996). With regard to mental disorders, the term ‘comorbidity’ refers to the co-occurrence of two or more mental disorders within the one individual, either at the same time or within a specified period such as 12 months or over the lifetime.

The first survey to report lifetime comorbidity was the Epidemiologic Catchment Area Study (ECA) in the United States (US) (see 1.7.1), which found that of those who met criteria for at least one disorder at some stage in their lives, 54% met criteria for two or more disorders (Regier et al 1990). A decade later a very similar estimate of 56% for lifetime comorbidity was obtained from the National Comorbidity Survey (see 1.7.3), also in the US (Kessler et al 1994). Closer to home, the Australian Survey of Mental Health and Well-being (see 1.7.4) found that of people who met criteria for at least one disorder in the 12 months before interview (‘12-month disorder’), nearly 40% met criteria for two or more disorders (Andrews et al 2001).

The analyses reported below investigate whether this finding of widespread comorbidity is replicated in New Zealand.

Understanding the phenomenon of comorbidity is important for several reasons. Recognising the clustering of disorders within individuals gives a greater appreciation of how and in whom the burden of psychopathology is concentrated. Lifetime comorbidity patterns, where adult-onset disorders typically occur to those who have already had at least one disorder, offer important opportunities for secondary prevention of mental disorder (Kessler and Walters 2002). International research has found that comorbidity is associated with more severe symptoms (Roy-Byrne et al 2000), a greater likelihood of suicide attempt (Vollrath and Angst 1989) and greater disability (Andrews et al 2002; Bijl and Ravelli 2000). It also increases the likelihood of treatment seeking (Galbaud Du Fort et al 1993; Rodriguez et al 2004) and frequently complicates treatment, leading to poor treatment response (O'Brien and Vincent 2003; Rowe et al 2004). The New Zealand results presented below on the contribution of comorbidity to case severity and service utilisation are consistent with this international research. These population-based findings can, in conjunction with service-based data, aid policy makers in modelling the funding and configuration of mental health services.

Several explanations exist for mental disorder comorbidity (Wittchen 1996). These include the perspective that it is not so much that individuals have multiple disorders, but rather that classification systems keep fragmenting, splitting diagnoses into separate classes that more properly belong together (First 2002). Another explanation is that a person's experience of one disorder predisposes them to a further specific disorder (Kessler et al 1996). Others have argued that disorders in the anxiety–depression spectrum are frequently comorbid because they share common vulnerability factors in the form of personality and coping style (Andrews 1996), adversity (Brown et al 1996) or genetics (Kendler 1996). Deciding between these explanations is beyond the scope of this survey.

The level of disability associated with comorbid disorders is reported in chapter 6.

5.2.2 Distribution of mental disorder comorbidity

Table 5.1 shows the proportion of *the population* with one disorder (13%), two disorders (4.4%) and three or more disorders (3.3%) over the past 12 months. This tells us something about the spread of psychopathology in the New Zealand population.

The table also shows the proportion of *cases* (ie, those with at least one 12-month disorder) who have one, two, or three or more disorders. This indicates that of the group of people with a 12-month mental disorder, 63.0% had one disorder, 21.1% had two disorders and 15.9% had three or more disorders. From this we can conclude that a little over a third (21.1% plus 15.9%) of those with any disorder have more than one disorder.

The ‘Diagnoses’ column considers the total number of 12-month *disorders* occurring to people and shows the proportion of these that occur to people with one disorder, two disorders, or three or more disorders. Only 38.6% of the total number of 12-month disorders occur to people with just one mental disorder, whereas the remaining 61.4% (35.5% plus 25.9%) of disorders occur to people with two or more disorders (who comprise 7.7% of the population). This tells us something about the concentration of psychopathology, in that the majority of disorders occur to those who already have a disorder (ie, they are comorbid disorders).

Table 5.1: Distribution of 12-month comorbidity among the population, cases and diagnoses[1]

Number of mental disorders	Population % (95% CI)	Cases % (95% CI)	Diagnoses %
No disorder	79.3 (78.1, 80.5)		
One disorder	13.0 (12.1, 14.0)	63.0 (60.6, 65.3)	38.6
Two disorders	4.4 (3.9, 4.8)	21.1 (19.3, 23.2)	25.9
Three or more disorders	3.3 (2.9, 3.7)	15.9 (14.3, 17.7)	35.5

1 Assessed in the subsample who did the long form of the interview, see 12.4.2.

The table as a whole gives three perspectives on the distribution of disorders. First, they are widespread, in that 20% of the population have some experience of them in a year. Second, most people who experience mental disorder have one disorder, but a sizeable group (over a third) have more than one. Third, when considering the number of disorders (rather than the number of people), much of the burden of psychopathology is carried by a small proportion of the population who share the bulk of disorders among them (Kessler et al 1994).

5.2.3 Patterns of mental disorder comorbidity

Table 5.2 indicates which disorders tend to go together. It shows a good deal of overlap between anxiety and mood disorders, with approximately half (49.6%) of those experiencing a 12-month mood disorder also experiencing an anxiety disorder, while only 12.9% of the same group experienced a comorbid substance use disorder. Among those with anxiety disorders, 26.6% had a comorbid mood disorder and 9.4% had a comorbid substance use disorder. Twenty-nine percent of those with a 12-month substance use disorder had a comorbid mood disorder, and 40.0% had a comorbid anxiety disorder.

Table 5.2: Percentage with a 12-month mental disorder, by 12-month mental disorder group

Twelve-month mental disorder group[1]	**Twelve-month mental disorder**[1] **%** **(95% CI)**		
	Any anxiety disorder[2]	**Any mood disorder**	**Any substance use disorder**
Any anxiety disorder[2]		26.6 (24.1, 29.3)	9.4 (7.8, 11.2)
Any mood disorder	49.6 (45.8, 53.4)		12.9 (10.6, 15.6)
Any substance use disorder	40.0 (34.6, 45.7)	29.0 (24.3, 34.3)	
Total population	14.8 (13.9, 15.7)	7.9 (7.3, 8.7)	3.5 (3.0, 4.0)

1 DSM-IV CIDI 3.0 disorder groups.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

Table 5.2 also provides a further demonstration of the general phenomenon of comorbidity among mental disorders: the tendency for mental disorders to occur to those who already have them. Among those with any mood disorder, 49.6% experienced an anxiety disorder compared with 14.8% of the total population who experienced an anxiety disorder. Among those with any substance use disorder, 29.0% experienced a mood disorder compared with 7.9% of the general population who experienced a mood disorder.

Table 5.3 provides more detail on comorbidity within the substance use category. Comorbidity among substance use disorders was common. Around a quarter of those with alcohol dependence also met criteria for drug dependence (23.5%) or drug abuse (28.1%). For those with drug use disorders, even greater proportions had alcohol use disorder comorbidity. About half (49.9%) of those with drug dependence also reported alcohol abuse symptoms in the past 12 months, and 43.1% of those with drug dependence were also alcohol dependent. As with Table 5.2, this table demonstrates the clustering of disorders in those who already have disorders. The finding that nearly 50% of those with drug dependence also met criteria for alcohol abuse contrasts with the 2.6% of the general population who met criteria for alcohol abuse.

Table 5.3: Percentage with 12-month substance use disorders, by substance use disorders

Twelve-month disorder[1]	Twelve-month substance use disorder[1] % (95% CI)			
	Drug abuse	**Drug dependence**	**Alcohol abuse**	**Alcohol dependence**
Alcohol abuse	20.3 (15.4, 26.3)	13.3 (9.4, 18.6)		39.1 (33.0, 45.7)
Alcohol dependence	28.1 (20.5, 37.3)	23.5 (16.5, 32.4)	79.9 (72.3, 85.8)	
Any alcohol use disorder	21.1 (16.4, 26.7)	13.9 (10.1, 18.9)		
Drug abuse		41.7 (32.2, 51.8)	45.9 (35.8, 56.4)	31.1 (22.7, 41.0)
Drug dependence	69.0 (53.8, 81.1)		49.9 (36.3, 63.4)	43.1 (30.4, 56.9)
Any drug use disorder			45.3 (35.8, 55.3)	30.7 (22.9, 32.9)
Total population	1.2 (0.9, 1.4)	0.7 (0.5, 0.9)	2.6 (2.3, 3.0)	1.3 (1.1, 1.5)

1 DSM-IV CIDI 3.0 substance use disorders.

5.2.4 Relationships between comorbidity and severity, and suicidal behaviour

Table 5.4 shows the association between increasing number of disorders and case severity. The increasing severity that goes along with increasing comorbidity can be seen by comparing the 11.7% classified as serious cases among those with one disorder with the 59.6% classified as serious among those with three or more disorders. Similarly, a large proportion of those with one disorder are classified as mild cases (43.5%), with only 4.6% of those with three or more disorders classified as mild cases.

Table 5.4: Percentage in each category of severity, by number of 12-month mental disorders[1,2]

Number of mental disorders[1,2]	Severity classification[1] % (95% CI)			
	Total	**Serious**	**Moderate**	**Mild**
One disorder	13.0 (12.1, 14.0)	11.7 (9.9, 13.9)	44.8 (41.5, 48.0)	43.5 (40.4, 46.7)
Two disorders	4.4 (3.9, 4.8)	27.5 (23.4, 32.1)	55.5 (50.6, 60.3)	16.9 (13.5, 21.0)
Three or more disorders	3.3 (2.9, 3.7)	59.6 (53.9, 65.1)	35.8 (30.6, 41.4)	4.6 (2.7, 7.6)
Any disorder	20.7 (19.5, 21.9)	22.7 (20.8, 24.7)	45.6 (43.1, 48.2)	31.7 (29.4, 34.1)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

A very clear relationship also exists between an increasing number of disorders and suicidal ideation, suicide plans and suicide attempts, as Table 5.5 demonstrates. This is particularly noticeable with suicide attempts, where the proportion with three or more disorders attempting suicide (5.6%) exceeds the proportion of suicide attempters among those with one disorder (0.3%) 18-fold.

Table 5.5: Suicidal behaviour, by number of 12-month mental disorders

Number of mental disorders[1,2]	**Suicidal behaviour % (95% CI)**		
	Suicidal ideation	**Suicidal plan**	**Suicidal attempt**
No disorder	0.9 (0.7, 1.3)	0.2 (0.1, 0.3)	0.1 (0.1, 0.2)
One disorder	6.1 (4.7, 7.8)	1.1 (0.7, 1.7)	0.3 (0.1, 0.7)
Two disorders	15.4 (12.2, 19.5)	5.9 (3.9, 8.7)	2.6 (1.4, 5.0)
Three or more disorders	29.8 (24.5, 35.7)	13.2 (9.4, 18.4)	5.6 (3.1, 10.0)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

5.2.5 Relationship between mental disorder comorbidity and health sector service use

Comorbidity has considerable implications for service use, as would be expected from the relationships already discussed with severity and suicidal behaviour. Table 5.6 illustrates that people with more disorders are more likely to access health services of all kinds. However, it is also clear that the greatest impact of mental disorder comorbidity is on the use of mental health services, psychiatric services in particular. Some 16.8% of people with three or more disorders visited a psychiatrist in the past 12 months, which is more than five times the percentage (3.1%) of people with one disorder who visited a psychiatrist. By contrast, the proportion of people with three or more disorders who accessed general medical care for a mental health visit (45.1%) was a little over twice the proportion of people with one disorder (21.8%) who accessed general medical care for a mental health visit.

Table 5.6: Percentage using health services for a mental health visit in past 12 months, by number of 12-month disorders

Number of mental disorders[1,2]	Healthcare % (95% CI)				Non-healthcare % (95% CI)			Any care
	Psychiatrist	Any mental healthcare	General medical care	Any healthcare	Human services	Complementary or alternative medicine	Any non-healthcare	
One disorder	3.1 (2.0, 4.8)	11.2 (9.1, 13.6)	21.8 (19.3, 24.5)	27.8 (25.0, 30.8)	3.4 (2.4, 4.75)	4.9 (3.5, 6.6)	7.3 (5.8, 9.3)	30.4 (27.5, 33.4)
Two disorders	7.4 (5.1, 10.5)	21.0 (17.1, 25.4)	35.2 (30.5, 40.2)	44.1 (39.1, 49.2)	5.8 (3.7, 8.8)	7.9 (5.6, 11.1)	12.1 (9.0, 16.0)	48.2 (43.2, 53.3)
Three or more disorders	16.8 (12.7, 21.9)	31.2 (26.1, 36.9)	45.1 (39.3, 51.0)	55.8 (49.8, 61.6)	9.2 (6.5, 13.0)	13.8 (9.9, 18.8)	19.6 (15.3, 24.8)	60.3 (54.4, 66.0)
Any disorder	6.2 (5.0, 7.6)	16.4 (14.7, 18.4)	28.3 (26.2, 30.6)	35.7 (33.4, 38.1)	4.8 (3.9, 6.0)	6.9 (5.7, 8.4)	10.3 (8.8, 12.0)	38.9 (36.5, 41.3)
No disorder	0.7 (0.5, 1.0)	2.2 (1.8, 2.8)	4.1 (3.5, 4.8)	5.7 (5.0, 6.6)	0.7 (0.5, 1.1)	1.5 (1.1, 2.1)	2.1 (1.6, 2.7)	7.2 (6.3, 8.2)

[1] DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

[2] Assessed in the subsample who did the long form of the interview, see 12.4.2.

5.2.6 Conclusions

This study is the first to report on the extent and distribution of mental disorder comorbidity in the New Zealand population. It has found that comorbidity of 12-month disorders is common, with 37% of 12-month cases being comorbid. The overlap between mood and anxiety disorders was the most common comorbidity (that is, among those with mood disorder the most frequent comorbid disorder is anxiety and vice versa). Co-occurring alcohol use disorders among those with drug use disorders was also very common. Comorbidity was strongly associated with case severity, with suicidal behaviour (especially suicide attempts) and with health sector use (especially mental health sector use). Data presented in chapter 6 show the relationship between comorbidity and disability.

In general terms, these findings replicate those found elsewhere. There are small differences in degree, but not kind, in the results we have obtained. For example, where New Zealand found 37% of those with 12-month disorders had more than one disorder, the corresponding percentage from the Australian Survey of Mental Health and Well-being was a little under 40% (Andrews et al 2001). The patterns of comorbidity found here are also very similar to those observed in other countries. For example, where this survey found that 49.6% of people with 12-month mood disorder had a comorbid anxiety disorder, the US National Comorbidity Survey found 51.2% (Kessler et al 1996). The association of comorbidity with suicidal behaviours observed in this survey gives cross-sectional support for the findings of Vollrath and Angst (1989) of an increased prevalence of completed suicides among those with comorbid panic and depression. The association of comorbidity and service utilisation is well established (Andrews et al 2002).

Mental disorder comorbidity is clearly a robust phenomenon, with similar distributions and patterns in different countries, and is associated with serious consequences for the individual and for treatment services.

5.3 Mental–physical comorbidity

5.3.1 Introduction

Research has documented significant comorbidity between chronic physical conditions and mental disorders. Several studies have testified to the poorer physical health status and higher prevalence of chronic physical conditions, disease and chronic disease risk factors among people with mental disorders (Davidson et al 2001; Kendrick 1996; Wallace and Tennant 1998; Wells et al 1989c). This is an important public health issue. It not only results in greater suffering and disability in the affected individuals, but it has been shown to lead to considerably higher risk of premature mortality for people with most mental disorders, even after adjusting for suicide (Brown et al 2000; Harris and Barraclough 1998).

The other perspective on the overlap of mental disorders and physical disease is from the point of view of people with chronic physical conditions and the extent to which they experience comorbid mental disorders. Research has frequently found that the prevalence of mental disorder is higher in people with chronic physical disorders than in people without physical disorders (Buist-Bouwman et al 2005; Kessler et al 1994; Ormel et al 1994; Wells et al 1988). Among people with physical disorders, comorbid mental disorders lead to greater role impairment (Kessler et al 2003b; Steffens et al 1999; Sullivan et al 1997) and higher treatment costs (Ciechanowski et al 2000). Some mental disorders also make an independent contribution to excess mortality among people with certain chronic physical diseases (Carney et al 2002; Zhang et al 2005).

The results presented below represent the first New Zealand data on the extent of physical disorder and mental disorder comorbidity in the general population. The tables show the prevalence of selected chronic physical conditions, and key risk factors for those conditions, in people with and without mental disorders. Conversely, results are presented for the prevalence of mental disorders in people with and without selected chronic physical conditions. The results presented below are adjusted for age and sex (see 12.10.2). The adjustment provides the scores that would occur if the age and sex distribution of those with the disorder in question (eg, chronic pain) matched the age and sex distribution of those without that disorder. This adjustment is necessary because the prevalence of mental disorders is higher in younger people, while the prevalence of chronic physical conditions is higher in older people.

The assessment of the chronic physical conditions in this survey was carried out by presenting participants with a checklist of physical conditions and asking them whether they had ever had the problem (for some of the conditions) or whether they had ever been told by a doctor they had the problem (for the remainder of the conditions). Participants were also asked if they still had the condition, or were still receiving treatment for it, in the past 12 months. It is this 12-month prevalence of chronic conditions that is reported in this chapter. Self-report of physical conditions is a common method of obtaining information on chronic physical disorders as research has demonstrated a reasonable correspondence between self-reported physical disease and more objective measures such as medical records (Kessler et al 2003b).

5.3.2 Physical disease status of people with mental disorders

The key theme that emerges from Table 5.7 is that people with mental disorders had higher prevalences of several chronic physical conditions. People with (any) mental disorder, relative to those no mental disorder, had higher prevalences of chronic pain (51.9% compared with 35.1%) ($p < 0.0001$), cardiovascular disease (10.2% compared with 7.5%) ($p < 0.005$), high blood pressure (15.0% compared with 12.5%) ($p < 0.02$) and respiratory conditions (23.0% compared with 16.7%) ($p < 0.0001$). Cancer was equally prevalent in those with and without mental disorders (5.8% compared with 5.8%).

Sex differences in the prevalence of chronic physical conditions were generally consistent across the populations with and without mental disorders. There were, however, two significant interactions involving sex. Females with mood disorder had nearly twice the prevalence of cardiovascular disease as corresponding males, but there was no such sex difference in cardiovascular disease prevalence among those without mood disorder ($p < 0.02$). The same pattern occurred for diabetes ($p < 0.03$).

Table 5.7: Prevalence of chronic physical conditions (experienced in the past 12 months) among people with 12-month mental disorder, adjusted for age[1,2,3]

	Chronic physical condition % (95% CI)					
	Chronic pain[4]	Cardiovascular disease[5]	High blood pressure	Respiratory conditions[6]	Diabetes	Cancer
Any anxiety disorder						
Males	51.7 (46.5, 56.9)	12.7 (9.1, 16.3)	16.2 (12.2, 20.2)	23.4 (18.0, 28.8)	7.2 (4.2, 10.2)	6.5 (3.9, 9.0)
Females	55.6 (52.3, 59.0)	9.8 (7.8, 11.8)	15.6 (13.1, 18.1)	23.5 (20.7, 26.3)	4.0 (2.8, 5.3)	7.1 (5.4, 8.8)
Total	53.0 (50.0, 55.9)	10.8 (8.8, 12.7)	15.7 (13.5, 17.9)	22.9 (20.1, 25.6)	5.3 (3.9, 6.8)	6.6 (5.2, 8.0)
Any mood disorder						
Males	47.5 (41.3, 53.8)	6.3 (3.2, 9.5)	12.2 (7.4, 17.1)	22.1 (16.3, 27.9)	3.4 (1.1, 5.7)	6.7 (3.1, 10.3)
Females	57.5 (53.4, 61.7)	11.8 (8.5, 15.0)	15.7 (12.1, 19.3)	27.7 (23.6, 31.9)	6.1 (3.4, 8.8)	6.5 (4.3, 8.8)
Total	52.7 (49.0, 56.4)	10.1 (7.5, 12.6)	14.4 (11.5, 17.3)	25.1 (21.6, 28.6)	5.4 (3.3, 7.4)	6.3 (4.4, 8.3)
Any substance use disorder						
Males	49.4 (40.5, 58.2)	5.5 (0.8, 10.2)	13.5 (5.8, 21.1)	22.1 (15.4, 28.8)	1.8 (0.0, 4.5)	4.9 (0.0, 10.0)
Females	63.5 (54.4, 72.6)	10.0 (1.8, 18.1)	21.3 (12.2, 30.3)	33.8 (24.7, 43.0)	6.6 (0.4, 12.9)	6.3 (0.0, 12.9)
Total	56.2 (49.5, 62.9)	6.6 (2.4, 10.8)	15.8 (9.5, 22.2)	27.0 (21.0, 33.0)	2.8 (0.4, 5.2)	5.8 (1.4, 10.1)
Any mental disorder						
Males	49.1 (44.7, 53.5)	10.7 (7.8, 13.6)	14.3 (11.2, 17.4)	20.6 (16.6, 24.7)	5.9 (3.6, 8.2)	5.1 (3.2, 7.0)
Females	55.1 (52.2, 58.0)	9.9 (7.9, 11.8)	15.5 (13.2, 17.7)	25.2 (22.6, 27.9)	4.4 (3.1, 5.7)	6.5 (5.0, 8.0)
Total	51.9 (49.3, 54.5)	10.2 (8.5, 12.0)	15.0 (13.1, 16.9)	23.0 (20.7, 25.4)	5.1 (3.9, 6.4)	5.8 (4.6, 7.0)
No mental disorder						
Males	30.0 (27.3, 32.6)	7.8 (6.4, 9.2)	12.3 (10.4, 14.1)	14.8 (12.7, 17.0)	4.7 (3.5, 5.9)	4.8 (3.6, 6.1)
Females	39.8 (37.1, 42.5)	7.3 (5.9, 8.8)	12.6 (10.9, 14.4)	18.3 (16.1, 20.6)	3.3 (2.3, 4.3)	6.6 (5.3, 8.0)
Total	35.1 (33.0, 37.1)	7.5 (6.5, 8.6)	12.5 (11.1, 13.8)	16.7 (15.1, 18.2)	4.0 (3.2, 4.7)	5.8 (4.9, 6.7)
Total						
Males	33.1 (30.6, 35.5)	8.1 (6.7, 9.4)	12.5 (10.8, 14.2)	15.8 (13.9, 17.8)	4.8 (3.7, 5.9)	4.9 (3.7, 6.0)
Females	43.5 (41.2, 45.7)	7.7 (6.5, 9.0)	13.2 (11.6, 14.7)	20.0 (18.2, 21.8)	3.5 (2.7, 4.4)	6.6 (5.5, 7.8)
Total	38.5 (36.7, 40.3)	7.9 (7.0, 8.9)	12.8 (11.7, 14.1)	18.0 (16.7, 19.4)	4.1 (3.5, 4.9)	5.8 (5.0, 6.7)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 Sex-stratified estimates are adjusted for age; ‘total’ estimates are adjusted for age and sex.

4 Chronic pain: arthritis or rheumatism; chronic back or neck problem; frequent or severe headaches; any other chronic pain.

5 Cardiovascular disease: stroke; heart attack; heart disease.

6 Respiratory conditions: asthma; chronic obstructive pulmonary disease; emphysema; other chronic lung disease.

Table 5.8 shows a significantly higher prevalence of all of the chronic disease risk factors included in the table in people with mental disorder compared with people without mental disorder. Among people with (any) mental disorder compared with people without mental disorder, there were higher prevalences of current smoking (32.3% compared with 20.7%) ($p < 0.0001$), overweight/obesity (55.2% compared with 50.9%) ($p = 0.01$), high blood pressure (15.0% compared with 12.5%) ($p < 0.02$), and hazardous alcohol use (32.5% compared with 16.5%) ($p < 0.0001$). The finding for alcohol use is inflated by the 'any mental disorder' category including people with diagnosed substance use disorders, most of whom have alcohol use disorders. However, the prevalence of hazardous alcohol use was still significantly higher among people with mood disorders ($p < 0.0001$) and anxiety disorders ($p < 0.0001$) compared with people without.

The picture for overweight and obesity also shows a relationship with sex in that the prevalence of being overweight or obese among females was higher among females with mental disorder (51.2%) compared with females without mental disorder (43.4%), but the same relationship did not occur for males (58.4% among those with mental disorder compared with 59.1% among those without mental disorder). The table also shows a sex difference in the prevalence of being overweight or obese in general, with an overweight/obesity prevalence in the general population of 45.3% among females and 59.0% among males. This differs from more objective estimates from the 1997 National Nutrition Survey, which found 49% of females and 55% of males to be overweight/obese (Russell et al 1999). This suggests a small degree of underestimation of weight by women and overestimation of weight (or height) by men in this survey. But such biased estimates are unlikely to explain the relationship between being overweight or obese and mental disorder for females noted above.

The only other sex pattern that was pronounced – although not unexpected – was the higher prevalence of hazardous alcohol use among males, both with and without mental disorders. However, that sex difference was no more pronounced for people with mental disorders than for people without.

Table 5.8: Prevalence of selected chronic physical condition risk factors (experienced in the past 12 months), by 12-month mental disorder group, age adjusted[1,2,3]

	Risk factors for chronic physical conditions % (95% CI)			
	Smoking[4]	**Overweight[5]**	**High blood pressure**	**Alcohol[6]**
Any anxiety disorder				
Males	28.7 (24.4, 33.1)	58.9 (53.8, 64.1)	16.2 (12.2, 20.2)	37.0 (30.0, 44.0)
Females	30.6 (27.6, 33.6)	52.4 (48.9, 55.9)	15.6 (13.1, 18.1)	17.7 (14.3, 21.0)
Total	30.4 (27.7, 33.0)	56.5 (53.5, 59.5)	15.7 (13.5, 17.9)	27.4 (23.7, 31.0)
Any mood disorder				
Males	34.9 (28.3, 41.5)	54.6 (47.7, 61.4)	12.2 (7.4, 17.1)	39.5 (32.1, 46.8)
Females	32.9 (28.6, 37.3)	47.8 (43.1, 52.4)	15.7 (12.1, 19.3)	21.5 (16.0, 27.1)
Total	34.0 (30.2, 37.8)	51.7 (47.7, 55.7)	14.4 (11.5, 17.3)	30.7 (25.8, 35.5)
Any substance use disorder				
Males	50.9 (41.8, 59.9)	51.5 (41.9, 61.0)	13.5 (5.8, 21.1)	90.5 (83.4, 97.6)
Females	69.9 (60.4, 79.3)	53.0 (42.6, 63.4)	21.3 (12.2, 30.3)	74.1 (60.2, 88.0)
Total	56.2 (49.1, 63.2)	49.0 (41.1, 56.8)	15.8 (9.5, 22.2)	82.7 (74.4, 91.0)
Any mental disorder				
Males	32.8 (28.3, 37.3)	58.4 (53.7, 63.2)	14.3 (11.2, 17.4)	46.6 (40.7, 52.5)
Females	31.4 (28.7, 34.2)	51.2 (48.2, 54.3)	15.5 (13.2, 17.7)	19.5 (16.3, 22.7)
Total	32.3 (29.7, 34.8)	55.2 (52.5, 58.0)	15.0 (13.1, 16.9)	32.5 (28.9, 36.0)
No mental disorder				
Males	22.4 (19.8, 25.0)	59.1 (56.1, 62.1)	12.3 (10.4, 14.1)	24.0 (20.2, 27.8)
Females	19.1 (16.9, 21.3)	43.4 (40.6, 46.2)	12.6 (10.9, 14.4)	9.3 (6.9, 11.8)
Total	20.7 (19.0, 22.4)	50.9 (48.9, 53.0)	12.5 (11.1, 13.8)	16.5 (14.2, 18.8)
Total				
Males	24.3 (21.9, 26.7)	59.0 (56.3, 61.6)	12.5 (10.8, 14.2)	28.2 (24.9, 31.6)
Females	22.2 (20.4, 24.1)	45.3 (43.0, 47.5)	13.2 (11.6, 14.7)	12.0 (10.0, 14.0)
Total	23.2 (21.7, 24.8)	51.8 (50.0, 53.6)	12.8 (11.7, 14.1)	19.9 (17.9, 22.1)

1 DSM-IV CIDI 3.0 disorder groups.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 Sex-stratified estimates are adjusted for age; ‘total’ estimates are adjusted for age and sex.

4 Smoking: current smoker.

5 Overweight and obesity: body mass index of 25 or over.

6 Alcohol: Alcohol Use Disorders Identification Test score of 8 or more, described as ‘potentially hazardous drinkers’.

5.3.3 Mental health status of people with chronic physical conditions

Table 5.9 shows that people with chronic physical conditions generally experienced higher prevalences of mental disorders compared with people without physical conditions. For example, the prevalence of any mental disorder among people with no physical conditions was 15.1%, compared with prevalences of any mental disorder among people with physical conditions mostly falling within a range of 25%–29%. As that example also illustrates, the prevalences of any mental disorder were fairly similar across the chronic conditions specified. However, the total prevalence figure for any mental disorder among those with the specified chronic conditions obscures a general pattern of significantly higher prevalence of any mental disorder among females with chronic conditions compared with males with chronic conditions.

Table 5.9: Prevalence of 12-month mental disorders among people with selected chronic physical conditions (experienced in the past 12 months)[1,2,3]

	Mental disorder group % (95% CI)			
	Any anxiety disorder	**Any mood disorder**	**Any substance use disorder**	**Any mental disorder**
Chronic pain[4]				
Males	17.0 (14.3, 19.7)	9.3 (7.5, 11.2)	8.4 (6.3, 10.5)	25.5 (22.3, 28.6)
Females	25.2 (22.9, 27.6)	13.5 (11.7, 15.3)	3.4 (2.3, 4.4)	32.2 (29.5, 34.8)
Total	21.2 (19.4, 23.0)	11.5 (10.1, 12.8)	5.8 (4.6, 7.0)	28.9 (26.8, 31.0)
Cardiovascular disease[5]				
Males	15.8 (10.2, 21.4)	4.3 (1.8, 6.8)	3.6 (0.1, 7.1)	20.0 (13.7, 26.2)
Females	26.3 (19.9, 32.7)	16.6 (10.8, 22.5)	2.2 (0.0, 4.5)	34.2 (27.0, 41.4)
Total	21.2 (16.7, 25.8)	10.7 (7.3, 14.1)	2.9 (0.7, 5.0)	27.4 (22.3, 32.5)
High blood pressure				
Males	13.1 (9.1, 17.0)	5.7 (3.1, 8.3)	5.6 (1.7, 9.5)	17.7 (13.0, 22.4)
Females	23.9 (19.4, 28.5)	12.3 (8.8, 15.9)	3.2 (1.2, 5.2)	30.7 (25.7, 35.7)
Total	18.7 (15.5, 21.9)	9.1 (6.9, 11.4)	4.4 (2.1, 6.6)	24.6 (21.0, 28.1)
Respiratory conditions[6]				
Males	15.7 (11.6, 19.9)	8.5 (6.1, 10.9)	6.6 (4.6, 8.5)	22.0 (17.5, 26.5)
Females	21.8 (18.6, 25.0)	13.3 (10.9, 15.8)	3.5 (2.3, 4.8)	30.2 (26.3, 34.1)
Total	18.7 (16.2, 21.2)	11.0 (9.3, 12.7)	5.1 (3.8, 6.3)	26.2 (23.2, 29.2)

	Mental disorder group % (95% CI)			
	Any anxiety disorder	Any mood disorder	Any substance use disorder	Any mental disorder
Diabetes				
Males	14.7 (8.0, 21.4)	4.1 (1.1, 7.1)	2.0 (0.0, 5.1)	18.7 (11.3, 26.2)
Females	22.5 (15.3, 29.7)	17.4 (9.7, 25.1)	3.2 (0.0, 6.3)	31.5 (22.7, 40.3)
Total	18.9 (13.6, 24.1)	10.3 (6.3, 14.4)	2.4 (0.3, 4.5)	25.0 (19.1, 31.0)
Cancer				
Males	14.2 (8.0, 20.5)	9.1 (4.0, 14.2)	6.6 (0.2, 13.1)	17.7 (10.8, 24.6)
Females	19.8 (14.6, 24.9)	9.2 (5.7, 12.7)	1.5 (0.0, 3.3)	23.8 (17.9, 29.6)
Total	16.7 (12.8, 20.6)	8.6 (5.7, 11.5)	3.7 (0.8, 6.5)	20.7 (16.1, 25.3)
No chronic physical condition[7]				
Males	6.8 (5.5, 8.1)	4.4 (3.3, 5.5)	3.5 (2.3, 4.7)	12.3 (10.3, 14.4)
Females	13.9 (12.0, 15.7)	6.7 (5.6, 7.9)	1.3 (0.8, 1.8)	17.8 (15.7, 19.9)
Total	10.4 (9.2, 11.5)	5.6 (4.8, 6.5)	2.4 (1.7, 3.0)	15.1 (13.6, 16.7)
Total				
Males	10.6 (9.4, 11.8)	6.2 (5.3, 7.0)	4.9 (4.0, 5.8)	17.0 (15.3, 18.6)
Females	18.7 (17.3, 20.0)	9.6 (8.6, 10.6)	2.1 (1.7, 2.5)	24.1 (22.5, 25.7)
Total	14.8 (13.9, 15.7)	7.9 (7.3, 8.7)	3.5 (3.0, 4.0)	20.7 (19.5, 21.9)

1 DSM-IV CIDI 3.0 disorder groups.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 Sex-stratified estimates are adjusted for age; ‘total’ estimates are adjusted for age and sex.

4 Chronic pain: arthritis or rheumatism; chronic back or neck problem; frequent or severe headaches; any other chronic pain.

5 Cardiovascular disease: stroke; heart attack; heart disease.

6 Respiratory conditions: asthma; chronic obstructive pulmonary disease; emphysema; other chronic lung disease.

7 None of the chronic physical conditions included in this table.

This study has found a sex difference in the prevalence of mental disorder (higher in females) in the general population too, of course, not just among people with chronic conditions. But this table shows a wider sex difference (females higher) in the prevalence of mood disorder among those with either cardiovascular disease or diabetes relative to those without those chronic physical conditions. Thus, while 4.3% of males with cardiovascular disease also experienced mood disorders, 16.6% of females with cardiovascular disease experienced mood disorders. A similar pattern was apparent in people with diabetes (4.1% with mood disorder among males with diabetes compared with 17.4% with a mood disorder among females with diabetes).

5.3.4 Conclusions

These New Zealand findings confirm the findings from other research that people with mental disorders have higher prevalences of several chronic physical conditions (Wells et al 1989c) and chronic physical condition risk factors (Davidson et al 2001; Wallace and Tennant 1998) compared with those without mental disorders. The survey results also confirm research that has found that people with chronic physical conditions have a higher prevalence of mental disorder (Buist-Bouwman et al 2005; Wells et al 1988; Wells et al 1989b).

The specific associations observed here between mental and physical disorders cannot easily be compared with earlier studies because the latter vary so much in the conditions studied, methodology used and period prevalences reported. However, we can say that the majority of the relationships observed here have been observed previously in the research literature, in some form. The current findings therefore substantiate the widespread nature of mental–physical comorbidity. It should be noted that the relationships reported here are cross-sectional, so do not provide information on whether mental disorders lead to or follow on from physical disorders. Both processes may occur. The results underscore the challenge of providing for the concurrent mental and physical health needs of service users within the context of a health system where specialist medical and mental health services function largely independently of each other.

6 Disability

Key results

- Three percent of the population reported days completely out of role due to mental health problems in the past month, with at least 7.8%–8.2% reporting partial role impairment due to mental health problems.
- Mood disorders are associated with more role impairment than anxiety or substance use disorders.
- Experiencing multiple mental disorders at the same time greatly impairs role functioning.
- Mental disorders and chronic physical disorders are generally associated with similar degrees of disability.
- The combination of mental and physical disorders is more disabling than either disorder alone.

6.1 Introduction

6.1.1 Background

The disability associated with the common mental disorders has not always been widely appreciated. Understanding of the substantial impact of mental disorders such as depression increased over the last decade or so with the emergence of findings from key primary care studies in the United States (Wells et al 1989d) and Europe (Ormel et al 1994), and from general population data available at that time (Broadhead et al 1990; Ormel et al 1998). But it was the publication of the Global Burden of Disease study (Murray and Lopez 1996a) which really attracted attention to the disability burden associated with mental disorders.

The Global Burden of Disease study calculated the number of years of healthy life lost due to premature death and the number of years lived with disability for a wide range of physical conditions, diseases and mental disorders. These were integrated into a single measure termed ‘disability adjusted life years’ (DALYs). The study showed that psychiatric conditions collectively constituted more than 10% of the worldwide sum of DALYs. Ranking of individual conditions in terms of years lived with disability placed unipolar major depression as the lead cause of disability worldwide, with mental disorders and alcohol use making up five of the 10 leading causes of disability.

Although the extent to which mental disorders contributed to the worldwide burden of disease came as a surprise to many, it is a function of known characteristics of mental disorders: their widespread prevalence in the population, their relatively early onset and their chronicity.

The Global Burden of Disease estimates are based on limited empirical data from a small number of countries. It is one of the goals of the World Mental Health (WMH) Survey Initiative, of which this survey is a part (see 1.7.5), to provide more comprehensive information on the cross-national prevalence of mental disorders and the disability associated with them. Therefore, disability has been measured in more than one way in the WMH surveys.

Two approaches to measuring disability have been used. One of these was to ask respondents about the disruption in functioning they experience in relation to particular disorders. The results from these disorder-specific ‘interference with life’ questions are presented in chapter 3.

The second approach to measuring disability was to use a ‘generic’ measure; that is, a measure that is not specific to a particular disorder. The WMH Survey Initiative version of the World Health Organization (WHO) Disability Schedule (WMH WHO-DAS) was developed from a preliminary version of WHO-DAS II (Rehm et al 1999) for use in the WMH surveys. The results from this measure (which is described in 6.1.2), are presented in this chapter. The WMH WHO-DAS questionnaire asked people about their role functioning and health-related disability generally. This provides an estimate of disability for the individual, so it can provide a picture of the disability experienced by those with more than one disorder.

6.1.2 Disability measure: WMH WHO-DAS

The results presented in this chapter are from a multidimensional measure of disability: the WMH WHO-DAS. The WMH WHO-DAS was administered as a generic section asking about disability in the past 30 days. Everyone allocated to the long form of the interview was administered the WMH WHO-DAS, which meant people with psychiatric problems and some people without such problems responded (see 12.4.2).

The measurement and definition of disability have been controversial. The ‘medical model’ of disability views disability as a problem within the individual, caused by disease or injury. The ‘social model’, by contrast, views it as a social construction, caused by an unaccommodating social environment (Bickenbach et al 1999).

One important feature of the WHO-DAS-II and the WMH variant is that they are based on a conceptual model of disability that attempts to synthesise these opposing approaches: the World Health Organization's 2001 International Classification of Functioning, Disability and Health (ICF). This framework classifies impairments and their impact on individual capacities (activities) and performance (participation). It takes into account the contextual factors, both personal and environmental, that affect how an individual experiences disability. In keeping with this approach, the WMH WHO-DAS profiles functioning across six domains:

- understanding and communicating
- getting around
- self-care
- getting along with others
- household and work activities (role impairment)
- participation in society.

The first three domains reflect the key ICF dimension of activity limitations, and the second three reflect the other key dimension of participation.

In this chapter, the WMH WHO-DAS was scored to produce subscale scores for five domains.

- *Role impairment (role):* four items measuring the extent to which the participant was completely unable to work or carry out their normal activities, or had to cut back on the amount or quality of what was achieved, or had to apply extreme effort to perform at their usual level due to physical health, mental health or substance use problems.
- *Understanding and communicating (cognitive):* four items recording difficulties with concentration, understanding, memory and learning.
- *Getting around (mobility):* three items measuring difficulties with standing for at least 30 minutes, moving around inside the house and walking distances of about 1 kilometre.
- *Self-care (self-care):* three items recording difficulties with washing the body, getting dressed and staying by oneself for a few days.
- *Getting along with others (social):* five items measuring difficulties in starting and maintaining conversation, dealing with unknown people, forming and maintaining friendships, and controlling emotions around people.

All domains are scored on a 0–100 scale, with higher scores representing greater disability, using a scoring formula that weights the number of days the individual reports disability out of the past 30 days by the severity of disability reported in a given domain.

One caveat should be borne in mind when reviewing the results below. The WMH WHO-DAS is an entirely self-reported measure of disability. Its validity, therefore, is reduced for those individuals or conditions with limited insight, denial or cognitive impairment that may affect the accuracy of the self-reported data (McKibben 2004).

6.2 Role impairment in the general population

Table 6.1 shows the results for each of the four questions that make up the role impairment domain of the WMH WHO-DAS.

The proportion of the population that reported 1–5 or 6 or more days completely out of role was 13.1% (9.2% plus 3.9%); 20.7% reported days when the amount accomplished was cut down, 15.8% reported days when quality was reduced and 19.4% reported days when role performance took extreme effort. A smaller proportion of the population reported days completely out of role due to mental health problems (3.0%), with at least 7.8%–8.2% reporting impaired role performance due to mental health problems. Presumably, much of the impairment due to non-mental health problems is the result of the high prevalence of relatively minor physical ailments such as colds and influenza.

Table 6.1: Distribution of the number of days in the past month[1] with role impairment due to health problems, in total and specifically attributed to mental health problems[2,3]

Type of impairment	Cause	Days with impairment in past 30 days % in each category (95% CI)		
		Zero days	One to five days	Six or more days
Days completely out of role	All health	86.9 (85.7, 87.9)	9.2 (8.4, 10.2)	3.9 (3.4, 4.5)
	Mental health	96.9 (96.5, 97.3)	2.3 (2.0, 2.8)	0.7 (0.5, 1.0)
Days cut down amount accomplished	All health	79.3 (77.9, 80.7)	13.0 (11.9, 14.1)	7.7 (6.9, 8.6)
	Mental health	92.2 (91.3, 93.0)	6.3 (5.6, 7.1)	1.5 (1.2, 1.8)
Days cut back on quality[4]	All health	84.3 (83.0, 85.4)	10.1 (9.1, 11.1)	5.7 (5.0, 6.5)
Days it took extreme effort	All health	80.6 (79.2, 81.9)	12.5 (11.4, 13.6)	6.9 (6.2, 7.8)
	Mental health	91.7 (90.8, 92.5)	6.6 (5.9, 7.5)	1.6 (1.4, 2.0)

1 Past 30 days.

2 Mental health problems included those resulting from the use of alcohol or drugs.

3 Assessed in the subsample who did the long form of the interview, see 12.4.2.

4 This question did not ask the respondent to specify whether the impairment was due to mental health problems.

6.3 Role impairment among people with mental disorders

6.3.1 Role impairment by number of mental disorders

Table 6.2 shows the mean scores for the role impairment domain. These scores integrate days out of role with days of partially impaired performance (the scoring system gives greater weight to days completely out of role). For example, an individual reporting three full days out of role, plus nine days of cutting down out of the past 30 days, would score 25.

As expected, there was a strong pattern of increasing role impairment with increasing number of mental disorders. People with one disorder scored 14.1, more than twice the impairment score of 6.3 among those with no disorder. People with three or more disorders scored 42.0, three times the score of those with one disorder.

Although in theory the WMH WHO-DAS scores range from 0 to 100, it is unusual for people to have scores at the upper end of the scale, because few people would report 30 days out of 30 completely out of role due to health problems. Therefore, a score of 42 on this scale indicates a substantial level of role impairment. Not all of the impairment among those with three or more disorders was attributed to mental health problems, but more than two-thirds (29.3 out of 42.0) of the ‘all health’ score was. The table shows that as the number of mental disorders increases, the proportion of role impairment attributed to mental health problems also increases.

Table 6.2: Role impairment in past month[1] in total, and attributed to mental health problems, by number of one-month mental disorders

Number of one-month mental disorders[2,3]	Mean role impairment domain score (95% CI)	
	All health[4]	Attributed to mental health[5]
No disorder	6.3 (5.7, 7.0)	0.8 (0.7, 1.0)
One disorder	14.1 (12.3, 15.9)	5.1 (4.0, 6.2)
Two disorders	21.0 (16.9, 25.2)	11.2 (8.4, 14.0)
Three or more disorders	42.0 (34.3, 49.7)	29.3 (21.6, 37.1)

1 Past 30 days.

2 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

3 Assessed in the subsample who did the long form of the interview, see 12.4.2.

4 Role impairment score calculated from the four role impairment items (see Table 6.1): the sum of days out of role plus half of days cut down on amount and a quarter of days cut back on quality or took extreme effort, divided by 30 and multiplied by 100. Scores range from 0 to 100; the higher the score, the greater the impairment.

5 Role impairment score calculated from the three items that allow attribution to mental health problems: the sum of days out of role plus half of days cut down on amount and half of days of extreme effort, divided by 30 and multiplied by 100. Scores range from 0 to 100; the higher the score, the greater the impairment.

6.3.2 Role impairment by type of mental disorder

Table 6.3 allows comparison of the degree of role impairment experienced by people with different mental disorders. Such comparisons are often complicated by some disorders being more likely to have comorbid (co-occurring) disorders (see 5.2.1) than others, so it can be unclear whether the impairment reported is a function of the specified disorder or its possible comorbidities.

Table 6.3: Role impairment in past month,[1] by one-month single and comorbid disorders[2,3]

Disorder group	Mean role impairment domain score % (95% CI)	
	All health[4]	Attributed to mental health[5]
No disorder	6.3 (5.7, 7.0)	0.8 (0.7, 1.0)
Single disorder		
Any anxiety disorder	12.8 (10.9, 14.7)	4.0 (2.9, 5.2)
Any mood disorder	23.2 (16.9, 29.5)	11.3 (6.6, 16.0)
Any substance use disorder	12.8 (7.1, 18.5)	5.9 (2.7, 9.1)
Comorbid disorders		
Disorders comorbid within a group[6]	22.0 (17.1, 26.9)	11.8 (8.4, 15.3)
Disorders comorbid across groups[7]	34.8 (28.9, 40.8)	23.4 (17.8, 29.1)
Total population	7.7 (7.0, 8.3)	1.7 (1.5, 1.9)

1 Past 30 days.

2 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

3 Assessed in the subsample who did the long form of the interview, see 12.4.2.

4 Role impairment score calculated from the four role impairment items (see Table 6.1): the sum of days out of role plus half of days cut down on amount and a quarter of days cut back on quality or took extreme effort, divided by 30 and multiplied by 100. Scores range from 0 to 100; the higher the score, the greater the impairment.

5 Role impairment score calculated from the three items that allow attribution to mental health problems: the sum of days out of role plus half of days cut down on amount and half of days of extreme effort, divided by 30 and multiplied by 100. Scores range from 0 to 100; the higher the score, the greater the impairment.

6 For example, two or more anxiety disorders.

7 For example, an anxiety disorder and a mood disorder.

Table 6.3 helps to clarify the picture by comparing anxiety, mood and substance use disorders among people with only the specified disorder and no comorbid disorder. The key feature that emerges from these results is that mood disorders are associated with more role impairment than anxiety or substance use disorders. People with a single mood disorder had a mean role impairment score of 23.2, which is nearly double the score of people with anxiety (12.8) or substance use disorder (12.8). The scores attributable to mental health indicate that people with single mental disorders attributed about a third (4.0 out of 12.8 for anxiety disorders) to a half (11.3 out of 23.2 for mood disorders) of their role impairment to mental health.

Table 6.3 also provides a comparison of comorbid disorders: disorders comorbid within a group and disorders comorbid across groups. While this suggests that across-group comorbidity is more impairing than within-group comorbidity, this is largely a function of the fact that those with multiple mood disorders were few in number relative to those with multiple anxiety disorders; in contrast, the majority of those with across-group comorbidity had a mood disorder (which, as noted above, is associated with higher levels of impairment than other disorder groups).

6.4 Types of disability associated with mental disorders and chronic physical conditions

Table 6.4 broadens the picture provided so far for role impairment by adding in the other disability domains. It puts the results for mental disorders in perspective by making comparisons across mental and physical disorders. The table reports both unadjusted scores and scores adjusted for age and sex. The adjustment provides the scores that would occur if the age and sex distribution of those with the disorder in question (eg, any anxiety disorder) matched the age and sex distribution of those without that disorder (see 12.10.2). This allows a comparison of scores across mental and physical disorders, which generally differ in age structure (mental disorders having a younger age structure than physical disorders) and may differ in sex distribution as well.

Table 6.4: WMH WHO-DAS domain scores associated with one-month mental disorders[1] and chronic physical conditions[2]

	Mean disability domain scores[3] (95% CI)									
	Role impairment		Mobility		Self-care		Social		Cognitive	
	Unadjusted	Adjusted for age and sex	Unadjusted	Adjusted for age and sex	Unadjusted	Adjusted for age and sex	Unadjusted	Adjusted for age and sex	Unadjusted	Adjusted for age and sex
Mental disorder group										
Any anxiety disorder	17.7 (15.8, 19.6)	18.2 (16.3, 20.2)	6.2 (5.1, 7.3)	7.1 (6.0, 8.2)	1.8 (1.3, 2.4)	2.1 (1.5, 2.6)	2.6 (2.0, 3.1)	2.6 (2.0, 3.1)	3.9 (3.2, 4.6)	3.9 (3.2, 4.6)
Any mood disorder	30.3 (25.6, 34.9)	30.9 (26.2, 35.5)	8.8 (6.5, 11.2)	9.9 (7.6, 12.2)	2.6 (1.4, 3.8)	2.8 (1.6, 4.0)	4.0 (2.9, 5.1)	4.0 (2.9, 5.1)	7.2 (5.5, 8.8)	7.2 (5.5, 8.8)
Any substance use disorder	21.0 (15.6, 26.5)	22.6 (17.1, 28.1)	3.6 (1.8, 5.4)	5.9 (4.0, 7.7)	0.8 (0.1, 1.4)	1.2 (0.4, 1.9)	2.2 (1.0, 3.4)	2.2 (1.0, 3.5)	4.3 (2.8, 5.8)	4.3 (2.9, 5.7)
Any mental disorder	18.0 (16.2, 19.7)	18.7 (16.9, 20.4)	6.0 (5.0, 6.9)	7.0 (6.0, 8.0)	1.7 (1.2, 2.1)	1.9 (1.4, 2.4)	2.4 (1.9, 2.8)	2.4 (1.9, 2.8)	3.7 (3.1, 4.3)	3.7 (3.1, 4.3)
Physical condition										
Chronic pain[4]	13.9 (12.5, 15.4)	13.8 (12.4, 15.2)	7.5 (6.4, 8.6)	6.7 (5.8, 7.7)	1.6 (1.1, 2.2)	1.5 (1.0, 2.0)	1.0 (0.7, 1.2)	1.0 (0.8, 1.3)	1.6 (1.3, 1.9)	1.7 (1.4, 2.0)
Cardiovascular[5]	18.7 (14.5, 22.9)	17.2 (13.0, 21.4)	14.2 (10.6, 17.7)	10.4 (7.1, 13.7)	4.1 (2.0, 6.3)	3.5 (1.5, 5.5)	0.9 (0.5, 1.3)	1.1 (0.6, 1.5)	2.2 (1.3, 3.0)	2.4 (1.5, 3.2)
Respiratory conditions[6]	10.7 (9.0, 12.3)	10.7 (9.1, 12.3)	5.1 (3.9, 6.3)	5.3 (4.1, 6.5)	1.1 (0.6, 1.6)	1.1 (0.7, 1.6)	0.9 (0.5, 1.3)	0.9 (0.5, 1.3)	1.5 (1.0, 2.0)	1.5 (1.0, 2.0)
Diabetes	14.9 (10.4, 19.4)	13.3 (9.0, 17.7)	10.7 (6.8, 14.6)	7.8 (4.0, 11.7)	3.8 (1.4, 6.3)	3.3 (0.9, 5.7)	1.2 (0.5, 1.8)	1.2 (0.6, 1.9)	2.0 (0.8, 3.2)	2.1 (0.9, 3.3)
Cancer	15.7 (11.8, 19.6)	13.8 (9.9, 17.6)	10.9 (7.0, 14.7)	7.4 (3.9, 10.9)	3.4 (0.8, 6.1)	2.8 (0.3, 5.3)	1.0 (0.5, 1.4)	1.0 (0.6, 1.5)	1.7 (0.9, 2.6)	1.8 (0.9, 2.6)
Any physical condition	11.2 (10.1, 12.2)	11.0 (9.9, 12.0)	5.8 (5.0, 6.6)	5.0 (4.3, 5.6)	1.3 (0.9, 1.7)	1.1 (0.8, 1.5)	0.7 (0.6, 0.9)	0.8 (0.6, 1.0)	1.3 (1.1, 1.5)	1.4 (1.1, 1.6)
Any mental disorder (in absence of physical condition)	10.6 (8.0, 13.2)	11.1 (8.4, 13.8)	1.1 (0.6, 1.7)	2.5 (1.8, 3.3)	0.6 (0.1, 1.2)	0.9 (0.3, 1.5)	1.9 (1.1, 2.6)	1.8 (1.1, 2.6)	2.5 (1.5, 3.5)	2.5 (1.5, 3.5)
Any physical condition (in absence of mental disorder)	9.5 (8.4, 10.6)	9.0 (8.0, 10.1)	5.3 (4.4, 6.2)	4.2 (3.6, 4.9)	1.1 (0.7, 1.6)	0.9 (0.6, 1.3)	0.4 (0.3, 0.6)	0.5 (0.3, 0.6)	0.8 (0.6, 1.1)	0.9 (0.6, 1.1)
Any mental disorder and any physical condition	21.7 (19.5, 23.8)	22.0 (19.8, 24.2)	8.4 (7.1, 9.8)	9.1 (7.7, 10.4)	2.2 (1.6, 2.8)	2.3 (1.7, 3.0)	2.6 (2.0, 3.2)	2.6 (2.0, 3.2)	4.2 (3.5, 5.0)	4.3 (3.5, 5.0)
No mental disorder or physical condition	2.4 (2.0, 2.9)	2.9 (2.4, 3.5)	0.7 (0.4, 1.0)	1.7 (1.3, 2.2)	0.1 (0.0, 0.1)	0.3 (0.1, 0.4)	0.1 (0.1, 0.2)	0.1 (0.0, 0.2)	0.2 (0.1, 0.2)	0.2 (0.1, 0.3)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.
2 Assessed in the subsample who did the long form of the interview, see 12.4.2.
3 Scores range from 0 to 100; the higher the score, the greater the disability.
4 Chronic pain: arthritis or rheumatism; chronic back or neck problems; frequent or severe headaches; any other chronic pain.
5 Cardiovascular disease: stroke; heart attack; heart disease.
6 Respiratory conditions: asthma; chronic obstructive pulmonary disease; emphysema; other chronic lung disease.

6.4.1 Understanding WMH WHO-DAS scores

A glance at Table 6.4 shows that the role impairment scores are generally higher than the other domain scores. This is partly due to the nature of that domain: role impairment is a more general form of disability than the more specific components of functioning the other domains measure. But it is also because the scoring for the role impairment domain differs from the scoring for the other four domains. The four domains of mobility, self-care, and social and cognitive functioning are scored by measuring the severity of disability and multiplying the result by the number of days in the past 30 the individual reported experiencing the disability.

High scores on these four domains are rare. For example, someone reporting mild impairment in a given domain on five out of 30 days would have a score of about 2 for that domain. Someone reporting moderate impairment on five out of 30 days would have a score of about 6. Someone reporting moderate impairment on 15 out of 30 days would have a score of about 25.

6.4.2 Results

In the comparison between mental disorders (any anxiety, any mood, any substance use), mood disorders again appear to be associated with more disability, on all domains, than anxiety or substance use disorders, although it is not clear from Table 6.4 whether all of the differences across the disorder groups are statistically significant. Looking at the four domains other than role impairment, self-care problems are the least associated with mental disorders (with a score for any mental disorder of 1.9), and mobility appears the most affected (with a score of 7.0). However, when one looks down the table to the category of mental disorder in the absence of comorbid physical disorder, which has a score for mobility of only 2.5, it becomes clear the mobility impairment associated with mental disorders in the top part of the table is probably a function of comorbid physical disorders (it may well be the case that for a number of people mood disorders are secondary to a physical disorder).

Among the physical disorders, cardiovascular disease was generally associated with greater impairment than the other conditions. Diabetes was the next most disabling of those shown. In comparing the four specific domains, physical disorders were associated with most impairment in the mobility domain, followed by self-care.

In the comparison between mental and physical disorders several results are of note. In comparing people with any mental disorder with people with any physical condition, without excluding comorbid conditions, mental disorders appear to be associated with more disability. However, after excluding comorbid conditions, mental and physical disorders appear similarly disabling, although physical disorders are associated with more disability in the mobility domain and mental disorders are associated with more disability in the social and cognitive domains, as might be expected.

Lastly, in observing the scores associated with the category of any mental *plus* any physical condition, it is clear mental–physical comorbidity more than doubles the disability associated with mental disorders or physical disorders alone.

6.5 Conclusions

It is difficult to compare these findings directly with those of other studies because there is so much variability in the research literature in the way disability is measured, what other variables are controlled for, and which disorders are compared. Results from the WMH WHO-DAS in its current form are only just starting to be published; this New Zealand study is one of the first.

One of the key findings in this chapter, that mood disorders are strongly associated with disability, certainly has a long history in the literature, having been observed in primary care samples (Ormel et al 1999; Ormel et al 1994; Von Korff et al 1992; Wells et al 1989d) and general population samples (Broadhead et al 1990; Kruijshaar et al 2003; Sanderson and Andrews 2002; Surtees et al 2003).

In this study, it was found that mood disorders are more disabling than anxiety or substance use disorders. Whether this is supported by earlier research is not clear-cut. Some have found this to be the case (Bijl and Ravelli 2000; Sanderson and Andrews 2002); while others have not (eg, Ormel et al 1994; Surtees et al 2003). The European component of the WMH surveys found identical disability scores for mood disorders and anxiety disorders (Alonso et al 2004c), in contrast to the results reported here. However, despite the similarities in methodology there were still important differences between the European study and the New Zealand study that probably account for this discrepancy. One of these is that this New Zealand study has reported impairment associated with one-month mental disorders, while the European group reported impairment associated with 12-month mental disorders. Mood disorders such as major depression do not always last 12 months, so WMH WHO-DAS scores estimated for the past month for those with ‘12-month disorder’ will not always provide a full picture of the disability associated with mood disorders.

The finding that mental disorders are at least as disabling as physical disorders, and that the combination of the two is most disabling, is well established in the research literature (Hays et al 1995; Ormel et al 1998; Surtees et al 2003; Wells et al 1989d). The data presented in the previous chapter show that comorbidity is common. One of the main themes to emerge from this chapter is that comorbidity, either of mental disorders or of mental and physical disorders, is associated with higher levels of disability than single disorders.

7 Suicidal Behaviour

Key results

- Lifetime prevalences for suicidal behaviours were: suicidal ideation, 15.7%; suicide plan, 5.5%; suicide attempt, 4.5%.
- Lifetime prevalences for suicidal behaviours were consistently significantly higher in females than males (ideation: females, 17.4%; males, 14.0%); plan: females, 6.4%; males, 4.6%; attempt: females, 5.6%; males, 3.4%).
- Median ages of onset for all three behaviours were in the twenties: suicidal ideation, 25 years; making a suicide plan, 25 years; suicide attempt, 21 years.
- The prevalences for suicidal behaviour in the past 12 months were: suicidal ideation, 3.2%; suicide plan, 1.0%; suicide attempt, 0.4%.
- The risk of suicidal ideation in the past 12 months was higher in females, younger people, people with lower educational qualifications, and people with low household income, and among people living in more deprived areas (measured using the small area descriptor of socioeconomic adversity, the New Zealand Index of Deprivation) and in urban areas. The risk of making a suicide plan or attempt was more common among younger people, people with low household income and people living in more deprived areas. The risk of making a suicide attempt was higher in people in urban areas.
- The risk of suicidal ideation, suicide plan and suicide attempt varied with ethnicity, with Māori and Pacific people reporting higher rates of suicidal behaviour than the Other composite ethnic group (ideation: Māori, 5.4%; Pacific, 4.5%; Other, 2.8%; plan: Māori, 1.8%; Pacific, 2.6%; Other, 0.8%; attempt: Māori, 1.1%; Pacific, 1.2%, Other, 0.3%). However, after adjustment for sociodemographic factors there were no ethnic differences in ideation, although Māori and Pacific people still had elevated risks of suicide plans and suicide attempts.
- Individuals with a mental disorder had elevated risks of suicidal behaviour, with 11.8% of people with any mental disorder reporting suicidal ideation, 4.1% making a suicide plan and 1.6% making a suicide attempt.
- Mood disorders, anxiety disorders, eating disorders and substance use disorders were all associated with suicidal ideation, suicide plan and suicide attempt.
- Almost half of those with a 12-month history of suicidal ideation, suicide plan or suicide attempt did not report making any general medical or specialist mental health visits within the same 12-month period in which they were suicidal.

7.1 Introduction

This chapter describes the prevalence and correlates of suicidal behaviour in the New Zealand population aged 16 and older.

7.1.1 Definition of suicidal behaviour

For the purposes of this report suicidal behaviour includes the following behaviours, which were defined by the questions asked in Te Rau Hinengaro: The New Zealand Mental Health Survey:

- *Suicidal ideation:* thinking seriously about committing suicide
- *Suicide plan:* making a plan for committing suicide
- *Suicide attempt:* making a suicide attempt.

7.1.2 Reasons for including suicidal behaviour in the survey

Suicidal behaviour was included in this survey because suicide and attempted suicide are serious sources of mortality and morbidity in New Zealand (Ministry of Health 2001b). New Zealand has one of the highest rates of suicide among Organisation for Economic Co-operation and Development (OECD) countries (10.7 deaths per 100,000 population in 2002), with rates being particularly high for youth (people aged 15–24; 17 per 100,000) and young adults (people aged 25–44; 18.2 per 100,000) (Ministry of Health 2005a; WHO 2005). Almost 500 people die by suicide annually; this is higher than the number who die in road traffic accidents. Suicide (after road traffic accidents) is the second most common reason for death among people aged 15–34 (New Zealand Health Information Service 2005).

Suicidal behaviours including, in particular, suicide attempts, are strong risk factors for suicide and for further suicide attempts, and are often associated with mental illness and with significant emotional distress (Beautrais et al 2005). Almost 4,500 hospital admissions are for suicide attempt each year (Ministry of Health 2005a). While males more often die by suicide, females make more suicide attempts (Ministry of Health 2005a). Suicidal behaviours are thus a problem for both sexes. In terms of ethnic distribution, 17.0% of suicides in 2002 involved Māori, 3.9% involved Pacific people, 2.6% involved Asian people and 76.5% involved Europeans (Ministry of Health 2005a).

New Zealand has extensive data about suicidal behaviour. However, many of these data have been generated from a series of regional community-based studies and the extent to which the data from these studies are generalisable to the wider New Zealand population has often been the subject of debate. Such debate has centred on the extent to which regional studies may or may not be representative of the total New Zealand population. The data from this survey provide nationally representative information about suicidal behaviour and, in particular, about suicidal behaviour in Māori and Pacific people.

7.1.3 Previous New Zealand studies

Previous New Zealand studies have examined suicidal behaviour in the Canterbury region, in a Dunedin-born cohort and in a Christchurch-born cohort, and one national study focused on suicidal behaviour in teenagers attending high schools (Adolescent Health Research Group 2003; Beautrais 2001; Fergusson et al 2000; Nada-Raja et al 2004; Weissman et al 1993; Weissman et al 1999).

The Christchurch Psychiatric Epidemiology Study (see 1.7.2) surveyed 1,500 adults aged 18–64 in Christchurch in 1986 and reported a lifetime rate of suicidal ideation of 18.5 per 100. The lifetime rate of suicide attempt for males was 2.6 per 100 and for females was 6.2 per 100 (Weissman et al 1993; Weissman et al 1999). The Canterbury Suicide Project found that 1.0% of 984 adults aged 18 and over interviewed in a community-based study in 1991/92 reported a lifetime history of suicide attempts (Beautrais 2001). The lifetime rate of suicidal ideation in a Dunedin-born cohort (see 1.8.1), interviewed at age 26, was 13%, with 9% reporting suicide attempt (Nada-Raja et al 2004). A Christchurch-born cohort (see 1.8.2) of 1,265 young people born in 1977 tracked the development of suicidal ideation and suicide attempt throughout adolescence and young adulthood. This study found that, by age 21, 28.8% reported having thought about killing themselves and 7.5% reported having made a suicide attempt (Fergusson et al 2000). A national survey of 12,934 secondary school students aged 12–18 in 2001 found that 16.9% of males and 29.2% of females reported suicidal thoughts within the past year, and 4.7% of males and 10.6% of females reported having made a suicide attempt within the past year (Adolescent Health Research Group 2003). (It should be noted that studies of young people tend to report higher rates of ideation and attempts than studies of people of all ages. This likely occurs because, with the passage of time, people tend to forget episodes of suicidal ideation, and suicide attempts, as these events tend to get overlaid with other life experiences.)

These, and other, New Zealand studies have also examined the contribution of a series of risk factors to suicidal behaviour. Risk factors ranging from individual-level factors (eg, genes, personality, sexual orientation) to macrosocial factors (eg, unemployment rates), and spanning exposure to trauma, family factors, mental disorders, life stresses, social supports, socioeconomic factors, cultural factors, and macrosocial and macroeconomic factors, have all been shown to contribute to suicidal behaviours (Beautrais et al 2005; Collings and Beautrais 2005). In particular, risks of suicidal behaviour are increased among people from socially and educationally disadvantaged backgrounds, and among people with mental illnesses, including mood disorders in particular but also substance use disorders, anxiety disorders, psychotic disorders, and antisocial and offending behaviours. In addition, rates of suicide and attempted suicide are known to vary with age, gender and ethnicity (Beautrais et al 2005).

Findings about risk factors for suicidal behaviour from these New Zealand studies have been summarised in two reports (Beautrais et al 2005; Collings and Beautrais 2005). However, this survey is the first nationally representative survey to examine the prevalence of, and sociodemographic and mental disorder correlates for, suicidal behaviours in New Zealand, and to have adequate numbers of Māori and Pacific participants to generate estimates of such behaviours with acceptable precision.

7.1.4 Content of this chapter

This chapter includes information about:

- lifetime and 12-month prevalences of suicidal ideation, making a suicide plan and making a suicide attempt (see 7.2)
- onset distributions for suicidal ideation, suicide plan and suicide attempt (see 7.3)
- sociodemographic correlates of suicidal ideation, suicide plan and suicide attempt (see 7.4)
- ethnicity and prevalences of suicidal behaviours (see 7.5)
- DSM-IV mental disorders and suicidal behaviours (see 7.6; for a general explanation about the DSM, see 1.10.1)
- health services use among people with suicidal behaviour (see 7.7).

7.2 Lifetime and 12-month prevalences

Table 7.1 shows estimated recent (ie, past 12 months) and lifetime prevalences of suicidal ideation, suicide plans and suicide attempts, for males, females and the total population. A hierarchy of severity exists in these suicidal behaviours, with the more severe behaviours occurring less often. While lifetime suicidal ideation was relatively common, with 15.7% reporting a history of suicidal ideation, suicide plans and suicide attempts were less common, with 5.5% reporting a lifetime history of making plans for suicide and 4.5% making a suicide attempt. Similarly, while 3.2% reported suicidal ideation in the past 12 months, only 1.0% reported making suicide plans and 0.4% reported making a suicide attempt.

Lifetime rates of suicidal behaviour were consistently significantly higher in females than males (ideation: females, 17.4%; males, 14.0% ($p < .0001$); plan: females, 6.4%; males, 4.6% ($p < .005$); attempt: females, 5.6%; males, 3.4% ($p < .0001$)). However, in the past 12 months males and females were equally likely to have made suicide plans (males, 0.9%; females, 1.0%) and suicide attempts (males, 0.4%; females, 0.4%), despite females significantly more often reporting suicidal ideation (females, 3.7%; males, 2.6% ($p < .05$)). (See Table 7.1.)

Table 7.1: Twelve-month and lifetime prevalence of suicidal ideation, suicide plan and suicide attempt, by sex

	Twelve-month prevalence % (95% CI)			Lifetime prevalence % (95% CI)		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Suicidal ideation	2.6 (2.2, 3.2)	3.7 (3.2, 4.4)	3.2 (2.8, 3.6)	14.0 (12.8, 15.2)	17.4 (16.3, 18.5)	15.7 (14.9, 16.6)
Suicide plan	0.9 (0.7, 1.3)	1.0 (0.8, 1.4)	1.0 (0.8, 1.2)	4.6 (3.9, 5.3)	6.4 (5.7, 7.1)	5.5 (5.0, 6.0)
Suicide attempt	0.4 (0.2, 0.8)	0.4 (0.3, 0.6)	0.4 (0.3, 0.6)	3.4 (2.8, 4.1)	5.6 (4.9, 6.2)	4.5 (4.1, 5.0)

Suicide attempts range in severity from the mildly injurious to the determinedly lethal. All those who made suicide attempts were asked about the lethality and intent of their first and their most recent attempt (Table 7.2). Almost half (46.5%) of those who made one or more suicide attempts reported that their first attempt was a serious attempt to die and it was only by chance that they did not succeed; while 37.0% (more than one-third) reported they did not intend to die in their first attempt and it was a ‘cry for help’. The remainder (16.5%) reported that their first attempt was serious but they were not certain that the method would kill them. Levels of intent and lethality reported for the first suicide attempt were strikingly similar to those reported for the most recent attempt (among those who reported more than one lifetime suicide attempt).

Table 7.2: Lethality and intent of first and most recent suicide attempts

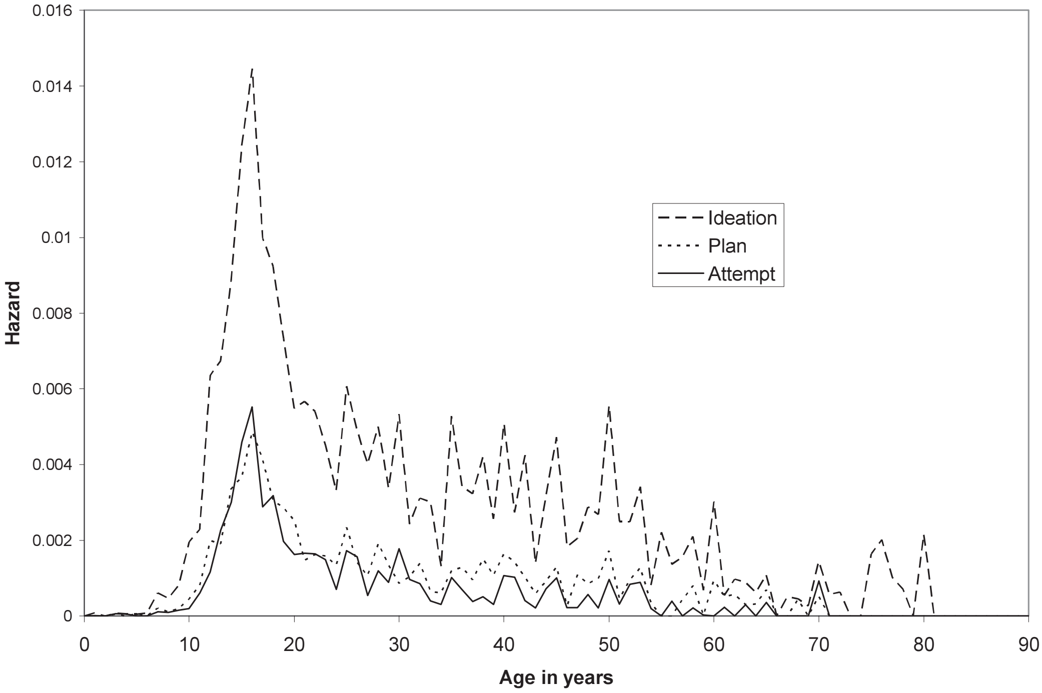
	First suicide attempt %	Most recent suicide attempt (among those making multiple attempts) %
Lethality and intent		
A serious attempt to die and only by chance did not succeed	46.5	47.9
A serious attempt to die but not certain the method would kill them	16.5	15.1
Did not intend to die – a 'cry for help'	37.0	36.9

7.3 Onset distributions

Hazard functions were estimated to show the first onset of suicidal ideation, suicide plan and suicide attempt (Figure 7.1). A hazard is the instantaneous risk of a behaviour happening in an individual who has not previously experienced that behaviour. It is estimated as the proportion of individuals who have experienced an event for the first time in an interval, out of those who have reached the beginning of the interval without ever experiencing the event (see 12.10.3). For example, Figure 7.1 shows that people who had reached the age of 16 without suicidal ideation had a risk of 1.4% of experiencing such ideation for the first time in the next year. This analysis yielded the following results.

- Median ages of onset for all three behaviours were in the twenties: 25 years for suicidal ideation; 25 years for making a suicide plan; and 21 years for a suicide attempt.
- Although the onset of suicidal ideation was most likely to occur in late adolescence, onset continued throughout adult life: 2.8% (2.4, 3.2) reported suicidal ideation by age 15; 7.8% (7.2, 8.5) by age 20; 10% (9.3, 10.8) by age 25; and 17.5% (16.5, 18.5) by age 50. By age 75, 20.2% (19.1, 21.3) reported suicidal ideation.
- A similar pattern emerged for suicide plans: 0.9% (0.7, 1.1) reported suicide plans by age 15; 2.7% (2.4, 3.1) by age 20; 3.6% (3.1, 4.0) by age 25; and 6.2% (5.6, 6.9) by age 50. By age 75, 7.2% (6.5, 7.9) reported making suicide plans.
- For suicide attempts, 0.8% (0.6, 1.0) reported suicide attempts by age 15; 2.6% (2.2, 2.9) by age 20; 3.2% (2.9, 3.7) by age 25; and 5.1% (4.6, 5.6) by age 50. By age 75, 5.5% (5.0, 6.2) reported having made at least one suicide attempt.

Figure 7.1: Hazard functions of first onset of suicidal ideation, suicide plan and suicide attempt



7.4 Sociodemographic correlates

Table 7.3 shows rates of suicidal ideation, suicide plan and suicide attempt in the past 12 months classified by a series of individual sociodemographic factors including age, sex, educational qualifications, household income and area descriptors, including deprivation level, urbanicity and region (see 12.12.1). (Correlates are not presented for lifetime suicide attempts because of the potential disjunction between currently measured sociodemographic variables and historically reported attempts.) These comparisons yielded the following conclusions.

The risk of suicidal ideation varied with individual sociodemographic factors (age, sex, educational qualifications, household income) and with the area-level descriptor of deprivation. Population risk of suicidal ideation was significantly higher in females ($p < .05$) and in younger people ($p < .0001$), with risk decreasing with increasing age. Ideation was higher in people with poor educational qualifications ($p < .05$); in people with low household income ($p < .0001$); in people from the most deprived areas (deciles 9 and 10), as measured by the New Zealand Index of Deprivation 2001 (NZDep2001; see 12.12.1) ($p < .05$); and in people from urban areas ($p < .05$). Regionality made no contribution to the risk of ideation.

The risk of making a plan for suicide was higher in younger people (p < .0001), with risk decreasing with increasing age; in people with low household income (p < .005); and in people from the most deprived areas (deciles 9 and 10 NZDep2001) (p < .05). However, other individual-level factors (sex, educational qualifications) and area-level descriptors (urbanicity and regionality) made no contribution to risk of making a suicide plan.

Similarly, the risk of suicide attempt was higher in younger people (p < .005), in those from low household incomes (p < .01), in those from the most deprived areas (deciles 9 and 10) (p < .05). Risk of suicide attempt was also higher in those from urban areas (p < .01). Sex, educational qualifications and regionality did not contribute to the 12-month risk of suicide attempt.

Table 7.3: Sociodemographic characteristics and prevalence of suicidal ideation, suicide plan and suicide attempt in the past 12 months

Correlate[1]	Suicidal ideation % (95% CI)	Suicide plan % (95% CI)	Suicide attempt % (95% CI)
Individual characteristics			
Sex			
Male	2.6 (2.2, 3.3)	0.9 (0.7, 1.3)	0.4 (0.2, 0.8)
Female	3.7 (3.2, 4.4)	1.0 (0.8, 1.4)	0.4 (0.3, 0.6)
Age group (years)			
16–24	6.6 (5.3, 8.3)	2.0 (1.2, 3.2)	1.3 (0.6, 2.3)
25–44	3.6 (3.0, 4.3)	1.2 (0.9, 1.6)	0.4 (0.2, 0.6)
45–64	2.1 (1.5, 2.7)	0.5 (0.3, 0.7)	0.1 (0.0, 0.3)
65 and over	0.8 (0.4, 1.4)	0.3 (0.1, 0.8)	0.1 (0.0, 0.7)
Educational qualifications[1]			
None	4.3 (3.4, 5.5)	1.1 (0.8, 1.7)	0.6 (0.3, 1.1)
School or post-school only	3.4 (2.7, 4.1)	1.2 (0.8, 1.6)	0.4 (0.2, 0.6)
Both school and post-school	2.6 (2.0, 3.3)	0.8 (0.5, 1.2)	0.4 (0.2, 0.8)
Equivalised household income[1]			
Under half of median	4.6 (3.7, 5.7)	1.2 (0.8, 1.9)	0.8 (0.4, 1.4)
Half median to median	4.3 (3.5, 5.3)	1.5 (1.0, 2.1)	0.6 (0.3, 1.2)
Median to one and a half times median	2.2 (1.6, 3.0)	0.8 (0.4, 1.3)	0.1 (0.0, 0.5)
One and a half times median and over	1.9 (1.2, 2.7)	0.4 (0.2, 0.7)	0.2 (0.0, 0.5)

Correlate[1]	Suicidal ideation % (95% CI)	Suicide plan % (95% CI)	Suicide attempt % (95% CI)
Area characteristics			
NZDep2001 deciles[1]			
9 and 10 (most deprived)	4.3 (3.4, 5.5)	1.5 (1.0, 2.1)	0.6 (0.4, 1.0)
7 and 8	4.1 (3.1, 5.3)	1.4 (0.8, 2.3)	0.8 (0.3, 1.7)
5 and 6	2.8 (2.1, 3.7)	0.9 (0.6, 1.4)	0.3 (0.1, 0.7)
3 and 4	2.5 (1.7, 3.6)	0.7 (0.4, 1.2)	0.2 (0.0, 0.7)
1 and 2 (least deprived)	2.5 (1.7, 3.7)	0.5 (0.2, 1.0)	0.2 (0.0, 0.7)
Urbanicity[1]			
Main	3.5 (3.0, 4.0)	1.1 (0.8, 1.4)	0.5 (0.3, 0.7)
Secondary	2.9 (1.7, 4.6)	1.1 (0.5, 2.1)	0.4 (0.1, 1.2)
Minor	2.3 (1.5, 3.4)	0.7 (0.3, 1.4)	0.4 (0.1, 1.0)
Other (rural)	2.3 (1.6, 3.4)	0.6 (0.3, 1.1)	0.1 (0.0, 0.4)
Region[1]			
North	3.0 (2.4, 3.7)	1.1 (0.7, 1.7)	0.5 (0.2, 0.9)
Midland	3.6 (2.8, 4.7)	1.4 (0.9, 2.1)	0.4 (0.2, 0.8)
Central	3.7 (2.8, 4.9)	0.7 (0.4, 1.1)	0.4 (0.2, 0.7)
South	2.8 (2.1,3.7)	0.7 (0.4, 1.1)	0.4 (0.2, 0.7)

[1] Sociodemographic correlates are defined in 12.12.1.

7.5 Ethnicity and prevalence of suicidal behaviours

Table 7.4 shows rates of suicidal ideation, suicide plan and suicide attempt classified by ethnic group (Māori, Pacific and Other). The table shows:

- unadjusted 12-month prevalences
- 12-month prevalences adjusted for age and sex (to take account of the younger Māori and Pacific populations, compared with the Other (ie, non-Māori non-Pacific) population
- 12-month prevalences adjusted for age, sex, educational qualifications and household income.

Rates of suicidal ideation, suicide plan and suicide attempt varied with ethnicity, with Māori and Pacific people reporting significantly higher rates than Other people: ideation (Māori, 5.4%; Pacific, 4.5%; Other, 2.8% (p < .0001)); suicide plan (Māori, 1.8%; Pacific, 2.6%; Other, 0.8% (p < .0001)); attempt (Māori, 1.1%; Pacific, 1.2%; Other, 0.3% (p < .0002)). After adjustment for sociodemographic factors, there were no ethnic variations in suicidal ideation (p=.34). However, some ethnic differences remained for suicide plans (p=.01) and suicide attempts (p=.04) after adjustment for sociodemographic factors: Māori and Pacific participants had significantly higher rates of making suicide plans and suicide attempts after adjustment for sociodemographic factors.

Table 7.4: Ethnicity and 12-month prevalence of suicidal behaviours

	Unadjusted **%** **(95% CI)**	**Adjusted for age and sex** **%** **(95% CI)**	**Adjusted for age, sex, educational qualification,[1] household income[1]** **%** **(95% CI)**
Suicidal ideation			
Māori	5.4 (4.3, 6.5)	4.5 (3.6, 5.4)	3.8 (2.9, 4.6)
Pacific	4.5 (3.0, 6.0)	3.8 (2.5, 5.0)	3.1 (2.1, 4.2)
Other	2.8 (2.4, 3.3)	3.0 (2.5, 3.4)	3.1 (2.6, 3.6)
Suicide plan			
Māori	1.8 (1.2, 2.4)	1.5 (1.0, 2.1)	1.3 (0.9, 1.8)
Pacific	2.6 (1.3, 3.9)	2.2 (1.1, 3.3)	1.8 (1.0, 2.7)
Other	0.8 (0.5, 1.0)	0.8 (0.6, 1.1)	0.8 (0.6, 1.1)
Suicide attempt			
Māori	1.1 (0.6, 1.7)	0.9 (0.5, 1.3)	0.7 (0.4, 1.1)
Pacific	1.2 (0.5, 1.9)	1.0 (0.4, 1.5)	0.8 (0.3, 1.3)
Other	0.3 (0.1, 0.4)	0.3 (0.1, 0.5)	0.3 (0.1, 0.5)

1 Sociodemographic correlates are defined in 12.12.1.

7.6 Mental disorder correlates

Percentages of suicidal behaviour by mental disorder in the past 12 months were estimated for a series of DSM-IV mental disorders (Table 7.5). Compared with the overall 12-month prevalences of suicidal ideation (3.2%), suicide plan (1.0%) and suicide attempt (0.4%), individuals with any mental disorder had elevated risks of suicidal behaviour, with 11.8% of those with any disorder reporting suicidal ideation, 4.1% making a suicide plan and 1.6% making a suicide attempt.

More specifically, mood disorders, anxiety disorders, eating disorders and substance use disorders were all associated with suicidal ideation, with from 10.2% (specific phobia) to 40.9% (drug dependence) of those with these disorders reporting ideation. For example, 20.2% of those with a mood disorder, 22.9% of those with an eating disorder, 16.7% of those with an alcohol disorder and 28.5% of those with a drug disorder reported suicidal ideation.

These disorders were also associated with the risk of making plans for suicide, with from 4.3% (specific phobia) to 23.2% (drug dependence) of those with these disorders reporting they had made suicide plans. Among those with mood disorders 7.6% reported making plans for suicide. Among those with eating disorders 10.1% reported making suicide plans while 7.6% of those with an alcohol disorder and 16.0% of those with a drug disorder reported making such plans.

The risk of suicide attempt was less common than suicidal ideation or making suicide plans: 9% of those with an eating disorder and 3.4% of those with a mood disorder and 4% of those with a substance use disorder reported making suicide attempts, for example. To estimate the strength of association between individual disorders and suicidal behaviours, odds ratios (ORs) were computed. The odds ratio is a relative measure of risk, assessing how much more likely it is that someone exposed to a particular risk factor will develop an outcome (in this case, suicidal ideation, suicide plan or suicide attempt) compared with someone who is not exposed. Consistent with previous research (Beautrais et al 2005) ORs were largest, for each suicidal behaviour, for major depressive disorder: ideation, OR = 7.2 (4.9, 10.8); plan, OR = 7.2 (3.7, 14.0); attempt, OR = 14.3 (6.2, 32.7), taking account of all other disorders.

The risk of suicidal ideation, suicide plan and suicide attempt increased with increasing number of disorders. Among those with three or more disorders, 29.8% reported suicidal ideation (compared with 6.1% of those with only one disorder), 13.2% reported making a suicide plan (compared with 1.1% of those with one disorder) and 5.6% reported a suicide attempt (compared with 0.3% of those with one disorder).

Table 7.5: Mental disorder in past 12 months and risk of suicidal ideation, suicide plan and suicide attempt in past 12 months

Disorder groups[1]	Suicidal ideation % (95% CI)	Suicide plan % (95% CI)	Suicide attempt % (95% CI)
Anxiety disorders			
Panic disorder	25.4 (18.7, 33.5)	11.4 (7.6, 16.7)	3.6 (1.8, 7.1)
Agoraphobia without panic	24.6 (14.7, 38.1)	7.1 (3.4, 14.5)	3.0 (0.9, 9.1)
Specific phobia	10.2 (7.9, 13.0)	4.3 (2.7, 6.7)	2.1 (1.0, 4.4)
Social phobia	17.2 (13.6, 21.4)	7.2 (5.1, 10.0)	2.1 (1.2, 3.8)
Generalised anxiety disorder	21.5 (15.9, 28.3)	7.5 (4.3, 12.9)	1.0 (0.4, 2.7)
Post-traumatic stress disorder[2]	16.4 (12.0, 22.0)	5.0 (3.3, 7.7)	1.8 (1.0, 3.3)
Obsessive–compulsive disorder[2]	27.3 (15.4, 43.9)	14.2 (5.9, 30.4)	3.3 (1.2, 9.3)
Any anxiety disorder[2]	12.1 (10.3, 14.2)	4.7 (3.6, 6.2)	1.9 (1.2, 3.0)
Mood disorders			
Major depressive disorder	21.3 (17.7, 25.3)	8.2 (5.8, 11.4)	4.0 (2.3, 6.8)
Dysthymia	28.2 (18.9, 39.7)	16.6 (8.8, 28.9)	6.2 (1.7, 20.4)
Bipolar I–II disorders	17.6 (12.8, 23.6)	5.5 (3.5, 8.4)	1.9 (0.9, 3.7)
Any mood disorder	20.2 (17.2, 23.4)	7.6 (5.7, 9.9)	3.4 (2.1, 5.4)
Substance use disorders			
Alcohol abuse	16.5 (12.2, 21.9)	7.6 (4.8, 11.8)	2.3 (1.1, 4.5)
Alcohol dependence	23.5 (16.7, 32.1)	12.1 (7.3, 19.6)	3.8 (1.9, 7.4)
Drug abuse	25.7 (17.5, 35.9)	13.3 (7.8, 21.8)	4.3 (2.2, 8.2)
Drug dependence	40.9 (27.8, 55.4)	23.2 (12.3, 39.5)	11.3 (3.6, 30.2)
Marijuana abuse	24.2 (15.6, 35.5)	12.5 (6.8, 21.9)	4.9 (2.4, 9.8)
Marijuana dependence	38.6 (24.3, 55.2)	19.8 (10.1, 35.3)	6.6 (3.1, 13.6)
Any alcohol disorder	16.7 (12.7, 21.7)	7.6 (5.0, 11.5)	2.5 (1.4, 4.6)
Any drug disorder	28.5 (20.0, 38.8)	16.0 (9.3, 26.1)	7.4 (2.9, 17.5)
Any substance use disorder	18.5 (14.5, 23.3)	9.0 (6.0, 13.2)	4.0 (2.0, 7.8)
Eating disorders			
Anorexia[23]	–	–	–
Bulimia[2]	20.3 (10.5, 35.6)	10.5 (4.5, 22.3)	9.3 (3.1, 25.0)
Any eating disorder[2]	22.9 (12.3, 38.4)	10.1 (4.4, 21.7)	9.0 (3.0, 24.3)

Disorder groups[1]	Suicidal ideation % (95% CI)	Suicide plan % (95% CI)	Suicide attempt % (95% CI)
Any disorder[2]	11.8 (10.4, 13.5)	4.1 (3.2, 5.1)	1.6 (1.1, 2.4)
No disorder	0.9 (0.7, 1.3)	0.2 (0.1, 0.3)	0.1 (0.0, 0.2)
One disorder[2]	6.1 (4.7, 7.8)	1.1 (0.7, 1.7)	0.3 (0.1, 0.7)
Two disorders[2]	15.4 (12.2, 19.4)	5.9 (3.9, 8.7)	2.6 (1.3, 5.0)
Three or more disorders[2]	29.8 (24.4, 35.7)	13.2 (9.4, 18.4)	5.6 (3.1, 10.1)
Total	3.2	1.0	0.4

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 A dash (–) in a cell indicates fewer than 30 with the disorder.

7.7 Health services use

The extent to which those who reported 12-month suicidal ideation, suicide plan and suicide attempts made visits for mental illness in the past 12 months was explored. While available data do not give precise information about the timing of these visits in relation to suicidal behaviour, or whether the visit was specifically for suicidal behaviour, it is useful to know the fraction of those with suicidal behaviour within the past 12 months who also made visits for mental health, including substance use, problems within the past 12 months.

Almost half of those with a 12-month history of suicidal ideation (42.8%), suicide plan (45.0%) or suicide attempt (44.7%) did not make any mental health visits within the same 12-month period in which they were suicidal. More specifically, of those with suicidal ideation, 16.7% reported that they had made visits to a psychiatrist within the past 12 months, 34.5% had made visits to a psychiatrist and/or another mental health professional, and 53.6% had made visits to any health professional. Of those who made a plan for suicide, 25.8% had made visits to a psychiatrist within the previous 12 months, 41.7% had made visits to a psychiatrist and/or another mental health professional and 54.5% had made visits to any health professional. Of those who made a suicide attempt, 31.5% had made visits to a psychiatrist within the previous 12 months, 45.2% had made visits to a psychiatrist and/or another mental health professional and 53.7% had made visits to any health professional.

7.8 Conclusions

The analyses reported in this chapter have implications for the following major themes relating to the prevalence, correlates and the management of suicidal behaviours in New Zealand.

7.8.1 Prevalence of suicidal behaviours

Suicidal ideation was common, with 15.7% of participants acknowledging a lifetime history of suicidal ideation. In comparison, lifetime rates of suicide plans (5.5%) and attempts (4.5%) were lower. Reports of suicidal behaviours were more common among the young and decreased with increasing age. Lifetime rates of suicidal behaviours were consistently significantly higher in females than males. Suicidal behaviours are thus a problem for both sexes: while males are more likely to die by suicide, suicidal morbidity is dominated by females (Ministry of Health 2005a).

The findings in this survey are broadly consistent with estimates of suicidal ideation and suicide attempt obtained in previous New Zealand studies (Beautrais 2001; Fergusson et al 2000; Nada-Raja et al 2004; Weissman et al 1993; Weissman et al 1999), with the exception of the findings from the National Secondary School Youth Health Survey (Adolescent Health Research Group 2003), which reported rates of suicidal behaviour in the year before interview that were higher than the findings from other New Zealand studies. The findings from this survey are also consistent with findings from national surveys conducted in comparable OECD countries. These studies have reported lifetime rates of suicidal ideation ranging from 11.3% to 16.5% and of suicide attempt ranging from 3.1% to 4.9% (Kessler et al 1999a; Pirkis et al 2000; Weissman et al 1999), and 12-month rates of ideation ranging from 3.3% to 3.4% and of attempt ranging from 0.4% to 0.6% (Kessler et al 2005a; Pirkis et al 2000).

It should be noted that the observed prevalences for suicidal behaviours are likely to be underestimates, because of participant reluctance to admit to stigmatised suicidal behaviours or because of non-participation in the survey. It is also likely that the observations of decreasing suicidal behaviours with increasing age may reflect, in part, recall bias or forgetting, and that, with age, historical events become overlaid with more recent life experiences. However, these limitations are likely to apply to a similar degree to comparable surveys.

7.8.2 Sociodemographic correlates of suicidal behaviours

Suicidal ideation was associated with both individual-level sociodemographic factors (including female gender, youth, poor educational qualifications and low household income) and with the area-level descriptors of social deprivation and urbanicity. Suicide plans and attempts were linked with youth, low household income and the area-level descriptor of deprivation. In addition, suicide attempt was associated with urbanicity. These findings are consistent with a large body of New Zealand and international evidence that has shown consistent links between a range of social and demographic factors and suicidal behaviours (Beautrais et al 2005; Collings and Beautrais 2005; Goldsmith et al 2002; Hawton and van Heeringen 2000).

7.8.3 Ethnicity and suicidal behaviour

Rates of suicidal ideation, suicide plan and suicide attempt varied with ethnicity, with Māori and Pacific people reporting significantly higher rates of suicidal ideation, suicide plan and suicide attempt than Other people. Some of these ethnic differences in suicidal behaviours were explained by social and demographic factors.

These findings are consistent with those of previous New Zealand studies and with a large body of international evidence that has found elevated rates of suicidal behaviour among aboriginal and ethnic minority populations, with these higher rates accounted for, in part, by higher rates of social deprivation and disadvantage, and attributed, in part, to acculturative stress (Ajwani et al 2003; Beautrais et al 2005; Collings et al 2004; EchoHawk 1997; Hunter and Harvey 2002; Indian Health Service et al 1999; Leenaars in press).

7.8.4 Mental disorders and suicidal behaviours

Individuals with mental disorder had elevated rates of suicidal behaviour, with 11.8% of those with any disorder reporting suicidal ideation, 4.1% making a suicide plan and 1.7% making a suicide attempt. Mood disorders, anxiety disorders, eating disorders, and alcohol, drug and substance use disorders were all associated with increased rates of suicidal ideation, suicide plan and suicide attempt, with major depressive disorder having the strongest association with each type of suicidal behaviour (ideation: OR = 7.2 (4.9, 10.8); plan, OR = 7.2 (3.7, 14.0); attempt, OR = 14.3 (6.2, 32.7).

These findings confirm the association between mental disorders, and, particularly, mood disorders, and the risk of suicidal behaviours found in extensive New Zealand and international research. This body of evidence suggests mental disorders are consistent and strong risk factors for suicidal behaviour (Beautrais et al 2005; Collings and Beautrais 2005; Goldsmith et al 2002; Hawton and van Heeringen 2000).

7.8.5 Visits made to health professionals for suicidal behaviours

Almost half of those who reported suicidal behaviours within the 12 months before interview made no visits to specialist mental health professionals or other health professionals in that period. In particular, less than one-third (31.5%) of those who attempted suicide received treatment from a psychiatrist.

In this survey we collected very limited data on the temporal links between suicidal behaviours and visits to health professionals, limited data on type of treatment received during visits to health professionals, and no data on the quality of that treatment. Nevertheless, the findings from our survey are generally consistent with New Zealand and international research that suggests that a substantial fraction of people with suicidal behaviours and the mental disorders with which they are associated do not receive treatment. In addition, emerging evidence suggests that, of those who do have treatment contact, only a minority receive adequate treatment (Beautrais et al 2000; Demyttenaere et al 2004; Wang et al 2005b).

8 Health Services

Key results

- There is a significant unmet need for treatment for people with mental disorders. Of all 12-month cases of mental disorder, 38.9% had a mental health visit to a health or non-healthcare provider in the past 12 months. Of these 12-month cases, 16.4% had contact with a mental health specialist, 28.3% with a general medical provider, 4.8% within the human services sector and 6.9% with a complementary and alternative medicine (CAM) practitioner.
- Of the total population, 13.4% had a visit for a mental health reason in the 12 months before the interview.
- In all treatment sectors, over 50% of contacts involved between one and five visits. However, in the mental health and CAM sectors, a small minority of people accounted for a substantial proportion of the total number of visits.
- The majority of people who had mental health visits reported they were 'very satisfied' or 'satisfied' with the treatment received. The majority of people who had treatment perceived that treatment as helping 'a lot' or 'somewhat'.
- Unmet need for treatment was greatest in younger people and Pacific people. People with lower educational attainment and people resident in rural centres or areas had lower rates of visits to the mental health specialty sector. Unmet need for treatment did not vary significantly by socioeconomic status.
- Most people with lifetime disorders eventually made contact before their disorder ended, with proportions making contact varying from 55.7% for post-traumatic stress disorder to 99.5% for alcohol dependence. However, the percentages seeking help at the age of onset were small for most disorders and several disorders had large percentages who never sought help.
- The median duration of delay until contact varied from one year for major depressive disorder to 38 years for specific phobias.
- The most commonly endorsed reasons for delaying seeking, stopping treatment early, or not seeking help were attitudinal (such as 'I thought the problem would get better by itself').

8.1 Introduction

8.1.1 Government mental health plans

Over the past decade government national mental health plans have emphasised the development of community mental health services, the development of the mental health workforce, strengthening the primary health sector's responsiveness to people with mental health problems, and the coordination of care provision across the health and social service sectors (Minister of Health 1997, 2005; Ministry of Health 1994). These plans have also highlighted the need to improve mental health service provision for specific groups in the community, especially Māori, Pacific peoples, children and young people, and older people. The plans also recognise the importance of reducing the stigma and discrimination associated with mental illness that may act as barriers to people accessing appropriate care for recovery (Ministry of Health 2001a; Ministry of Health and ALAC 2001).

Although the first two national mental health plans focused on the needs of the estimated 3.0% of the adult population who suffer from major mental health problems, the second plan widened the focus of service provision to include the estimated 17% of New Zealanders who experience mild to moderate mental illness (Minister of Health 2005).

The key goals of these plans have been to (Minister of Health 1997: 2 and 56; Ministry of Health 1994: 4):

- 'decrease the prevalence of mental illness and mental health problems in the community'
- 'increase the health status of and reduce the impact of mental disorders on consumers, their families, caregivers and the general community'.

8.1.2 Evidence available

As presented in the introduction to this report (chapter 1), the epidemiological evidence used in the national mental health plans has been drawn from the limited information available from New Zealand community surveys and records of inpatient or outpatient contacts within specialist mental health services. The former data are based on regional surveys undertaken more than a decade ago, with very limited participation by Māori and Pacific peoples. Consequently, the information may no longer be relevant and representative at a national level. The latter data are unlikely to be representative of the extent of need for the whole New Zealand population, as they do not include information about the majority of people with mental disorders who do not have contact with specialist mental health services.

Estimates of psychiatric morbidity and service use have also been based on the results from surveys in Australia, Canada and the United States (US). The population demographics and health service structures in these countries are very different from those in New Zealand and it is uncertain how applicable the results from such overseas studies are to New Zealand.

The Christchurch Psychiatric Epidemiology Study (CPES) showed that of the participants with a Diagnostic Interview Schedule (DIS) DSM-III mental disorder (see 1.10.1) during the last six months, only 29% had visited a health service or professional for a mental health consultation, although 75% had sought healthcare, over that period.

Mental health consultations were more commonly reported with general practitioners than mental health specialists, who saw only 7.0% of those with recent disorder. Only 5.0% of the participants had ever had an inpatient admission for mental health reasons. Of participants with a DSM-III disorder in the previous six months, 10% had ever been admitted for mental health reasons.

This study showed that for those who at some point in their lives had not sought help even though they or others had considered it necessary, attitudinal reasons were more important than practical concerns such as finance, time or access to care (Hornblow et al 1990).

The findings from the CPES were similar to those in the multicentre US Epidemiologic Catchment Area Study (ECA) (see 1.7.1), where only 19% of participants with an active disorder had an inpatient treatment in the past 12 months or an outpatient consultation in the past six months (Narrow et al 1993; Regier et al 1993). A comparison between one ECA site (St Louis) and Christchurch showed that the reasons for not seeking help were almost identical and mainly attitudinal, despite differences in the two cities' demographics and health services (Wells et al 1994).

More recent overseas studies have shown similar patterns to the above studies and provided more detailed information about the unmet need for mental health services. The US National Comorbidity Survey (NCS) (see 1.7.3) found that only 25% of participants with a 12-month DSM-III-R disorder received outpatient treatment in the 12 months before interview (Kessler et al 1999c).

In the Australian National Survey of Mental Health and Well-being (see 1.7.4), only 35% of people with an International Classification of Disease (revision 10) mental disorder in the 12 months before the survey had consulted someone for a mental problem during that year, although most had seen a general practitioner (Andrews et al 2001).

The European Study of the Epidemiology of Mental Disorders (ESEMeD) (see 1.7.5), a community mental health survey conducted in six European nations, obtained information from the participants about mental health visits and the type of treatment received. It was found that of the participants with a 12-month DSM-IV disorder, 25.7% had consulted formal health services during that period, and of these 21.2% had received no treatment (Alonso et al 2004e).

The NCS was replicated (NCS-R) one decade after the first NCS (see 1.7.5). It showed that of 12-month DSM-IV cases, 41.1% received some treatment in the past 12 months. Of these, 12.3% were treated by a psychiatrist, 16.0% by a general medical services provider, 8.1% by a human services provider and 6.8% by a complementary and alternative medical (CAM) provider. This study found that the unmet need for treatment was greatest in older people, people from racial-ethnic minority groups, people with low incomes, people without health insurance, and people resident in rural areas (Wang et al 2005b). The pattern seems consistent across mental health surveys from several countries: only a minority of people with recent mental disorder have a consultation about, or receive treatment for, that disorder, and unmet need seems greatest in the groups traditionally under-served with respect to health resources.

The NCS showed that, although the age of onset for many disorders is in late childhood, the teenage years or young adulthood, a substantial delay often occurs before the person receives treatment (Kessler et al 1998a). The US findings were very similar to those of the Ontario Health Survey, despite the differences in health service systems in the US and Canada (Olfson et al 1998).

The NCS-R also revealed delay among those with lifetime disorders, with treatment contact delays ranging from 6 to 8 years for mood disorders and 9 to 23 years for anxiety disorders. Thus, in the US, the pattern of treatment delay after the onset of mental disorder persisted despite significant changes in the organisation and financing of mental healthcare; the availability of evidence-based therapies; and public attitudes to, and awareness of, mental health problems.

8.1.3 New Zealand mental health initiatives since mid 1990s

Since the mid 1990s in New Zealand, several important initiatives have been introduced to improve the accessibility, effectiveness and appropriateness of mental health services. These initiatives have included the development and implementation of the new mental health plans, the restructuring of general health and mental health services, a real increase in funding for mental health services, the development of the mental health workforce, the implementation of clinical practice guidelines for specialist mental health and primary health sectors, and a nationwide public awareness campaign about mental health (Mental Health Commission 1998, 1999, 2002a, 2004b).

8.1.4 Uses of data from survey

The data from this survey may be used to:

- describe the current situation since the reforms outlined in 8.1.3
- provide baseline data for the Second National Mental Health Plan
- inform the development of further mental health initiatives.

Importantly, the survey provides community data for the first time for Māori and Pacific people, for whom indirect data suggest access to appropriate treatments and services may be problematic.

8.1.5 Categorisation of health and non-health services

In the interview, all participants were asked: ‘Did you ever in your lifetime go to see any of the professionals on this list for problems with your emotions, nerves, mental health or your use of alcohol or drugs?’. A list of treatment providers was then presented to the participant to aide recall. This list included:

- a psychiatrist
- a general practitioner or family physician
- any other medical doctor such as a cardiologist, urologist or gynaecologist
- a psychologist
- a social worker, youth aid worker, child welfare officer, school counsellor or teacher
- a counsellor other than a school counsellor
- any other mental health professional such as a psychotherapist or psychiatric nurse
- a general nurse, occupational therapist or other health professional
- a religious or spiritual advisor like a minister, priest or tohunga
- any other healer, like a herbalist, homeopath, naturopath, chiropractor, spiritualist or traditional healer.

The participants were also asked about their use of support groups, self-help groups and mental health crisis helplines, and admissions to hospitals and other facilities. Separate questions were then asked of those participants who had contact for a mental health problem about each care or service provider. These questions included the age at first contact and age at most recent contact. The number and duration of visits in the past 12 months was also obtained. For those participants who were admitted overnight, each day of admission was assumed to include a visit with a psychiatrist. Participants who had received care were asked to rate their satisfaction with, and the perceived helpfulness of, the care received.

The data on contacts within the past 12 months were categorised into four groups:

- the mental health specialist sector, which includes psychiatrist and non-psychiatrist mental health specialists (psychiatrist, psychologist or other non-psychiatrist mental health professional; social worker or counsellor in a mental health specialty setting; use of a mental health helpline; or overnight admissions for mental health or drug or alcohol problems, with a presumption of daily contact with a psychiatrist)
- the general medical sector (general practitioner, other medical doctor, nurse, occupational therapist or any healthcare professional)
- the human services sector (religious or spiritual advisor or social worker or counsellor in any setting other than a specialty mental health setting)
- the CAM sector (any other type of healer such as a herbalist or homeopath, participation in an internet support group, or participation in a self-help group).

The mental health specialist sector and general medical sector were then combined into the healthcare sector. The human services sector and CAM sector were also combined into the non-healthcare sector.

8.1.6 Content of chapter

This chapter provides information on the patterns of 12-month mental health treatment in New Zealand across the four service sectors: mental health specialist service, general medical sector, human services sector and CAM sector. As described above, these four service sectors are further grouped into a healthcare sector and a non-healthcare sector.

Data are presented on:

- the percentage of participants treated in the four service sectors (see 8.2)
- the distributions of patients, by number of visits; and the proportion of all visits, by treatment sector and professional group (see 8.3)
- participants' satisfaction with, and perceptions of helpfulness of, treatment and services received (see 8.4)
- the average duration of visit, by professional group (see 8.4)
- sociodemographic correlates of mental health treatment (see 8.5)
- the proportions of treatment contacts in the year of disorder onset and median duration of delay among cases that subsequently made treatment contact (see 8.6).
- participants' reasons for delaying seeking help, stopping treatment early and not seeking help (see 8.7).

8.2 Probability of 12-month use of mental health services

In this survey, 4.9% (4.5, 5.4) of the population had ever been admitted overnight to a hospital or other facility to receive help for a mental health or substance use problem. Of people with any DSM-IV mental disorder in the past 12 months, 1.8% (1.3, 2.6) had been admitted within that period.

8.2.1 Use of services by people with a diagnosed disorder, by sector

Table 8.1 presents 12-month mental health service use in separate sectors for people with mood, anxiety, substance use and eating disorders. The visits reported in Table 8.1 are for any mental health problems or for problems with alcohol or drugs, which makes them all mental health visits regardless of the sector in which they occurred. The percentage of participants with a disorder who visited one of the four sectors for a mental health reason (ie, 'had a mental health visit') was low. Of all people who met criteria for a mental disorder within the past 12 months, 16.4% had a mental health visit to a mental health specialist (ie, a visit within the mental health sector) and 28.3% had a mental health visit within the health sector. Within the mental health and health sectors, 6.2% had visited a psychiatrist, 13.5% visited another mental health specialist and 28.3% visited another health practitioner. Of 12-month cases, 10.3% had a mental health visit to the non-healthcare sector (human services and CAM sectors); 4.8% had a mental health visit within the human services sector; and 6.9% had a mental health visit to a CAM practitioner. Of 12-month cases, 38.9% had at least one mental health visit to a care provider within either the health sector or the non-health sector.

In the general medical sector it is important to note that the majority of visits were with general practitioners. Of the population, 23.2% (21.8, 24.6) stated that they, at some time in their lives, had a mental health visit with a general practitioner. A very small percentage, 1.3% (1.1, 1.5) visited both a general practitioner and another medical practitioner (other than a psychiatrist), and only 0.6% (0.4, 0.8) visited only another medical practitioner. That is, of those in the population who visited a medical practitioner other than a psychiatrist for a mental health problem, 92% visited only a general practitioner.

Because of the structure of the questionnaire, it was not possible to determine what percentage of those visiting the general medical sector in the past 12 months had been seen in primary care. However, the structure of the New Zealand health system (where the general practitioner acts as the gateway to other medical specialists) means it can be reasonably assumed that most of these people did see a general practitioner.

Table 8.1: Prevalence of 12-month mental health service use in separate service sectors, by 12-month anxiety, mood, substance use and eating disorders

Type of disorder group[3]	**Healthcare % (95% CI)**					**Non-healthcare % (95% CI)**			**Any service use % (95% CI)**
	Mental health specialty			**General medical**[1]	**Any healthcare provider**	**Human services**	**Complementary or alternative medicine**[2]	**Any non-healthcare provider**	
	Psychiatrist	Other mental health specialist	Any mental health specialist						
Any anxiety disorder	6.8 (5.4, 8.6)	13.6 (11.7, 15.7)	16.7 (14.6, 19.0)	28.4 (26.0, 31.0)	35.9 (33.2, 38.7)	5.0 (3.9, 6.4)	7.8 (6.2, 9.8)	11.3 (9.4, 13.4)	39.4 (36.7, 42.3)
Any mood disorder	10.7 (8.5, 13.4)	21.7 (18.7, 25.0)	25.8 (22.7, 29.2)	41.6 (37.8, 45.5)	51.7 (47.9, 55.5)	6.8 (5.1, 9.0)	9.4 (7.2, 12.2)	14.1 (11.4, 17.2)	55.1 (51.2, 58.9)
Any substance use disorder	6.9 (4.5, 10.4)	12.0 (8.9, 16.0)	14.5 (11.1, 18.7)	20.0 (15.9, 24.8)	27.3 (22.6, 32.6)	2.6 (1.3, 4.8)	5.7 (3.5, 8.6)	7.5 (5.2, 10.9)	29.9 (25.1, 35.1)
Any eating disorder	9.3 (3.5, 19.2)	25.6 (13.9, 40.6)	27.9 (15.8, 43.0)	42.6 (27.6, 59.2)	45.6 (30.4, 61.7)	3.1 (0.3, 11.2)	5.9 (1.8, 13.9)	7.9 (2.9, 16.6)	46.7 (31.4, 62.7)
Composite									
Any disorder	6.2 (5.0, 7.6)	13.5 (11.9, 15.2)	16.4 (14.7, 18.4)	28.3 (26.2, 30.6)	35.7 (33.4, 38.1)	4.8 (3.9, 6.0)	6.9 (5.7, 8.4)	10.3 (8.8, 12.0)	38.9 (36.5, 41.3)
No disorder	0.7 (0.5, 1.0)	1.8 (1.4, 2.3)	2.2 (1.8, 2.8)	4.1 (3.5, 4.8)	5.7 (5.0, 6.6)	0.7 (0.5, 1.1)	1.5 (1.1, 2.1)	2.1 (1.6, 2.7)	7.2 (6.3, 8.2)
Total population	1.7 (1.5, 2.0)	4.0 (3.6, 4.5)	4.9 (4.5, 5.5)	9.1 (8.5, 9.7)	11.7 (11.0, 12.4)	1.6 (1.3, 1.9)	2.5 (2.1, 2.8)	3.6 (3.2, 4.1)	13.4 (12.7, 14.2)
Severity[4]									
None	0.7 (0.5, 1.0)	1.8 (1.4, 2.3)	2.2 (1.8, 2.8)	4.1 (3.5, 4.8)	5.7 (5.0, 6.6)	0.7 (0.5, 1.1)	1.5 (1.1, 2.1)	2.1 (1.6, 2.7)	7.2 (6.3, 8.2)
Serious	15.6 (12.2, 19.7)	29.8 (25.7, 34.2)	35.3 (31.0, 39.8)	45.7 (41.0, 50.4)	58.0 (53.3, 62.6)	8.5 (6.2, 11.5)	12.4 (9.3, 16.4)	17.6 (14.1, 21.7)	60.9 (56.3, 65.4)
Moderate	4.8 (3.2, 7.1)	11.6 (9.4, 14.4)	14.6 (11.9, 17.7)	28.9 (25.8, 32.3)	36.5 (32.9, 40.4)	4.3 (3.0, 6.2)	7.0 (5.2, 9.4)	10.2 (8.0, 12.8)	39.9 (36.2, 43.7)
Mild	1.4 (0.6, 2.8)	4.4 (2.8, 6.8)	5.6 (3.8, 8.1)	15.0 (12.1, 18.5)	18.5 (15.3, 22.3)	2.9 (1.7, 4.7)	2.9 (1.6, 4.8)	5.2 (3.6, 7.5)	21.7 (18.2, 25.7)

1 The general medical sector includes nurses and other healthcare professionals as well as doctors.

2 Complementary or alternative medicine includes self-help groups.

3 DSM-IV CIDI 3.0 disorders.

4 For severity, see 2.3 and 12.12.3.

8.2.2 Use of services by people without a diagnosed disorder

A small percentage of people who did not have a diagnosed DSM-IV CIDI 3.0 12-month disorder had mental health visits within the 12 months before interview. This group had an overall rate of 7.2% for any mental health visit: 2.2% reported visits to the mental health sector, 4.1% to the general medical sector, 0.7% to the human services sector and 1.5% to the CAM sector.

Although the percentages are small, the numbers with mental health visits within this 'No disorder' group were moderately large, because 79.3% of the population were without disorder. For example, the total number who visited psychiatrists within the past 12 months comprised:

- 6.2% of the 20.7% of the population who met criteria for disorder (1.3% of the population)
- 0.7% of the 79.3% of the population who did not meet criteria for disorder (0.5% of the population).

Thus, for visits to psychiatrists, 70.8% (approximately 1.3/1.8) were by people with disorder and 29.2% (approximately 0.5/1.8) were by people without a 12-month disorder.

It is possible this group includes people with a history of mental disorder, but which is currently in remission, subthreshold cases, or people with disorders or behavioural problems that were not assessed in the interview. These possibilities will be explored in future analyses.

8.2.3 Use of services by specific disorder

As in the DSM-IV classification system, in this report specific disorders are grouped with similar disorders into disorder groups. The disorder groups are: any anxiety disorder, any mood disorder, any substance use disorder and any eating disorder. In the tables in this chapter, information is presented about disorder groups and related patterns of service use. Additional information about some specific disorders and patterns of service use is provided below.

Of the anxiety disorders, panic disorder is associated with the highest rate of visits by participants, across all service sectors: 29.2% (22.7, 36.8) of participants with panic disorder had contact with a practitioner in the mental health sector, 55.9% (47.8, 63.7) in the general medical sector, 5.2% in the human services sector (2.6, 9.1) and 13.5% in the CAM sector (8.6, 20.5). Of all 12-month cases of panic disorder, 65.9% (58.1, 73.0) reported a mental health visit within the 12 months before the interview.

For major depressive disorder, 26.2% (22.3, 30.4) of 12-month cases had contact in the mental health sector: 44.1% (39.6, 48.8) in the general medical sector, 6.5% (4.6, 9.2) in the human services sector and 10.3% in the CAM sector (7.6, 13.8). Of all 12-month cases of major depressive disorder, 58.7% (53.9, 63.3%) reported a mental health visit within the 12 months before the interview.

For alcohol abuse and alcohol dependence disorders, the rates of service contacts are low. For alcohol abuse disorder, 13.1% (9.3, 18.1) of 12-month cases had contact in the mental health sector, 17.2% (13.0, 22.6) in the general medical sector, 2.7% (1.1, 5.5) in the human services sector, and 4.3% in the CAM sector (2.2, 7.3). Of all 12-month cases of alcohol abuse only 25.8% (20.8, 31.5) reported a mental health visit within the 12 months before the interview. Similarly, for alcohol dependence, the rates of service contact are low, although higher than the rates for alcohol abuse. For alcohol dependence, 21.6% (15.1, 29.9) of 12-month cases had contact in the mental health sector, 24.4% (17.5, 33.0) in the general medical sector, 2.3% (0.7, 5.2) in the human services sector, and 7.6% in the CAM sector (3.8, 13.3). Of all 12-month cases of alcohol dependence, 36.9% (28.8, 45.8) reported a mental health visit in the 12 months before the interview.

People with drug abuse or drug dependence are more likely to have a mental health visit than people with alcohol abuse or dependence. For drug abuse, 20.8% (14.0, 29.7) of 12-month cases had contact in the mental health sector, 23.4% (15.8, 33.1) in the general medical sector, 4.5% (1.2, 11.0) in the human services sector, and 10.1% in the CAM sector (5.2, 17.2). Of all 12-month cases of drug abuse disorder, 37.7% (28.4, 48.0) reported a mental health visit within the 12 months before the interview. For drug dependence, 25.3% (14.6, 38.7) of 12-month cases had contact in the mental health sector, 25.1% (15.4, 37.1) in the general medical sector, 3.5% (0.8, 9.2) in the human services sector, and 9.0% in the CAM sector (3.8, 17.4). Of all 12-month cases of drug dependence, 40.1% (28.3, 53.2) reported a mental health visit within the 12 months before the interview.

8.2.4 Use of services by severity

Table 8.1 shows the visits to the service sectors by severity of disorder (none, serious moderate, mild). It is apparent that participants with moderate and serious disorders account for the highest rates of mental health visits across all service sectors. These differences in rates of visits by severity are statistically significant for any disorder and for anxiety, mood, substance use and eating disorders, for all sectors within healthcare ($p \le .01$ for all except eating disorders, where $p \le .05$). The differences in rates of visits by severity are also statistically significant for any disorder and each disorder group for the summary categories of any non-healthcare provider ($p \le .001$ for all) and any service use ($p \le .001$ for all). Within the human services sector, the differences in rates of visits by severity are statistically significant only for anxiety ($p < .0001$) and substance use disorders ($p = .04$). Within the CAM sector, the differences in rates of visits by severity are statistically significant only for anxiety ($p < .0001$) and mood disorders ($p = .01$).

8.3 Distribution of participants in treatment sectors

Table 8.2 presents the distribution of participants by number of visits in the treatment sector and the proportion of all visits to the sector provided to participants in the various categories of individual-level visits.

The majority of participants who had treatment in the past 12 months recalled 1–4 visits, regardless of the treatment sector. For instance, for participants who visited a psychiatrist, 20.6% had one visit and 34.6% had 2–4 visits. Moderate numbers of participants had 5–9 visits (15.2%) and 10–19 visits (17.2%). Small numbers of participants had 20–49 visits (6.7%) and 50 or more visits (5.7%). However, it is notable that the latter two groups of participants accounted for large proportions of the total number of visits to psychiatrists: participants who attended for 20–49 visits accounted for 19.2% of the total number all visits; and participants who attended for 50 or more visits accounted for 39.9% of the total number of all visits.

Similar patterns are seen for visits to other mental health specialists, practitioners in the human services sector and practitioners in the CAM sector: a small number of participants account for the largest proportion of visits. This pattern is not observed for participants who attend other health practitioners in the general medical sector. In this sector, participants who attend for 2–4 visits comprise 58.2% of all participants and account for the largest proportion of visits (42.9%).

Table 8.2: Distribution of participants, by numbers of visits in each service sector and proportions of all visits to each treatment sector provided to participants

Treatment sector	Numbers of visits made by participants in each service sector within the past 12 months % (SE)					
	1	**2–4**	**5–9**	**10–19**	**20–49**	**50+**
Psychiatrist						
Participants	20.6 (3.4)	34.6 (3.9)	15.2 (2.9)	17.2 (3.6)	6.7 (2.0)	5.7 (2.3)
Visits	2.0	9.5	9.1	20.4	19.2	39.9
Non-psychiatrist mental health specialty						
Participants	21.5 (2.3)	27.2 (2.4)	18.6 (2.1)	14.1 (2.1)	14.9 (2.0)	3.8 (0.9)
Visits	2.0	7.1	11.2	16.1	40.6	23.0
Other general medical						
Participants	28.3 (1.6)	58.2 (1.7)	7.3 (0.9)	4.0 (0.7)	1.8 (0.5)	0.4 (0.2)
Visits	8.3	42.9	12.9	14.4	14.9	6.6
Human services						
Participants	21.9 (3.8)	36.7 (4.2)	19.1 (3.7)	11.4 (2.8)	8.2 (2.4)	2.6 (1.3)
Visits	2.9	13.0	16.1	18.3	32.3	17.5
Complementary or alternative medicine						
Participants	17.2 (2.4)	33.4 (3.5)	12.4 (2.1)	9.8 (2.0)	14.1 (2.7)	13.0 (2.6)
Visits	0.8	4.2	3.8	6.1	20.8	64.3

8.4 Satisfaction with care, perceived helpfulness of care and average duration of visit

Table 8.3 shows participant satisfaction with care and the perceived helpfulness of the care received. This information is presented by professional group. No participant refused to respond to these questions or stated they could not answer the questions.

The majority of participants reported that they were very satisfied or satisfied with the care they received across all professional groups. However, ratings of dissatisfaction (‘dissatisfied’ or ‘very dissatisfied’) tended to be to be higher for mental health professionals than for other professional groups. For ratings of the perceived helpfulness of the care received, the majority of participants responded they had been helped ‘a lot’ or ‘some’. A minority did respond that the care received had helped ‘not at all’ and these negative ratings were more frequent in other mental health professionals (14.9%), psychiatrists (14.1%), and general practitioners or other medical doctors (11.6%).

Table 8.3 also shows the average duration of visit by professional group. The most frequent durations of visits across all professional groups, were 15–30 minutes or for 46 minutes or longer. This distribution may reflect professional traditions in allocation of time for consultations.

Table 8.3: Participant rating of satisfaction with care, perceived helpfulness of care received, and average duration of visit, by professional group

Rating of satisfaction	Psychiatrist % (SE)	Psychologist % (SE)	Other mental health professional % (SE)	General practitioner or any other medical doctor % (SE)	General nurse, occupational therapist or other health professional % (SE)	Social worker % (SE)	Counsellor % (SE)	Religious or spiritual advisor % (SE)	Any other healer % (SE)
Satisfaction with care									
Very satisfied	40.0 (4.8)	44.2 (2.1)	33.0 (4.4)	38.9 (5.8)	44.1 (3.3)	49.5 (7.1)	56.7 (7.6)	61.6 (5.4)	59.7 (4.6)
Satisfied	29.4 (4.3)	34.6 (2.0)	33.4 (4.8)	42.6 (6.0)	37.2 (3.3)	33.3 (6.4)	31.8 (7.1)	26.2 (5.1)	30.4 (4.1)
Neither satisfied nor dissatisfied	15.6 (3.7)	11.2 (1.3)	17.7 (4.2)	7.7 (2.8)	12.1 (2.1)	12.7 (5.0)	5.2 (3.4)	9.8 (3.0)	5.9 (2.9)
Dissatisfied	8.7 (2.4)	7.3 (1.2)	11.5 (3.6)	6.9 (3.0)	5.1 (1.4)	4.5 (2.6)	4.9 (2.6)	1.0 (0.6)	2.8 (1.4)
Very dissatisfied	6.2 (2.4)	2.7 (0.7)	4.4 (2.0)	3.8 (2.4)	1.6 (0.8)	0.0 (0.0)	1.3 (1.3)	1.4 (0.8)	1.2 (0.7)
Perceived helpfulness									
A lot	52.2 (4.8)	51.8 (2.1)	41.2 (4.8)	50.2 (6.1)	54.1 (3.2)	56.1 (7.1)	74.7 (6.3)	74.7 (4.7)	58.0 (5.7)
Some	19.1 (3.4)	28.5 (1.9)	27.5 (4.8)	29.8 (5.8)	29.3 (3.2)	23.8 (5.7)	16.2 (5.7)	18.7 (4.4)	30.8 (5.7)
A little	14.7 (3.3)	12.6 (1.4)	16.4 (3.9)	8.4 (2.8)	12.2 (2.0)	17.0 (5.7)	3.3 (1.8)	5.3 (2.0)	6.4 (3.0)
Not at all	14.1 (3.3)	7.1 (1.1)	14.9 (3.8)	11.6 (3.9)	4.5 (1.3)	3.1 (2.2)	5.8 (2.8)	1.3 (0.8)	4.7 (1.9)
Average duration of visit									
Less than 15 minutes	5.8 (2.2)	29.7 (1.9)	3.0 (1.3)	5.9 (2.9)	4.1 (1.6)	3.8 (2.9)	22.7 (6.9)	15.1 (3.6)	12.2 (3.5)
15–30 minutes	34.5 (4.4)	64.5 (1.9)	19.4 (4.2)	42.1 (6.7)	15.8 (2.4)	36.1 (6.6)	47.4 (8.2)	43.3 (5.9)	33.4 (4.9)
31–45 minutes	11.7 (3.4)	2.6 (0.7)	8.3 (2.6)	16.1 (5.9)	11.5 (2.3)	5.0 (2.6)	3.2 (1.9)	2.9 (1.4)	11.2 (3.0)
46 minutes or longer	48.1 (4.8)	3.1 (0.7)	69.4 (4.7)	35.8 (6.1)	68.5 (3.2)	55.0 (7.1)	26.7 (7.4)	38.7 (5.3)	43.1 (4.7)

8.5 Sociodemographic correlates of treatment contact

Table 8.4 presents the demographic correlates of 12-month service use by people with a disorder in the past 12 months. Individual-level correlates are sex, age group, educational qualifications and equivalised household income. In addition, three community-level sociodemographic correlates were examined: the small area measure of socioeconomic deprivation, the New Zealand Index of Deprivation 2001 (NZDep2001); geographic region of place of residence; and urbanicity/rurality.

Table 8.5 presents the prevalences of 12-month service use by ethnicity for those with a 12-month disorder. The prevalences presented are unadjusted, adjusted for age and sex, and adjusted for age, sex, educational qualification and equivalised household income (see 2.4 and 12.10.2).

Both Tables 8.4 and 8.5 present the percentages of those participants who met criteria for a mental disorder within the past 12 months who had:

- visited a professional in either the healthcare sector or non-healthcare sector (‘any visit’)
- had any visit and had visited a professional in the healthcare sector (‘any healthcare visit’)
- had any healthcare sector visit and had visited a mental health professional in the specialty mental health sector visit (‘any mental health specialty visit’).

Other tables such as Table 8.1 present the absolute percentages of participants who made a particular type of visit. Tables 8.4 and 8.5 provide a different perspective. As per the definitions above, Tables 8.4 and 8.5 present a series of conditional percentages. For example, for those with any 12-month disorder, 38.9% made a mental health visit to any sector in the past 12 months. Of these people with any visit, 91.8% had made a visit to the healthcare sector. Of those who made a healthcare visit, 46.0% had made a visit to the mental health speciality sector. These proportions in Table 8.4 can be calculated from Table 8.1 but presenting them explicitly makes clearer where differences in access occur. It is evident that the majority of people who made mental health visits contacted the healthcare sector, not just the human services sector or CAM sector. Of those with a mental health visit in the health sector, just under half were seen by a mental health practitioner.

Table 8.4 shows that the youngest age group (16–24 years) was less likely than other age groups to have any visit for a mental health reason (p = .03). However, among those in this age group who did have a mental health visit, there appears to be no difference compared with other age groups in the rates of healthcare sector visit or mental health specialty sector visits.

Males had lower rates of any mental health visits than females (p < .0001), but higher rates of any healthcare sector visits (p = .007). The rates of mental health specialty visits for males are marginally higher than those for females, but the difference is not statistically significantly different (p = .08). This suggests females make greater use of the non-healthcare sector for mental health visits than males.

Participants with lower educational achievement had lower rates of any visit for a mental health reason and any healthcare sector visit, and lower rates of mental health specialty sector visits compared with participants with higher educational achievement. However, this is statistically significant only for any mental health specialty visit (p = .03).

There were no clear patterns of differences in rates of visits by equivalised household income or the small area measure of socioeconomic deprivation (NZDep2001).

Participants who were resident in secondary or minor centres had higher rates of healthcare sector consultation (p = .03) compared with participants in the main urban centres or other (rural) areas. Participants resident in secondary, minor and other (rural) areas had lower rates of mental health specialty sector visits compared with participants in the main urban centres (p = .01). Participants resident in rural centres and areas had the second lowest rate of healthcare sector consultation and the lowest rates of mental health specialty sector visits. There are no differences in rates of visit by region.

Table 8.5 presents the same description of mental health visits among participants with a 12-month diagnosis, by ethnicity. The ethnicity data are presented unadjusted, adjusted for age and sex, and adjusted for age, sex, education and household income (see 2.4 and 12.10.2).

For any visit for a mental health reason, there are significant differences across the three ethnic groups (p < .0001 overall). Without adjustment, 25.4% of Pacific people made any mental health visit compared with 32.5% of Māori and 41.1% of the Other composite ethnic group. For pairwise comparisons, Māori have lower percentages of visits than Others (p = .0009); Pacific people have lower percentages of visits than Others (p < .0001); and, while Pacific people have lower percentages of visits than Māori, this difference approaches, but does not reach, statistical significance (p = .06).

Table 8.4: Sociodemographic correlates of 12-month service use in people with 12-month mental disorder[1]

Correlate[2]	Any visit for mental health reason % (95% CI)	Any healthcare sector visit among patients with any visit % (95% CI)	Any mental health specialty sector visit among patients with healthcare sector visit % (95% CI)
Individual characteristics			
Sex			
Male	32.4 (28.5, 36.5)	95.3 (91.6, 97.4)	51.4 (43.8, 58.9)
Female	43.2 (40.2, 46.2)	90.0 (87.2, 92.3)	43.2 (38.6, 48.0)
Age group (years)			
16–24	32.1 (26.7, 38.0)	91.6 (84.0, 95.8)	51.9 (40.1, 63.6)
25–44	39.5 (36.1, 43.1)	91.1 (88.1, 93.4)	48.2 (42.6, 53.8)
45–64	43.0 (38.6, 47.5)	91.6 (86.9, 94.8)	39.7 (33.2, 46.7)
65 and over	42.0 (31.9, 52.8)	98.9 (92.2, 99.8)	39.4 (19.6, 62.1)
Educational qualifications			
None	35.1 (30.6, 39.8)	95.3 (91.4, 97.4)	37.5 (30.1, 45.5)
School or post-school only	38.2 (34.5, 42.1)	89.7 (85.5, 92.9)	44.5 (38.0, 51.2)
Both school and post-school	41.5 (37.6, 45.5)	92.2 (88.8, 94.6)	51.0 (44.7, 57.3)
Equivalised household income			
Under half of median	40.8 (36.8, 44.9)	91.3 (86.8, 94.3)	47.3 (40.2, 54.6)
Half median to median	40.5 (36.3, 44.8)	90.2 (85.7, 93.4)	46.7 (39.3, 54.3)
Median to one and a half times median	35.8 (30.6, 41.4)	91.7 (86.2, 95.1)	41.9 (33.5, 50.8)
One and a half times median and over	37.7 (32.6, 43.2)	94.7 (89.3, 97.5)	47.3 (38.1, 56.7)
Area characteristics			
NZDep2001 deciles			
9 and 10 most deprived	36.8 (31.0, 43.0)	92.0 (84.6, 96.0)	46.6 (36.6, 56.9)
7 and 8	43.9 (38.5, 49.4)	92.6 (86.4, 96.1)	43.9 (34.5, 53.7)
5 and 6	38.5 (33.5, 43.7)	90.1 (84.7, 93.7)	52.9 (44.9, 60.8)
3 and 4	39.0 (33.2, 45.0)	92.0 (87.2, 95.1)	38.3 (30.3, 47.1)
1 and 2 least deprived	36.7 (32.3, 41.4)	92.5 (88.3, 95.2)	47.8 (40.1, 55.6)

Correlate[2]	Any visit for mental health reason % (95% CI)	Any healthcare sector visit among patients with any visit % (95% CI)	Any mental health specialty sector visit among patients with healthcare sector visit % (95% CI)
Urbanicity			
Main	38.4 (35.6, 41.3)	91.1 (88.5, 93.2)	49.3 (44.6, 54.0)
Secondary	43.2 (34.3, 52.6)	93.5 (80.7, 98.0)	36.6 (23.8, 51.1)
Minor	39.2 (32.2, 46.6)	97.1 (93.1, 98.8)	41.4 (31.1, 52.6)
Other (rural)	40.6 (34.0, 47.6)	91.7 (84.0, 95.8)	31.6 (21.7, 42.9)
Region			
North	37.9 (33.6, 42.5)	90.3 (86.1, 93.4)	51.1 (44.1, 58.1)
Midland	38.2 (33.4, 43.3)	93.3 (88.9, 96.0)	38.9 (31.2, 47.2)
Central	36.3 (31.1, 41.8)	94.0 (89.4, 96.7)	40.9 (32.6, 49.9)
South	42.6 (38.4, 46.9)	91.2 (86.2, 94.5)	47.8 (40.3, 55.4)
Percentage getting treatment overall	38.9 (36.5, 41.3)	91.8 (89.6, 93.5)	46.0 (42.0, 50.0)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Sociodemographic correlates are defined in 12.12.1.

Adjustment by age and sex, or age, sex, educational qualification and equivalised household income, leads to minimal changes in these percentages and no change in the significance of the difference between them. The clear pattern is that Pacific people with disorder are the least likely to make a mental health visit, whether this is analysed unadjusted, adjusted for age and sex, or adjusted for age, sex, educational qualifications and equivalised household income. Māori are less likely than Others, but more likely than Pacific people, to have made a visit. However, the latter Māori–Pacific comparisons approach, but do not reach, statistical significance.

In contrast to the ethnic differences seen in the percentage with disorder making any visit, there were no significant differences in the percentage with a healthcare visit, given any visit, nor in the percentage with a mental health speciality visit among those with a healthcare visit. The ethnic differences in the percentage making treatment contact are to do with making contact at all, not to do with the sector someone is seen in.

Table 8.4 is based on those with any disorder in the past 12 months. An alternative analysis in Table 2.4 looks only at access to the healthcare sector, but takes account of severity. This analysis also found that a lower percentage of Pacific people made treatment contact, in comparison with Others, and these differences persisted after adjustment for sociodemographic correlates.

Table 8.1 indicates that people with mood disorders are more likely to contact services than people with anxiety or substance use disorders. As Pacific people have lower prevalence of mood disorder (Table 3.6), this might account for their lower use of services. Therefore, ethnic comparisons were made within each of the three main disorder groups (anxiety, mood and substance) for mental health visits to any sector. (The same trends were also seen for any mental health speciality visit and for any healthcare visit, calculated as in Table 8.1.)

For anxiety disorders Pacific people were the least likely to make any visit, with Māori intermediate between Pacific and Others: 22.2% (16.8, 28.9) for Pacific people; 35.3% (30.3, 40.5) for Māori; and 41.3% (38.0, 41.6) for Others. For mood disorders the same order was seen, but Māori were close to Pacific people rather than halfway between Pacific and Others in the percentage who made treatment contact: 38.1% (27.6, 49.7) for Pacific people; 43.1% (36.7, 49.9) for Māori; and 58.5% (53.7, 63.2) for Others. In contrast there were no significant differences across the ethnic groups in the percentage with substance use disorder who made treatment contact: 35.7 (24.0, 49.4) for Pacific people; 27.8% (21.6, 35.0) for Māori; and 30.2% (23.6, 37.7) for Others. The ethnic differences in making any treatment contact that are seen in Table 8.5 cannot be explained away by a lower prevalence of mood disorder for Pacific people.

These three sets of analyses (Tables 2.4 and 8.4 and ethnic comparisons within disorder groups) all support the same conclusion: Pacific people, and to a lesser extent Māori, are less likely than Others to access services for mental health problems, although the differential is absent for substance use disorders.

There is some similarity between these results and those for access to general practitioners as reported from the 2002/03 New Zealand Health Survey (Ministry of Health 2004a, 2004b). Māori males were less likely than European/Other males to have visited a general practitioner in the past 12 months. For males, unmet need for a general practitioner was most likely to be reported by Pacific people, followed by Māori, with the least unmet need reported by European/Others, although these differences were not significant. Māori females were particularly likely to report an unmet need for a GP.

Table 8.5: Ethnicity and 12-month service use in people with 12-month disorder[1]

	Any visit for mental health reason % (95% CI)	Any healthcare sector visit among patients with any visit % (95% CI)	Any mental health specialty sector visit among patients with healthcare sector visit % (95% CI)
Unadjusted			
Māori	32.5 (28.3, 36.7)	90.3 (86.7, 93.8)	49.8 (41.5, 58.1)
Pacific	25.4 (19.4, 31.4)	87.7 (81.2, 94.2)	41.6 (26.7, 56.5)
Other	41.1 (38.1, 44.1)	92.2 (89.9, 94.5)	45.6 (41.0, 50.2)
Adjusted for age and sex			
Māori	32.9 (28.7, 37.2)	90.8 (87.4, 94.2)	49.1 (40.7, 57.5)
Pacific	26.1 (20.0, 32.2)	88.0 (81.5, 94.4)	39.8 (24.8, 54.7)
Other	41.0 (38.0, 43.9)	92.1 (89.8, 94.4)	45.8 (41.2, 50.3)
Adjusted for age, sex, educational qualification, equivalised household income[2]			
Māori	32.6 (28.0, 37.1)	90.1 (86.3, 94.0)	51.2 (42.2, 60.1)
Pacific	25.3 (19.3, 31.3)	88.8 (82.5, 95.2)	40.3 (25.2, 55.3)
Other	41.1 (38.1, 44.1)	92.2 (89.9, 94.4)	45.4 (40.9, 50.0)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Sociodemographic correlates are defined in 12.12.1.

8.6 Cumulative lifetime probabilities of treatment contact

Survival curves were used to estimate the percentage of DSM-IV CIDI 3.0 cases that would eventually make treatment contact for each disorder assessed (see 12.10.3). These cumulative lifetime probabilities of treatment contact are presented in Table 8.6. The table reports the:

- percentage with a lifetime diagnosis of specific disorder who ever made treatment contact at the age of onset of that disorder (that is, the reported age of onset equalled the reported age of first treatment contact)
- the percentage with a lifetime diagnosis of specific disorder who will ever make treatment contact if their disorder continues
- the median duration of delay to first treatment contact, reported in years.

Of the anxiety disorders, panic disorder is associated with the highest percentage making treatment contact at the age of onset (33.2%) and the shortest median duration of delay (three years). In contrast, specific phobia is associated with very low percentages of cases (2.2%) making treatment contact at the age of onset and the median duration of delay is very prolonged (38 years). Generalised anxiety disorder is associated with the highest percentage (91.3%) and post-traumatic stress disorder the smallest percentage (55.7%) of cases ever making treatment contact.

Of the mood disorders, for major depressive episode 45.0% made treatment contact in the year of onset and 97.0% ever made treatment contact. The median duration of delay to treatment is one year, which is the shortest for all the disorders. In contrast, the bipolar disorders have low percentages (12.2%) of treatment contact in the year of onset, only 53.2% eventually made treatment contact and the median duration of delay is 13 years.

For alcohol and drug abuse, the percentages making contact at the age of onset were low: 8.9% for alcohol abuse and 13.0% for drug abuse. Of all participants with alcohol abuse, 85.9% eventually made treatment contact, but the median duration of delay is 16 years. For drug abuse, 92.1% eventually made treatment contact and the median treatment delay is eight years.

Similar patterns are found for alcohol dependence and drug dependence. Only 19.4% of participants with alcohol dependence and 25.2% with drug dependence made contact at the age of onset. The majority of persons with these disorders did eventually make treatment contact: 99.5% of those with alcohol dependence and 98.0% of those with drug dependence. The median durations of delay are seven years for alcohol dependence and three years for drug dependence.

For bulimia, 26.8% of cases made treatment contact in the year of onset and 98.7% eventually made treatment contact. The median duration of delay to first treatment contact is 10 years. For anorexia, 11.0% of cases made contact in the year of onset, 98.2% eventually made treatment contact and the median duration of delay is 15 years. These estimates for anorexia must be regarded with caution, as they are based on a very small number of cases.

Table 8.6: Percentage who made treatment contact and median duration of delay among cases of mental disorder[1] who would ever make treatment contact

Disorder groups	Percentage making treatment contact at age of onset %	Percentage estimated to ever make treatment contact[2] %	Median duration of delay[2] years
Anxiety disorders			
Panic disorder	33.2	90.3	3.0
Agoraphobia without panic	18.7	77.9	13.0
Specific phobia	2.2	68.7	38.0
Social phobia	4.9	77.4	28.0
Generalised anxiety disorder	31.8	91.3	6.0
Post-traumatic stress disorder[3]	11.5	55.7	19.0
Obsessive–compulsive disorder[3]	17.4	69.6	7.0
Mood disorders			
Major depressive episode	45.0	97.0	1.0
Dysthymia	29.7	99.0	5.0
Bipolar disorder	12.2	53.2	13.0
Substance use disorders			
Alcohol abuse	8.9	85.9	16.0
Alcohol dependence	19.4	99.5	7.0
Drug abuse	13.0	92.1	8.0
Drug dependence	25.2	98.0	3.0
Eating disorders			
Bulimia[3]	26.8	98.7	10.0
Anorexia[3]	11.0	98.2	15.0

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Projections based on time-to-contact survival analyses, see 12.10.3.

3 Assessed in the subsample who did the long form of the interview, see 12.4.2.

8.7 Reasons for delaying seeking help, stopping treatment or not seeking help in the past 12 months

Some participants who did make treatment contact in the past 12 months acknowledged that they delayed seeking help for their mental health problems (including problems with alcohol and other drugs). These participants were told: ‘I’m going to read a list of reasons why people delay seeking help and ask you to say “yes” or “no” for whether each one was a reason for why you didn’t get professional help more quickly than you did’.

These participants were then shown a list of 15 possible reasons for their delay in seeking help and asked to endorse any that applied to them. The three most frequently endorsed reasons for delaying seeking help were:

- ‘I wanted to handle the problem on my own’ (79.3%)
- ‘I thought the problem would get better by itself’ (63.2%)
- ‘The problem didn’t bother me very much at first’ (48.9%).

Some participants acknowledged that they had entered treatment and then stopped treatment. They were asked the following question: 'You mentioned stopping your treatment before you had finished. I'm going to read a list of reasons and would like you to say "yes" or "no" for whether each one was a reason you stopped'.

Participants most commonly endorsed the following reasons, from the 16 potential reasons, for stopping treatment:

- 'You got better' (45.8%)
- 'You didn't need help any more' (41.2%)
- 'You wanted to handle the problem on your own' (24.5%).

Some participants acknowledged not seeking help in the past 12 months when they believed they might need to see a professional for mental health reasons (including alcohol or drug problems). These participants were asked the following question: 'Here are some reasons people have for not seeking help even when they think they might need it. Please tell me "yes" or "no" whether each statement is a reason as to why you did not see a professional'.

The most frequently endorsed reasons, from a list of 16 reasons, for not seeking help were:

- 'I wanted to handle the problem on my own' (43.5%)
- 'The problem went away by itself, and I did not really need help' (37.3%)
- 'I thought the problem would get better by itself' (31.8%).

Cost might be expected to be a barrier to care. However, it was not among the top three reasons given for any of the three sets of reasons considered here. Nonetheless, the percentage of people citing costs as a reason was not trivial: 36.7% for delaying seeking treatment, 20.7% for stopping treatment and 25.9% for not seeking treatment at all.

8.8 Conclusions

The patterns of these findings are broadly consistent with previous New Zealand community studies and overseas studies. Of those participants with a mental disorder within the past 12 months, a large number do not have a mental health visit within the 12 months. However, the majority of lifetime cases do eventually make treatment contact, although the median duration of delay can be long and varies greatly, depending on the disorder. Of the three ethnic groups, Pacific people have the lowest rates of mental health visits across all service sectors.

Some findings may be compared with recent results from similar overseas studies. When comparisons are made with developed countries in the World Mental Health (WMH) Survey Initiative (Demyttenaere et al 2004) it is evident that, within New Zealand, the rates of mental health visits grouped by severity are very similar. In New Zealand, 60.9% (56.3, 65.4) of participants with any serious disorder had a mental health visit in the past 12 months. This compares with 52.3% (48.5, 56.1) in the US, 53.9 (25.2, 82.5) in Belgium, 63.3% (38.6, 88.1) in France, 49.7% (26.6, 72.8) in Germany, 50.2% (29.5, 70.8) in the Netherlands and 64.5% (49.2, 79.7) in Spain. Comparisons between New Zealand and the other WMH Survey Initiative developed countries for moderate and mild disorders show the rates are also broadly similar.

As the diagnoses at interview vary among the different WMH Survey Initiative sites, it is best to compare the rates of visits across sectors for the total sample. It should also be remembered that the New Zealand sample included people aged 16 and over, whereas the ESEMeD and NCS-R included people aged 18 and over. The six European sites in the ESEMeD have published rates of visits to formal health services in the past 12 months (Alonso et al 2004e). In the ESEMeD, rates for the total sample were 6.4%, which is lower than the rate of 11.7% in New Zealand. Examination of the New Zealand rates and those from the NCS-R reveals that the rates were generally lower in New Zealand than in the US. For the total sample, 13.4% had a mental health visit in the past 12 months compared with 17.9% in the US (Wang et al 2005b). Compared with the US, the rates of visits were lower in New Zealand to the mental health specialty sector (US, 8.8%; New Zealand, 4.9%), general medical provider (US, 9.3%; New Zealand, 9.1%), any healthcare provider (US, 15.3%; New Zealand, 11.7%) and the non-healthcare sector (US, 5.5%; New Zealand, 3.6%).

The New Zealand data on the percentage ever making treatment contact and duration of delays to treatment contact may also be compared with data from the NCS-R (Wang et al 2005a). For panic disorder, 90.3% in New Zealand and 95.3% in the US eventually make treatment contact. For major depressive episode, 97.0% in New Zealand and 88.1% in the US eventually make treatment contact. These findings are broadly similar. However, there are differences between the New Zealand and NCS-R data for the percentages ever making treatment contact for substance use disorders. For alcohol abuse the percentages are 85.9% for New Zealand and 52.7% for the US. For alcohol dependence the percentages are 98.0% for New Zealand and 69.8% for the US. For drug abuse, the percentages are 92.1% for New Zealand and 57.0% for the US. For drug dependence, the percentages are 98.0% for New Zealand and 76.9% for the US.

Although there are differences between the US and New Zealand in percentages ever making treatment contact, the percentages for people making contact within the 12 months of age of onset are very similar. For panic disorder, in New Zealand 33.2% make contact in the year of age of onset compared with 33.6% in the US. For major depressive disorder, the percentages making contact in the year of age of onset are 45.0% in New Zealand and 37.4% in the US. In New Zealand the percentage for alcohol abuse is 8.9% and in the US 12.4%. For alcohol dependence, the percentages are 19.4% in New Zealand and 20.7% in the US. The percentages for drug abuse are 13.0% in New Zealand and 12.5% in the US. The percentages for drug dependence are 25.2% in New Zealand and 26.5% in the US.

These findings suggest a significant unmet need for treatment for people with mental disorder exists in the New Zealand community, as in other comparable developed countries. There are other similarities and differences in other aspects of service use between countries. These will be described in future papers on 12-month service use that the WMH Survey Initiative consortium will publish.

9 Māori

Key results

- Te Rau Hinengaro surveyed 2,595 Māori individuals, and captured the diversity of Māori across a range of demographic, social, economic and cultural indices.
- The prevalence of mental disorders in Māori was 50.7% over their lifetime (before interview), 29.5% in the past 12 months and 18.3% in the previous month.
- The most common 12-month disorders among Māori were anxiety disorders (19.4%), mood disorders (11.4%) and substance use disorders (8.6%). The most common lifetime disorders among Māori were anxiety disorders (31.3%), substance use disorders (26.5%), mood disorders (24.3%) and eating disorders (3.1%).
- Lifetime prevalence of any disorder was highest in Māori aged 25–44 (58.1%) and lowest in those aged 65 and over (22.7%). The lifetime prevalence of disorder among Māori females was 52.7% and among Māori males was 48.4%.
- In Māori with any 12-month disorder, 55.5% had only one disorder, 25.7% had two disorders and 18.8% had three or more disorders.
- Among Māori with any 12-month disorder, 32.5% had some contact with a provider of services. This was divided among mental health specialist services (14.6%), general medical services (20.4%) and non-healthcare providers (9.1%).
- Of Māori with any mental disorder, 29.6% had serious disorders, 42.6% moderate disorders and 27.8% mild disorders. Health care contact increased with severity. Of Māori with serious disorder 47.9% had some contact with health services compared with 25.4% of those with moderate disorder and 15.7% of those with mild disorder.
- Lifetime suicidal ideation was reported by 22.5% of Māori, with 8.5% making suicidal plans and 8.3% making suicide attempts. Māori females reported higher rates of suicidal ideation, suicide plans and suicide attempts compared with Māori males across lifetime and 12-month periods.
- Compared with Pacific people and the Other composite ethnic group (ie, non-Māori non-Pacific), a higher proportion of Māori had 12-month anxiety, mood, substance use and eating disorders. After adjusting for age, sex and socioeconomic correlates, differences remain between Māori and Pacific people for mood disorders and substance use disorders and between Māori and Others for substance use disorders.

9.1 Introduction

9.1.1 Purpose of this chapter

This chapter provides a summarised picture of the extent, patterns and characteristics of mental disorders among Māori, according to Te Rau Hinengaro: The New Zealand Mental Health Survey.

9.1.2 Content of this chapter

A total of 2,595 Māori participated in interviews as part of the study, and this chapter brings together the key findings of particular importance for Māori.

This chapter provides information for Māori on:

- participation in the study (see 9.2)
- the epidemiology of mental disorders (see 9.3)
- the profiles of participants (see 9.5)
- the prevalence of mental disorders (see 9.6)
- comorbidity (see 9.7)
- the severity and impact of aggregated disorders (see 9.8)
- health service use (see 9.9)
- severity, days out of role and treatment in the past 12 months (see 9.10)
- suicidal behaviour (see 9.11)
- key findings compared with Pacific people and the Other composite ethnic group (see 9.12).

Section 9.4 defines mental disorders and Māori.

Additional findings will be available as further analyses are undertaken.

9.2 Māori participation in the study

Māori participation in the study occurred at three levels:

- as researchers
- in the Kaitiaki Group
- as survey participants.

9.2.1 Māori participation as researchers

A team of Māori researchers from Auckland, Massey and Otago universities with experience in mental health research and kaupapa Māori research provided input into all phases of the research, including design, survey, analysis and report writing.

In addition, the Māori research team oversaw those sections of the questionnaire that focused on Māori identity and Māori use of health services. An important methodological task was to ensure the research was consistent with both tikanga Māori and scientific paradigms.

9.2.3 Kaitiaki Group

A kaitiaki group was established to provide cultural guardianship over the research, especially relating to Māori values and to make sure participants were afforded respect and privacy. The Kaitiaki Group included experts in Māori custom who had some experience in health services and Māori population surveys. They developed processes to safeguard the information collected and minimise any risks to participants.

To assist the researchers, the Kaitiaki Group recommended the research team adopt 11 principles to guide the study and to ensure an appropriate framework for the research was established (see Appendix C).

9.2.4 Māori survey participants

Ensuring a high level of participation by Māori as survey participants was a crucial component of this survey. In the 2001 New Zealand Census of Population and Dwellings (the Census), Māori made up about 15% of the total population and 11% of the population aged 16 and over (see 12.11). To obtain sufficient numbers of Māori for estimating the prevalence of mental disorders a higher proportion of Māori were required within this survey. This was achieved by making it more likely that Māori (and Pacific people) would be sampled. This survey technique (called ‘oversampling’) is described in chapter 12 (see 12.5). The use of weights (see 12.9) takes into account this method of sampling when estimating the total population prevalence.

By the end of the study period 2,595 Māori aged 16 and over had been surveyed. This constitutes about 20% of the total survey sample. The Māori survey participants represent the diversity of Māori, and their characteristics are described in 9.5.

9.3 Epidemiology of mental disorders in Māori

9.3.1 Mental disorders and Māori: current knowledge

Knowledge about mental health in Māori has considerable gaps. Before this survey no other mental health prevalence surveys had used standardised mental health diagnostic measures in a community sample of Māori spanning all adult ages. Information on mental disorders and Māori had been gathered from routine data analyses, surveys and research. This section briefly overviews the findings.

9.3.2 Hospital and health setting data and research

The New Zealand Health Information Service routinely collects and reports on hospital admission data (New Zealand Health Information Service 2005) (see 1.8.6). Until recently, much of what was recorded about mental disorders in Māori stemmed from analyses of hospitalisation data. Several published reports have described mental disorder hospitalisation rates and patterns in Māori.

Differing analyses of this data show that before 1970 Māori admissions to psychiatric hospitals were significantly less than those for non-Māori (Pomare and de Boer 1988). However, patterns of admissions during the 1980s and 1990s show increased rates of psychiatric hospitalisation for Māori. Two reports by Te Puni Kōkiri (the Ministry of Māori Development) indicate increasing Māori psychiatric admission rates, especially for young men and women, and particularly for those with substance use disorders, schizophrenia and bipolar disorder (Te Puni Kōkiri 1993, 1996). The reports note differing patterns of sources of referral for admission, with Māori being more likely to be hospitalised through a ‘justice’ doorway than a primary care entry point.

More recently, the data routinely made available as part of the Mental Health Information National Collection (MHINC) have been expanded to include outpatient and community mental health services. Published analyses of MHINC data from 2002 show that Māori rates of hospitalisation were higher than those for non-Māori. However, the data also suggest comparatively less access by Māori to child and youth mental health services (New Zealand Health Information Service 2004).

A more recent analysis of mental health service data, including both hospitalisation and other outpatient and community services, was undertaken as part of the Mental Health Classification and Outcomes Study (Gaines et al 2003). This was a pilot study designed to develop a first version of a national case-mix classification for specialist mental health services in New Zealand in order to better understand the relationship between resource use (cost) and service user (or related) characteristics. This analysis found ethnic differences in scores for measures of outcome in mental health service users. Māori males had higher scores on psychotic symptoms and lower scores on depressive symptoms than non-Māori male service users. Analysis of these data showed that among those living in areas of a similar level of deprivation, Māori consumers of mental health services had, on average, higher levels of severity and lower levels of functioning than non-Māori service users.

The Mental Health and General Practice Investigation (the MaGPIe study) (see 1.8.3) measured mental disorders in people attending primary healthcare and found that rates of attendance at general practices did not differ between Māori and non-Māori. However, Māori general practice attendees had higher rates of mental disorder than non-Māori. This was particularly so for Māori women. Māori had higher rates of all common mental disorders (anxiety, depression and substance abuse) and exhibited more severe symptoms. These findings persisted even when differences in age and socioeconomic status were taken into account (MaGPIe 2003, 2005).

9.3.3 Population, community and non-health sector settings

Hospital and health-setting data alone do not provide a comprehensive picture of mental health status. Other research offers insights into the wider dimensions of mental health. Using standard diagnostic instruments a Christchurch-based birth cohort study, the Christchurch Health and Development Study (CHDS) (see 1.8.2), found the prevalence of mental disorders among a youth cohort at age 18 years was high. Fifty-five percent of Māori included in the cohort study met criteria for at least one mental disorder within the previous three years compared with 41% of non-Māori youth in the cohort (Horwood and Ferguson 1998). Rates for substance use disorders were especially high, with over 33.9% of young Māori having a substance use disorder.

A further source of information on health and mental health is the New Zealand Health Survey 2002/03 (see 1.8.5) (Ministry of Health 2004b). This survey of 12,929 New Zealanders aged 15 and over was undertaken in 2002/03 and included a Māori sample of 4,369 participants. Survey participants were asked about known chronic diseases, including any history of known serious mental disorders. The age-standardised prevalence rate in Māori males who had a known mental disorder was 2.2%. This rate was similar to the overall male rate in the survey (2.1%). Findings for Māori females, however, differed, with reported age-standardised rates of known mental disorder (1.8%) being lower than for the overall female sample (3.2%). This finding contrasts with measures of self-reported health status within the same New Zealand Health Survey, where the SF-36 measurement instrument was used. Māori females scored lower on many measures of self-reported health than other females including for social functioning, emotional health and mental health. These findings thus suggest that although Māori women may be experiencing more poor health (self-reported), this is not reflected in the likelihood of their having had a mental health problem recognised within a healthcare setting.

The New Zealand National Prison Study (see 1.8.4) was a study of 1,287 prisoners conducted in 1997/98. It revealed high levels of mental disorders among both Māori and non-Māori inmates (Brinded et al 2001; Simpson et al 1999). Only 10% of participants did not have a mental disorder diagnosis and 6%–8% had had a schizophrenic disorder in their lifetime before the survey. Māori are overrepresented in the prison population and comprised 48.4% of the sample in this survey. A paper reporting ethnicity comparisons from the survey found no differences in the prevalence of individual mental disorders among Māori, Pacific and European/Other ethnic groups (Simpson et al 2003). Despite a similar prevalence of mental disorders, treatment for mental disorders (past and current) was less common among Māori and Pacific inmates than among European/Other inmates.

9.3.4 Suicide and attempted suicide

Considerable concern was raised in the 1980s and 1990s about increasing rates of suicide among the young and Māori. In response to this concern a youth suicide prevention strategy was developed and implemented in 1998 (Ministry of Youth Affairs et al 1998). Recently there has been a move to an all-age strategy, recognising that suicide occurs across all age groups and youth suicide among the total population has reduced. The picture of high relative suicide rates remains for Māori youth.

Before the 1980s, Māori suicide rates were lower than those for non-Māori. However, Māori suicide rates increased markedly over the 1980s and 1990s, and disparities between Māori and non-Māori have emerged, particularly among the young. Suicide mortality data for 2002 show that the Māori male age-standardised rate of suicide was 19.7 deaths per 100,000 population compared with a non-Māori male rate of 15.6 per 100,000. The Māori female age-standardised suicide rate was also higher, with 5.9 deaths per 100,000 population compared with a non-Māori female rate of 4.8 per 100,000 (Ministry of Health 2005a). Youth suicide rates remain high for Māori, with analysis of the 2002/03 New Zealand Child and Youth Mortality Database showing Māori mortality for suicide in those aged 15–24 as twice the rate for non-Māori in this age group (31.8 per 100,000 population compared with 14.4 per 100,000) (Sargent and Baxter 2005).

9.3.5 Summary

Although existing data provide some indication of the prevalence and patterns of mental disorders in Māori, there have been insufficient community prevalence studies to provide a comprehensive picture of prevalence within the community. Nonetheless, existing data suggest overall increased rates of disorders for Māori, both compared with non-Māori and compared with earlier generations of Māori. Some groups appear to be especially vulnerable, including youth and prisoners, and some disorders such as alcohol and other substance use disorders have contributed to this increase.

An increase in suicide rates over recent decades further reinforces concerns about Māori mental health.

Te Rau Hinengaro complements existing information. Because the survey included sufficient numbers of Māori adults sampled from across a range of communities, prevalence data are now more comprehensive than previously available and provide a wider context for understanding health service use by Māori.

Te Rau Hinengaro is not able to report on the prevalence of psychotic disorders such as schizophrenia. The reasons for this are described in 11.3 and 12.4.1. In summary, there are limitations in both the sampling frame (the frame involves households and does not include institutions) and the diagnostic instruments (other survey instruments are better suited to detecting conditions such as schizophrenia). Although hospitalisation rates are not an accurate proxy for the prevalence of these disorders, health sector utilisation data remain the best source of information about the prevalence of schizophrenia and other psychotic disorders.

9.4 Defining terms

9.4.1 Defining mental disorders

From consultation with Māori communities during the pilot project for this study it was clear Māori were keen for comprehensive information about mental health and especially for data that could assist with planning. During the pilot, many Māori focus group members questioned the use of the DSM-IV as the most relevant classification of mental health problems and voiced a concern that the associated research instrument (CIDI 3.0) was too blunt to allow any meaningful interpretation of cultural norms or to accommodate Māori understandings of mental incapacity. (For information about the DSM and CIDI, see 1.10.1 and 1.10.2.)

The criticisms are important to consider and Te Rau Hinengaro is essentially a survey of mental health disorders as defined by DSM-IV criteria that is designed to make national and international comparisons possible. This study has not specifically addressed the alternative ways of conceptualising and measuring mental ill health; that would constitute another study with quite different goals and methods.

9.4.2 Defining Māori

Over recent decades several methods for defining Māori within official statistics have been used. Until the 1980s the five-yearly Census used a 'biological' approach to define Māori, so a Māori person was defined as someone who had 50% or more Māori blood. From 1991 the Census has allowed for ethnic self-identification as well as Māori descent to be recorded and participants may identify multiple ethnicities. As a result the mixed ethnic backgrounds of many Māori have become apparent as well as the sole Māori ethnic identity of others.

In Te Rau Hinengaro it was important to use a definition of Māori that was consistent with the Census (ie, ethnicity self-identification). Therefore, data on both Māori descent and ethnic self-identification have been collected using the 2001 Census ethnicity self-identification and Māori descent questions. Those people who self-identified as Māori (either solely or with another ethnic group) comprise the Māori sample referred to in this chapter and throughout the wider report (see Appendix B).

While this survey has adopted the same ethnicity question as the Census, it has also included additional questions for those of Māori descent, so cultural identity can be investigated with greater levels of meaning. The key items in this Māori section of the survey included self-identification, ancestry, tribal knowledge, marae participation, whānau involvement and te reo Māori (Māori language) proficiency. These questions were derived from three main sources: Te Hoe Nuku Roa (a longitudinal study of Māori households) (Te Hoe Nuku Roa 1999); the 2001 Health of the Māori Language Survey (Statistics New Zealand 2002); and the consultations with various interest groups (eg, representatives from the Ministry of Health, the Kaitiaki Group, Māori researchers and academics, and Māori language experts).

9.5 Profiles of participants

This section describes the characteristics of the 2,595 Māori who participated in the survey. The data have been weighted to ensure they reflect the appropriate age and sex representation in the population and to take into account aspects of the study design and methods (eg, sampling methods). This weighting process is discussed in more detail in chapter 12 (see 12.9).

9.5.1 Characteristics of Māori participants, by sociodemographic correlates

Table 9.1 shows the characteristics of Māori participants, weighted and unweighted, across sociodemographic correlates including sex, age, social and economic measures, and locality variables. The unweighted numbers and percentages are the findings for the Māori survey participants, while the weighted percentages are those found after the Māori survey sample has been weighted so it is configured in a similar way to the total New Zealand Māori population in terms of age and sex.

The table shows how the weighting of the sample has led to a higher proportion of Māori males and young people than in the unweighted Māori sample. Within the Māori sample, a higher proportion of participants were female. This is consistent with the overall survey profile, where more females participated. A higher proportion of Māori participants were in the younger age groups. This is also consistent with the Māori population age structure. Māori participants spanned the full range of socioeconomic and education levels. However, Māori were proportionately more likely to be in groups with low levels of education and low equivalised household income and living in areas of high relative deprivation. Māori participants were also drawn from all regions, but proportionately more were likely to be urban and living in the North and Midland regions. These are both consistent with Māori population demographics.

Table 9.1: Profile of Māori participants, by sociodemographic correlates

Correlate[1]	Unweighted number	Unweighted %	Weighted %
Individual characteristics			
Sex			
Male	1,048	40.4	46.6
Female	1,547	59.6	53.4
Age group (years)			
16–24	414	16.0	24.5
25–44	1,290	49.7	47.6
45–64	703	27.1	22.4
65 and over	188	7.2	5.6
Educational qualifications			
None	876	33.7	31.8
School or post-school only	1,011	39.0	41.5
Both school and post-school	708	27.3	26.7
Equivalised household income			
Under half of median	892	34.4	31.8
Half median to median	791	30.5	32.2
Median to one and a half times median	502	19.3	19.9
One and a half times median and over	410	15.8	16.1

Correlate[1]	Unweighted number	Unweighted %	Weighted %
Area characteristics			
NZDep2001 deciles			
9 and 10 most deprived	1,190	45.9	43.7
7 and 8	527	20.3	21.3
5 and 6	413	15.9	15.7
3 and 4	265	10.2	11.3
1 and 2 least deprived	200	7.7	8.0
Urbanicity			
Main	1,753	67.6	66.8
Secondary	196	7.6	7.6
Minor	361	13.9	14.0
Other (rural)	285	11.0	11.6
Region			
North	930	35.8	34.0
Midland	838	32.3	34.4
Central	507	19.5	18.5
South	320	12.3	13.1

1 Sociodemographic correlates are defined in 12.12.1.

9.5.2 Characteristics of Māori participants by Māori cultural and participation variables

Table 9.2 shows the profile of Māori based on selected Māori cultural and participation variables showing the unweighted numbers and percentages and weighted percentages. The weighting process made very little difference to the proportions found for each variable. Findings are described for the weighted sample.

The table shows that 62.9% of Māori identified their ethnicity solely as Māori and 37.1% identified as Māori in addition to another ethnic group or groups.

The iwi (tribe) was known by 89.7% of Māori, 64.3% knew their waka (the canoe in which tribal ancestors arrived in New Zealand) and 50.9% could name three generations of whakapapa (genealogy).

The degree of contact with marae (an iwi's traditional meeting place) varied, with 32.6% of Māori participants having no visits to a marae in the past year, 31.0% having one or two visits, 11.9% having three or four visits, and 24.6% having five or more visits.

Te reo Māori was spoken very well by 7.6%, well by 7.6%, fairly well by 17.5%, and not very well by 30.4%, with no more than a few words spoken by 37.0%. A greater proportion of Māori could understand te reo Māori.

Table 9.2: Profile of Māori participants, by selected cultural variables

Variable	Unweighted number	Unweighted %	Weighted %
Total	2,595	100.0	100.0
Māori self-identity (from Census question)			
Sole Māori identification	1,605	61.8	62.9
Māori and other ethnic group(s)	990	38.2	37.1
Knowledge			
Of iwi	2,341	90.2	89.7
Of waka	1,658	63.9	64.3
Of three generations of whakapapa	1,331	51.3	50.9
Marae (number of visits in past year)			
No visits	871	33.6	32.6
One or two visits	797	30.7	31.0
Three or four visits	299	11.5	11.9
Five or more visits	627	24.2	24.6
Te reo Māori proficiency			
Ability to speak Māori day to day			
Very well	202	7.8	7.6
Well	173	6.9	7.6
Fairly well	435	16.8	17.5
Not very well	770	29.7	30.4
No more than a few words	1,008	38.9	37.0
Ability to understand spoken Māori			
Very well	314	12.1	12.0
Well	304	11.7	12.0
Fairly well	572	22.1	22.4
Not very well	694	26.8	28.0
No more than a few words	710	27.4	25.6

9.5.3 Summary of Māori participants’ profile

Overall, Tables 9.1 and 9.2 show that Te Rau Hinengaro captured the diversity of Māori across demographic, social, economic and cultural indices.

9.6 Prevalence of mental disorders in Māori

9.6.1 Period prevalence and severity of mental disorders across aggregated data

Table 9.3 summarises findings for the prevalence of mental disorders in Māori, across their lifetime, within the past 12 months, and over the past month.

Table 9.3: Lifetime, 12-month and one-month prevalences of mental disorder groups for Māori

Disorder group[1]	Lifetime prevalence % (95% CI)	Twelve-month prevalence % (95% CI)	One-month prevalence % (95% CI)
Anxiety disorders[2]	31.3 (28.4, 34.3)	19.4 (17.2, 21.8)	13.4 (11.6, 15.4)
Mood disorders	24.3 (22.4, 26.3)	11.4 (10.0, 13.1)	4.1 (3.3, 5.1)
Substance use disorders	26.5 (24.3, 28.7)	8.6 (7.1, 10.4)	4.2 (3.3, 5.4)
Eating disorders[2]	3.1 (2.3, 4.1)	1.0 (0.5, 1.6)	0.5 (0.2, 1.0)
Any disorder[2]	50.7 (47.0, 54.4)	29.5 (26.7, 32.5)	18.3 (16.2, 20.6)

1 DSM-IV CIDI 3.0 disorder groups.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

Table 9.3 shows that 1 in 2 (50.7%) Māori had experienced at least one disorder at some time in their life before the interview. At least one disorder was experienced by 29.5% (around 1 in 3) of Māori in the past 12 months and 18.3% (over 1 in 6) of Māori had experienced at least one disorder in the past month. The most commonly reported lifetime disorders were anxiety disorders (31.3%), then substance use disorders (26.5%) followed by mood disorders (24.3%). Eating disorders were less common, but were reported by 3.1% of Māori over their life before the interview.

Anxiety disorders were also the most common disorders experienced in the past 12 months (19.4%), with mood disorders (11.4%) being slightly more prevalent than substance use disorders (8.6%). Over the past month the most common disorders were anxiety disorders (13.4%), substance use disorders (4.2%) and mood disorders (4.1%).

9.6.2 Prevalence of individual disorders: lifetime and 12-month prevalences

Table 9.4 shows the prevalences of individual mental disorders in Māori over their life until the interview and in the 12-month period before the interview.

Table 9.4: Lifetime and 12-month prevalence of individual disorders for Māori

Individual disorders[1]	Lifetime prevalence % (95% CI)	Twelve-month prevalence % (95% CI)
Anxiety disorders		
Panic disorder	3.9 (3.1, 4.9)	2.6 (2.0, 3.5)
Agoraphobia without panic	1.8 (1.2, 2.7)	1.0 (0.6, 1.5)
Specific phobia	15.3 (13.7, 17.1)	11.0 (9.6, 12.6)
Social phobia	11.4 (9.9, 13.0)	6.2 (5.1, 7.4)
Generalised anxiety disorder	5.9 (4.9, 7.0)	2.2 (1.6, 2.9)
Post-traumatic stress disorder[2]	9.7 (8.2, 11.4)	4.5 (3.6, 5.7)
Obsessive–compulsive disorder[2]	2.6 (1.8, 3.7)	1.0 (0.6, 1.6)
Any anxiety disorder[2]	31.3 (28.4, 34.3)	19.4 (17.2, 21.8)
Mood disorders		
Major depressive disorder	15.7 (14.2, 17.4)	6.9 (5.8, 8.1)
Dysthymia	2.1 (1.5, 2.8)	1.2 (0.8, 1.7)
Bipolar disorder	8.3 (7.1, 9.7)	4.6 (3.7, 5.7)
Any mood disorder	24.3 (22.4, 26.3)	11.4 (10.0, 13.1)
Substance use disorders		
Alcohol abuse	24.4 (22.3, 26.7)	6.7 (5.5, 8.1)
Alcohol dependence	10.1 (8.7, 11.7)	3.9 (3.0, 5.0)
Drug abuse	14.3 (12.6, 16.1)	3.7 (2.8, 4.8)
Drug dependence	6.3 (5.2, 7.6)	1.9 (1.3, 2.8)
Marijuana abuse[3]	12.8 (11.2, 14.6)	3.0 (2.3, 4.0)
Marijuana dependence[3]	5.3 (4.3, 6.5)	1.5 (1.0, 2.3)
Any alcohol disorder	24.5 (22.3, 26.7)	7.4 (6.2, 8.9)
Any drug disorder	14.3 (12.6, 16.1)	4.0 (3.1, 5.1)
Any substance use disorder	26.5 (24.3, 28.7)	8.6 (7.1, 10.4)

Individual disorders[1]	Lifetime prevalence % (95% CI)	Twelve-month prevalence % (95% CI)
Eating disorders		
Anorexia[2]	0.7 (0.2, 1.6)	0.0 (0.0, 0.2)
Bulimia[3]	2.4 (1.8, 3.2)	1.0 (0.5, 1.6)
Any eating disorder[2]	3.1 (2.3, 4.1)	1.0 (0.5, 1.6)
Any disorder[2]	50.7 (47.0, 54.4)	29.5 (26.7, 32.5)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 Those with marijuana disorder are a subgroup of those with drug use disorder. They may or may not have met criteria for abuse or dependence on other drugs.

Anxiety disorders

Anxiety disorders were the most prevalent disorder group among Māori: 31.3% (or one in three) had experienced an anxiety disorder in their life up to the interview and 19.4% (almost one in five) over the past 12 months. Specific phobia, social phobia and post-traumatic stress disorder were the most common anxiety disorders in Māori over both periods.

Mood disorders

Mood disorders were also common among Māori, and 24.3% (one in four) had experienced a mood disorder over their life before interview. The most common lifetime mood disorders in Māori were major depressive disorder (15.7%) followed by bipolar disorder (8.3%).

Over the 12 months before the interview, 11.4% (over one in 10) of Māori experienced a mood disorder, with major depressive disorder the most common (6.9%). Bipolar disorder was also present in 4.6% of Māori. Dysthymia was less common over the lifetime (2.1%) and in the past 12 months (1.2%).

Substance use disorders

Over one in four (26.5%) Māori experienced a substance use disorder in their life before the interview. Alcohol disorders were most prevalent (24.5%), followed by drug disorders (14.3%). Findings suggest marijuana disorders (which are a subgroup of drug disorders) contribute strongly to the overall drug disorder prevalence in Māori, with lifetime marijuana abuse in 12.8% of Māori and marijuana dependence in 5.3%.

One in 12 (8.6%) Māori experienced a substance use disorder in the past 12 months, with alcohol disorders being the most prevalent (7.4%), then drug disorders (4.0%). Marijuana abuse was prevalent in 3.0% and marijuana dependence in 1.5%.

9.6.3 Twelve-month disorders: prevalence by sociodemographic correlates

Table 9.5 describes findings for the prevalence of 12-month disorder in Māori, by demographic, social and economic variables.

The table shows 33.6% (one in three) of Māori females and 24.8% (one in four) of Māori males had a mental disorder. Mental disorders were more common in younger age groups, with 33.2% (one in three) of Māori aged 16–24 and 32.9% (one in three) aged 25–44 experiencing a 12-month disorder compared with 23.7% (under one in four) Māori aged 45–64 and 7.9% (about one in 12) aged 65 and over.

Table 9.5: Sociodemographic correlates of 12-month prevalence of mental disorders in Māori

Correlate[1]	Twelve-month prevalence of any disorder[2] % (95% CI)
Individual characteristics	
Sex	
Male	24.8 (20.9, 29.2)
Female	33.6 (30.1, 37.3)
Age group (years)	
16–24	33.2 (27.1, 40.1)
25–44	32.9 (28.9, 37.1)
45–64	23.7 (19.2, 28.8)
65 and over	7.9 (3.2, 15.6)
Educational qualifications	
None	34.2 (29.3, 39.4)
School or post-school only	28.8 (24.6, 33.4)
Both school and post-school	25.0 (20.5, 30.1)

Correlate[1]	Twelve-month prevalence of any disorder[2] % (95% CI)
Equivalised household income	
Under half of median	40.9 (35.7, 46.4)
Half median to median	26.9 (22.3, 32.0)
Median to one and a half times median	23.7 (18.5, 29.8)
One and a half times median and over	19.7 (14.9, 25.4)
Area characteristics	
NZDep2001 deciles	
9 and 10 most deprived	32.5 (27.8, 37.5)
7 and 8	28.7 (23.6, 34.3)
5 and 6	32.3 (25.6, 39.8)
3 and 4	26.3 (18.9, 35.5)
1 and 2 least deprived	14.1 (8.1, 22.4)
Urbanicity	
Main	29.8 (26.4, 33.4)
Secondary	21.9 (14.6, 30.7)
Minor	33.6 (25.3, 43.0)
Other (rural)	28.0 (20.6, 37.0)
Region	
North	31.4 (26.3, 36.8)
Midland	29.7 (25.0, 35.0)
Central	24.2 (19.4, 29.8)
South	32.2 (24.2, 41.4)

[1] Sociodemographic correlates are defined in 12.12.1.

[2] DSM-IV CIDI 3.0 disorders.

The table also shows a pattern associated with socioeconomic level. The prevalence of disorder is highest in those with the lowest equivalised household incomes compared with those with higher equivalised household incomes, and in those with fewer educational qualifications compared with those with more educational qualifications. Of note, with regards to deprivation, those living in the least deprived areas (deciles 1 and 2) had the lowest rates of disorder, but only a small difference existed in rates between those in deprivation deciles 3–10. Although some differences exist across urbanicity and region, the overlap of confidence intervals indicates differences are not significant statistically.

9.6.4 Lifetime disorders: prevalence by age and sex

Table 9.6 shows the lifetime prevalence of aggregated mental disorders in Māori, by sex and age group.

The lifetime prevalence of disorder differed significantly between age groups ($p < .0001$). The age group with the highest lifetime prevalence of any disorder was Māori aged 25–44 (58.1%; 52.9, 63.2). The lifetime prevalences in Māori aged 16–24 (47.7%; 40.0, 55.4) and 45–64 (45.0%; 38.2, 52.1) were similar. The lowest lifetime prevalence was in Māori aged 65 and over (22.7%; 13.9, 33.7). Māori aged 25–44 had the highest rate for anxiety disorders (37.6%; 33.2, 42.2) and mood disorders (27.5%; 25.0, 30.1). For substance use disorders the lifetime prevalence rate was greatest in those aged 16–24 (33.7%; 28.6, 39.2).

The lifetime prevalence of any mental disorder was 52.7% (48.0, 57.3) in Māori females and 48.4% (42.8, 54.0) in Māori males. However, this difference was not statistically significant ($p = .2$). The pattern between disorders varied between males and females. The Māori female rate for anxiety disorders (36.7%; 32.9, 40.7) was significantly higher than the Māori male rate (25.0%; 20.9, 29.5; $p < .0001$). Rates were also higher in Māori females for mood disorders (29.3%; 26.8, 32.0; $p < .0001$) and eating disorders (4.4%; 3.1, 6.1; $p = .003$) compared with Māori males (18.5 %; 15.3, 21.7 and 1.6%; 0.8, 3.0 respectively). Māori male rates were higher than Māori female rates for lifetime prevalence of substance use disorders (31.8%; 28.4, 35.5 compared with 21.8%; 19.3, 24.4; $p < .0001$).

Table 9.6: Lifetime prevalence of mental disorders for Māori, by age and sex

Disorder groups[1]	Total % (95% CI)	Age group (years) % (95% CI)				Sex % (95% CI)	
		16–24	25–44	45–64	65 and over	Male	Female
Any anxiety disorder[2]	31.3 (3.1, 4.9)	26.3 (21.2, 32.3)	37.6 (33.2, 42.2)	27.3 (22.6, 32.5)	14.5 (7.9, 23.7)	25.0 (20.9, 29.5)	36.7 (32.9, 40.7)
Any mood disorder	24.3 (22.4, 26.3)	23.8 (19.2, 29.1)	27.5 (25.0, 30.1)	22.1 (18.8, 25.7)	7.8 (4.2, 13.0)	18.5 (15.6, 21.7)	29.3 (26.8, 32.0)
Any substance use disorder	26.5 (24.3, 28.7)	33.7 (28.6, 39.2)	28.3 (25.3, 31.5)	17.3 (14.2, 20.9)	16.0 (9.8, 25.1)	31.8 (28.4, 35.5)	21.8 (19.3, 24.4)
Any eating disorder[2]	3.1 (2.3, 4.1)	3.0 (1.3, 5.7)	3.6 (2.4, 5.4)	2.9 (1.5, 5.0)	0.4 (0.0, 4.9)	1.6 (0.8, 3.0)	4.4 (3.1, 6.1)
Any disorder[2]	50.7 (47.0, 54.4)	47.7 (40.0, 55.4)	58.1 (52.9, 63.2)	45.0 (38.2, 52.1)	22.7 (13.9, 33.7)	48.4 (42.8, 54.0)	52.7 (48.0, 57.3)
No disorder	49.3 (45.6, 53.0)	52.3 (44.6, 60.0)	41.9 (36.8, 47.1)	55.0 (47.9, 61.8)	77.3 (66.5, 85.4)	51.6 (46.0, 57.2)	47.3 (42.7, 52.0)
One disorder[2]	19.7 (17.5, 22.2)	13.9 (10.3, 18.6)	23.2 (19.7, 27.0)	20.2 (15.8, 25.4)	14.4 (7.8, 23.5)	19.0 (15.5, 23.0)	20.4 (17.5, 23.6)
Two or more disorders[2]	13.8 (12.0, 15.8)	17.3 (12.9, 22.7)	13.5 (11.3, 16.2)	12.5 (9.3, 16.5)	6.3 (2.2, 13.6)	15.8 (12.8, 19.4)	12.0 (10.1, 14.3)
Three of more disorders[2]	17.1 (15.2, 19.2)	16.5 (12.5, 21.4)	21.5 (18.6, 24.6)	12.4 (9.6, 15.9)	2.0 (0.1, 8.4)	13.5 (11.0, 16.6)	20.3 (17.6, 23.2)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

9.6.5 Lifetime risk

In addition to lifetime prevalence, the study also investigated lifetime risk. The calculation of lifetime risk takes into account the possibility that many people interviewed have not yet experienced mental disorder, but might do so later in their lives.

Prediction of lifetime risk until the age of 75 in the total population is presented in chapter 4. For Māori the lifetime risk of developing a disorder (ie, the proportion of Māori who will develop any disorder over their life until the age of 75) was found to be 59.9%. This is higher than the lifetime prevalence (50.7%) and takes into account that some Māori are yet to develop a mental disorder. The lifetime risk for Māori of developing an anxiety disorder is 37.3%, a mood disorder is 36.1%, a substance use disorder is 32.3% or an eating disorder is 4.1%.

9.7 Comorbidity

This section summarises the findings of the extent and patterns of comorbidity (ie, multiple disorders) in Māori. Information on physical and mental health was gathered.

9.7.1 Prevalence and distribution of multiple mental disorders in Māori

Table 9.7 shows the lifetime, 12-month and one-month prevalence of multiple disorders in Māori.

Table 9.7: Lifetime, 12-month and one-month prevalence of multiple mental disorders in Māori

Disorder[1]	Lifetime prevalence % (95% CI)	Twelve-month prevalence % (95% CI)	One-month prevalence % (95% CI)
No disorder	49.3 (45.6, 53.0)	70.5 (67.5, 73.3)	81.7 (79.4, 83.8)
One disorder[2]	19.7 (17.5, 22.2)	16.4 (14.4, 18.6)	12.7 (11.0, 14.7)
Two disorders[2]	13.8 (12.0, 15.8)	7.6 (6.4, 9.0)	3.6 (2.8, 4.6)
Three or more disorders[2]	17.1 (15.2, 19.2)	5.5 (4.5, 6.8)	2.0 (1.5, 2.8)

1 DSM-IV CIDI 3.0 disorder groups.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

Among the Māori sample, levels of lifetime comorbidity are high, with 19.7% of Māori with one disorder, 13.8% with two disorders and 17.1% with three or more disorders. Over the past 12 months 16.4% of Māori had one disorder, 7.6% had two disorders and 5.5% had three or more disorders.

Table 9.8 presents the pattern of distribution of multiple disorders in those with 12-month disorders (see 5.2.2). Within Māori who had any mental disorder in the past 12 months, 55.5% (one in two) had only one disorder, 25.7% (one in four) had two disorders and 18.8% (almost one in five) had three or more disorders.

The 'Diagnoses' column in Table 9.8 shows the total number of diagnoses made in Māori who had one disorder, two disorders or three or more disorders. The table shows 31.2% of diagnoses were in Māori with one disorder, 28.9% in those with two disorders and 39.9% in those with three or more disorders. This highlights that a significant portion of the burden of mental disorder in Māori falls on a small number with multiple disorders and 39.9% of all diagnoses occurred in the 5.5% of all Māori participants who had three or more disorders.

Table 9.8: Distribution of comorbid 12-month disorders among Māori[1]

Number of mental disorders	Participants % (95% CI)	Cases % (95% CI)	Diagnoses %
No disorder	70.5 (67.5, 73.3)		
One disorder	16.4 (14.4, 18.6)	55.5 (51.3, 59.7)	31.2
Two disorders	7.6 (6.4, 9.0)	25.7 (22.1, 29.6)	28.9
Three or more disorders	5.5 (4.5, 6.8)	18.8 (15.6, 22.5)	39.9

1 Assessed in the long form subsample who were assessed for all disorders, see 12.4.2.

9.7.2 Comorbidity between mental disorders

Table 9.9 shows the pattern of comorbidity between mental disorders (ie, the proportion of Māori who have one kind of mental disorder who also have another kind of disorder). The findings are presented by aggregated disorder groups.

This table shows considerable overlap between mental disorders, particularly between mood and anxiety disorders and between substance use disorders and anxiety disorders. Among Māori with 12-month anxiety disorders, 30.2% also had a mood disorder. Among Māori with mood disorders, 51.4% also had an anxiety disorder. For Māori with any substance use disorder 39.7% also had an anxiety disorder and 26.4% also had a mood disorder.

Table 9.9: Percentage of Māori with a 12-month comorbid mental disorder, by mental disorder group

Twelve-month mental disorder group[1]	Comorbid mental disorders % (95% CI)		
	Any anxiety disorder[2]	Any mood disorder	Any substance use disorder
Any anxiety disorder[2]		30.2 (25.6, 35.2)	17.6 (13.9, 22.1)
Any mood disorder	51.4 (44.3, 58.4)		20.6 (15.7, 26.6)
Any substance use disorder	39.7 (31.3, 48.6)	26.4 (20.0, 34.0)	
Any disorder[2]	65.8 (61.1, 70.2)	38.7 (34.5, 43.0)	29.2 (25.1, 33.8)

1 DSM-IV CIDI 3.0 disorder groups.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

9.7.3 Comorbidity between substance use disorders

Substance use disorders include alcohol abuse and dependence and drug abuse and dependence. Table 9.10 shows the extent and pattern of substance use disorder comorbidity among Māori with substance use disorders.

Overall the table shows considerable overlap between alcohol disorders and drug disorders. Of Māori with any alcohol use disorder 31.2% also had a drug use disorder and 58.3% with a drug use disorder also had an alcohol disorder. There were high prevalences of dependence disorders among those with abuse disorders with 46.8% of Māori with alcohol abuse, also having alcohol dependence and 45.1% of Māori with drug abuse, also having drug dependence.

Table 9.10: Percentage of Māori with 12-month comorbid substance use disorders[1]

Twelve-month disorder	Comorbid drug use disorder % (95% CI)					
	Alcohol abuse	**Alcohol dependence**	**Any alcohol disorder**	**Drug abuse**	**Drug dependence**	**Any drug use disorder**
Alcohol abuse		46.8 (37.7, 56.1)		28.0 (19.6, 38.3)	15.6 (9.2, 25.2)	30.7 (21.8, 41.3)
Alcohol dependence	80.6 (70.2, 87.9)			34.3 (23.0, 47.6)	28.6 (18.1, 42.3)	36.3 (24.8, 50.0)
Any alcohol use disorder	89.9 (83.9, 93.8)	52.2 (43.4, 60.8)		28.8 (20.8, 38.2)	17.0 (10.8, 25.8)	31.2 (22.8, 50.0)
Drug abuse	50.4 (37.0, 63.9)	35.8 (24.1, 49.5)	57.6 (43.7, 70.3)		45.1 (32.1, 58.9)	
Drug dependence	53.7 (35.1, 71.4)	57.3 (38.3, 74.3)	65.2 (45.9, 80.5)	86.3 (69.6, 94.6)		
Any drug use disorder	51.6 (38.4, 64.5)	35.4 (24.3, 48.3)	58.3 (44.9, 70.6)	93.3 (84.4, 97.3)	48.8 (36.1, 61.6)	
Any substance use disorder	73.5 (65.6, 80.1)	42.7 (35.1, 50.6)	81.8 (74.1, 87.5)	40.8 (32, 6, 49.6)	21.3 (15.1, 29.2)	43.7 (35.3, 52.6)

1 DSM-IV CIDI 3.0 substance use disorder.

9.7.4 Comorbidity between chronic physical conditions and mental disorders

Table 9.11 shows how common chronic physical conditions (12-month) were in Māori overall and in Māori who had mental disorders (presented by mental disorder group and any disorder). The table also shows how common chronic physical conditions were in Māori who did not have 12-month mental disorders.

In the Māori sample overall, the most common physical disorders were chronic pain (37.1%) and respiratory conditions (27.5%). They were also the most common among Māori with any 12-month disorder, with chronic pain reported by 46.4% (almost half) and respiratory conditions reported by 31.2% (almost one in three) Māori with 12-month disorder. The prevalence of each chronic health condition is higher in Māori who have any mental disorder compared with Māori who have no mental disorder. Differences were particularly marked for chronic pain. However, for all other conditions the differences were not significant statistically.

Table 9.12 shows how common mental disorders are in Māori with chronic physical conditions. In Māori with no chronic physical disorder, rates of any mental disorder in the past 12 months was 24.3%, whereas in those with chronic physical disorders the prevalence of having any mental disorder was higher, ranging from 31.3% in Māori with high blood pressure to 37.3% in Māori reporting chronic pain.

Table 9.11: Prevalence of chronic physical conditions among Māori with 12-month mental disorder[1], adjusted for age and sex

	Chronic physical health condition % (95% CI)					
	Chronic pain[2]	**Cardiovascular disease[3]**	**High blood pressure**	**Respiratory conditions[4]**	**Diabetes**	**Cancer**
Total	37.1 (33.8, 40.6)	6.8 (5.2, 8.9)	11.3 (9.2, 13.8)	27.5 (24.3, 31.0)	5.2 (3.8, 7.0)	3.8 (2.7, 5.4)
Disorder groups						
Any anxiety disorder	49.5 (44.4, 54.5)	10.2 (6.4, 13.9)	12.2 (8.8, 15.5)	30.9 (25.7, 36.1)	6.6 (3.7, 9.4)	7.4 (4.5, 10.3)
Any mood disorder	47.6 (41.0, 54.2)	8.0 (4.4, 11.6)	14.4 (9.4, 19.3)	33.4 (26.7, 40.1)	7.6 (3.3, 11.9)	6.2 (2.4, 10.0)
Any substance use disorder	47.4 (38.1, 56.7)	6.0 (0.7, 11.3)	11.0 (4.6, 17.3)	30.9 (22.0, 39.8)	4.3 (0.0, 8.6)	2.4 (0.0.9, 5.7)
Any disorder	46.4 (41.9, 50.9)	8.7 (5.8, 11.6)	12.0 (9.0, 15.0)	31.2 (27.1, 35.4)	6.5 (3.9, 9.0)	6.0 (3.7, 8.3)
No disorder	33.3 (29.0, 37.5)	6.2 (4.1, 8.4)	11.0 (8.4, 13.7)	26.0 (21.6, 30.3)	4.8 (3.0, 6.6)	4.7 (2.5, 6.9)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Chronic pain: arthritis or rheumatism; chronic back or neck pain; frequent or severe headaches; any other chronic pain.

3 Cardiovascular disease: stroke; heart attack; heart disease.

4 Respiratory conditions: asthma; chronic obstructive pulmonary disease; emphysema; other chronic lung disease.

Table 9.12: Prevalence of mental disorders[1] among Māori with selected chronic physical conditions, adjusted for age and sex

Chronic physical conditions	Any anxiety disorder % (95% CI)	Any mood disorder % (95% CI)	Any substance use disorder % (95% CI)	Any disorder % (95% CI)
Chronic pain[2]	26.1 (22.2, 30.0)	14.9 (12.0, 17.8)	11.4 (8.2, 14.6)	37.3 (32.3, 42.2)
Cardiovascular disease[3]	28.2 (17.3, 39.1)	12.8 (6.3, 19.4)	8.6 (1.0, 16.3)	36.9 (24.2, 49.5)
High blood pressure	20.8 (14.4, 27.2)	14.8 (9.1, 20.5)	8.9 (3.4, 14.3)	31.3 (23.2, 39.4)
Respiratory conditions[4]	21.6 (17.2, 26.1)	13.8 (10.3, 17.4)	9.3 (6.3, 12.4)	33.4 (27.8, 39.0)
Diabetes	23.9 (13.9, 33.9)	16.5 (7.3, 25.7)	7.8 (0.0, 15.7)	35.7 (23.1, 48.3)
Cancer	29.4 (16.9, 41.8)	14.1 (5.2, 23.0)	4.0 (0.0, 9.5)	35.8 (21.6, 50.0)
No condition	15.2 (12.3, 18.2)	8.7 (6.6, 10.8)	7.2 (5.1, 9.3)	24.3 (20.5, 28.0)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Chronic pain: arthritis or rheumatism; chronic back or neck pain; frequent or severe headaches; any other chronic pain.

3 Cardiovascular disease: stroke; heart attack; heart disease.

4 Respiratory conditions: asthma; chronic obstructive pulmonary disease; emphysema; other chronic lung disease.

9.7.5 Comorbidity and physical health risk factors

Table 9.13 shows how common selected physical health risk factors (current smoking, overweight or obese, high blood pressure and hazardous drinking) are in Māori males and females, Māori who have mental disorders and Māori who have no mental disorders. The table shows that the risk factors are common among both Māori males and females.

Table 9.13: Prevalence of selected chronic physical condition risk factors, by 12-month mental disorder groups among Māori[1,2,3]

	Risk factors for chronic physical conditions % (95% CI)			
	Smoking[4]	**Overweight[5]**	**High blood pressure**	**Alcohol[6]**
Sex				
Male	43.8 (38.2, 49.4)	75.8 (71.0, 80.6)	12.9 (9.1, 16.6)	47.2 (39.5, 54.8)
Female	52.6 (48.0, 57.3)	59.6 (54.9, 64.2)	9.9 (7.6, 12.2)	22.0 (17.1, 26.8)
Total	48.5 (44.7, 52.3)	67.1 (63.7, 70.4)	11.3 (9.2, 13.8)	33.5 (28.9, 38.4)
Disorder group				
Any anxiety disorder[2]	58.4 (52.3, 64.5)	65.5 (60.2, 70.8)	12.2 (8.8, 15.5)	43.0 (36.0, 50.0)
Any mood disorder	61.3 (54.5, 68.0)	67.8 (61.6, 73.9)	14.4 (9.4, 19.3)	37.9 (30.1, 45.7)
Any substance use disorder	67.5 (59.3, 75.6)	61.6 (52.2, 71.0)	11.0 (4.6, 17.3)	90.9 (82.7, 99.0)
Any disorder[2]	57.5 (52.6, 62.4)	66.6 (62.3, 71.0)	12.0 (9.0, 15.0)	47.6 (41.7, 53.5)
No disorder	44.7 (40.0, 49.4)	67.4 (63.0, 71.7)	11.0 (8.4, 13.7)	27.2 (21.4, 33.0)

1 DSM-IV CIDI 3.0 disorder groups.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 Sex-stratified estimates are adjusted for age; 'total' estimates are adjusted for age and sex.

4 Smoking: current smoker.

5 Overweight and obesity: body mass index of 25 or over.

6 Alcohol: Alcohol Use Disorders Identification Test score of 8 or more, described as 'potentially hazardous drinkers'.

Māori who have any mental disorder have higher prevalences of smoking (57.5%) and hazardous alcohol use (47.6%) compared with Māori with no mental disorder (44.7% and 27.2% respectively). Most Māori with a substance use disorder met criteria for hazardous alcohol use (90.9%). Differences in the prevalence of being overweight or having high blood pressure did not differ between Māori with and without mental disorders.

9.8 Severity and impact of disorders

This section describes the findings related to severity of disorder and the impact of health and mental health disorders on the lives of Māori participants.

9.8.1 Severity of aggregated disorders in Māori

Table 9.14 shows findings for 12-month prevalence of mental disorders in Māori described by severity (serious, moderate, mild). Severity is defined in 12.12.3. Of Māori with any mental disorder, 29.6% had serious disorders, 42.6% had moderate disorders and 27.8% had mild disorders. This pattern of severity was similar for anxiety and substance use disorders. Of Māori with anxiety disorders, 33.3% had a disorder that was considered serious and 40.9% had a moderate disorder. For substance use disorders, 33.5% of Māori with a substance use disorder had a serious disorder and a slightly higher proportion (40.6%) had a moderate disorder. The pattern differed for mood disorder, with 51.4% of all Māori with a mood disorder having a serious disorder and 37.4% having a moderate disorder. Eleven percent of Māori with mood disorders were considered to have a mild disorder.

The severity of disorder is strongly associated with the number of disorders. Of Māori with three or more disorders, 69.2% were considered serious, whereas 14.4% with one disorder were considered serious.

Table 9.14: Twelve-month prevalence of mental disorders among Māori, by severity

Disorder group[1]	**Severity %**		
	Serious	**Moderate**	**Mild**
Any anxiety disorder[2]	33.3	40.9	25.8
Any mood disorder	51.4	37.4	11.2
Major depressive disorder	45.2	41.6	13.2
Dysthymia	70.7	21.7	7.5
Bipolar disorder	60.0	31.5	8.5
Any substance use disorder	33.5	40.6	26.0
Any alcohol disorder	33.2	41.7	25.1
Any drug disorder	43.2	31.5	25.3
Any disorder	29.6	42.6	27.8
Number of disorders			
One disorder	14.4	43.9	41.7
Two disorders	33.4	50.6	16.0
Three or more disorders	69.2	27.9	2.9

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1. Severity is defined in 12.12.3.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

9.8.2 Impact of mental disorders in Māori

Chapter 6 describes the measures used, and findings related to, the impact of mental disorders on people's health and functioning. Tables 9.15 and 9.16 present findings for the level of impairment in performing day-to-day roles experienced by Māori with mental disorders.

Table 9.15 shows the impact of health problems on Māori by measuring the impairment of role in the past 1–30 days. Just under one in six Māori reported one or more days out of role (12.1% reported 1–5 days and 5.5% reported 6 or more days) due to health reasons over the past 30 days. About one in three of these days out of role (4.9%, 1–5 days; 1.4%, 6 or more days) was attributed to mental health reasons, so a total of 6.3% of Māori reported days out of role because of mental health reasons over the past 30 days.

Table 9.15: Number of days in past 30 days with role impairment due to health problems, in total and specifically attributed to mental health problems, among Māori[1,2]

Type of impairment	Cause	Days with impairment in past 30 days % in each category (95% CI)		
		Zero days	One to five days	Six or more days
Days completely out of role	All health	82.3	12.1	5.5
	Mental health	93.8	4.9	1.4
Days cut down amount accomplished	All health	78.7	13.8	7.5
	Mental health	90.6	7.8	1.7
Days cut back on quality[3]	All health	82.8	11.0	6.3
Days it took extreme effort	All health	79.7	13.5	6.8
	Mental health	90.4	7.3	2.3

1 Mental health problems included those resulting from use of alcohol or drugs.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 This question did not ask the respondent to specify whether the impairment was due to mental health problems.

Table 9.16 shows the relationship between impairment in role in the past 30 days and the number of disorders in Māori. (For more about the impairment in role measure, see chapter 6.)

Table 9.16 shows increasing role impairment with increasing number of mental disorders. Māori with three or more disorders reported some form of role impairment on 42.5% of their days over the past month. This is over twice that for Māori with one disorder (17.1%) and over seven times greater than for Māori with no disorder (6.0%). A considerable amount of the impairment in role is attributed to health, but not specifically attributed to mental health problems.

Table 9.16: Role impairment in past 30 days, in total and attributed to mental health, by the number of one-month mental disorders among Māori[1,2]

Number of disorders	Mean role impairment domain score[3] % (SE)	
	Total[4]	Attributed to mental health[5]
No disorder	6.0 (0.7)	1.1 (0.1)
One disorder	17.1 (2.0)	5.3 (0.9)
Two disorders	26.5 (4.2)	11.4 (2.6)
Three or more disorders	42.5 (6.3)	27.5 (6.4)
Total	8.8 (0.7)	2.5 (0.2)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 Uses an integrated measure that combines days out of role and days when performance in role was reduced in quantity or took extreme effort.

4 Role impairment score is calculated from four role impairment items (see Table 6.1).

5 Role impairment score is calculated from the three items that allow attribution to mental health problems; the sum of days out of role plus half of days cut down on amount and half of days of extreme effort, divided by 30 and multiplied by 100. Scores range from 0 to 100; the higher the score, the greater the impairment. (See chapter 6 for more details.)

9.9 Health service use

9.9.1 Probability of 12-month use of mental health service by Māori

Participants were questioned about their contact with a range of services, both health and non-healthcare services, for meeting their mental health needs. The measures and overall findings are summarised in chapter 8. A specific section of the survey was also asked of Māori about their use of Māori-specific services such as Māori mental health providers and tohunga. The findings from this part of the survey will be the subject of a future report. This section presents selected findings for health service use by Māori with mental disorders.

Table 9.17 shows the nature of service use by Māori and presents service contact by disorder group (anxiety, mood, substance use and eating disorders), by presence of disorder (having any disorder, having no disorder and overall) and by measures of severity (serious, moderate and mild). Service contact is divided between health services (mental health specialist and general medical services) and non-health services (human services and complementary or alternative medicine services). The following is a summary of key findings from this analysis.

Type of disorder

The level and pattern of service contact varied between disorder groups. Māori with mood disorders were most likely to have contact with services (20% mental health specialist, 30.3% general medical care, 10.6% non-healthcare and 43.1% overall). Māori with substance use disorders were the disorder group least likely to have had service contact for their mental health (15.5% mental health specialist, 15.8% general medical care, 6.4% non-healthcare provider and 27.8% overall).

Overall sample, any disorder and no disorder

Of the total Māori sample, 13.5% had some kind of service contact for mental health reasons spanning across the range of providers (6.0% mental health specialist, 8.1% general medical care, 3.8% non-healthcare provider).

Of Māori with any disorder, 32.5% had some contact with a provider of services. This was divided between mental health specialist services (14.6%), general medical services (20.4%) and non-healthcare providers (9.1%).

A small proportion of Māori with no mental disorder (5.6%) also had contact with some form of service.

Severity of disorders

There is a pattern of increased service contact with increased severity of disorders. Whereas 51.5% of Māori with serious disorder were seen in some form of service (28.6% mental health specialist, 33.8% general medical care, 12.8% non-healthcare provider), a smaller proportion of Māori with mild disorder (17.5%) had some form of contact (5.3% mental health specialist, 11.2% general medical care, 4.3% non-healthcare provider).

9.9.2 Satisfaction with care

Table 9.18 shows that for Māori who had contact with some form of provider (health or non-healthcare) to address their mental health needs, across each of the health providers, most Māori reported being very satisfied or satisfied.

For each provider group it appears the majority of Māori were satisfied (either very satisfied or satisfied). As the numbers of Māori were quite small for contact with some professional groups, take great care when making detailed comparisons between providers. However, there were differences between providers in levels of satisfaction. Satisfaction ranged from those who saw a psychiatrist (32.3% very satisfied, 30.8%

satisfied) to those who saw a spiritual practitioner (76.3% very satisfied, 17.3% satisfied).

Table 9.17: Prevalence of 12-month mental health service use in separate service sectors, by 12-month disorders among Māori

	Healthcare % (95% CI)					**Non-healthcare % (95% CI)**			**Any service use % (95% CI)**
	Mental health specialty			**General medical**	**Any healthcare provider**	**Human services**	**Complementary or alternative medicine**	**Any non-healthcare provider**	
	Psychiatrist	Other mental health specialist	Any mental health specialist						
Disorder group[1]									
Anxiety disorders[2]	5.8 (3.9, 8.6)	13.3 (10.0, 17.5)	16.4 (12.7, 20.8)	22.7 (18.4, 27.6)	31.9 (27.1, 37.3)	7.1 (4.5, 10.8)	5.3 (3.4, 7.8)	10.4 (7.5, 14.3)	35.3 (30.3, 40.5)
Mood disorders	7.9 (4.8, 12.0)	16.4 (12.5, 21.3)	20.0 (15.6, 25.3)	30.3 (24.7, 36.5)	39.1 (32.9, 45.8)	7.4 (4.8, 10.9)	6.9 (4.4, 10.3)	10.6 (7.6, 14.5)	43.1 (36.7, 49.9)
Substance use disorders	4.6 (2.1, 8.6)	13.3 (8.6, 19.4)	15.5 (10.6, 22.1)	15.8 (11.2, 21.9)	25.3 (19.2, 32.6)	2.0 (0.5, 5.1)	4.8 (1.9, 9.5)	6.4 (3.1, 11.5)	27.8 (21.6, 35.0)
Eating disorders[2]	7.7 (0.8, 26.2)	20.2 (4.7, 47.4)	20.5 (4.9, 47.6)	14.7 (3.1, 37.3)	27.5 (8.8, 54.6)	0.0 (0.0, 11.7)	7.3 (0.7, 25.6)	7.3 (0.7, 25.6)	32.0 (12.3, 58.1)
Any disorder[2]	4.7 (3.2, 6.8)	11.9 (9.4, 15.0)	14.6 (11.7, 18.0)	20.4 (16.9, 24.4)	29.3 (25.3, 33.7)	5.9 (4.0, 8.7)	5.0 (3.5, 6.9)	9.1 (6.8, 12.1)	32.5 (28.4, 36.8)
No disorder	0.9 (0.4, 1.8)	2.4 (1.5, 3.6)	2.8 (1.8, 4.1)	3.2 (2.0, 4.7)	5.0 (3.7, 6.7)	0.9 (0.4, 1.8)	0.8 (0.3, 1.7)	1.6 (0.9, 2.6)	5.6 (4.3, 7.4)
Total	1.9 (1.4, 2.6)	4.9 (4.1, 5.9)	6.0 (5.0, 7.1)	8.1 (7.0, 9.5)	11.7 (10.4, 13.3)	2.2 (1.7, 2.9)	2.3 (1.8, 3.0)	3.8 (3.1, 4.7)	13.5 (12.1, 15.1)
Severity[3]									
None	0.9 (0.4, 1.8)	2.4 (1.5, 3.6)	2.8 (1.8, 4.1)	3.2 (2.0, 4.7)	5.0 (3.7, 6.7)	0.9 (0.4, 1.8)	0.8 (0.3, 1.7)	1.6 (0.9, 2.6)	5.6 (4.3, 7.4)
Serious	11.9 (7.6, 17.4)	22.3 (16.8, 28.9)	28.6 (22.4, 35.6)	33.8 (27.3, 41.0)	47.9 (40.3, 55.7)	7.7 (4.4, 12.2)	7.8 (4.4, 12.7)	12.8 (8.7, 18.6)	51.5 (43.7, 59.2)
Moderate	1.5 (0.4, 4.1)	10.0 (6.1, 15.9)	11.0 (6.9, 17.0)	17.1 (12.5, 22.9)	25.4 (19.7, 32.0)	6.6 (3.0, 12.1)	4.8 (2.6, 8.0)	9.7 (6.0, 15.2)	29.1 (23.3, 35.7)
Mild	1.8 (0.1, 8.0)	3.8 (1.4, 7.9)	5.3 (2.0, 11.1)	11.2 (4.9, 21.1)	15.7 (9.1, 25.6)	3.2 (0.7, 8.7)	2.2 (0.7, 5.4)	4.3 (1.5, 9.4)	17.5 (10.7, 27.1)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 For severity, see 2.3 and 12.12.3.

Table 9.18: Māori participant rating of satisfaction with care, perceived helpfulness of the care received, and average duration of visit, by professional group

Satisfaction with care	**Psychiatrist % (SE)**	**Psychologist % (SE)**	**Other mental health professional % (SE)**	**General practitioner or any other medical doctor % (SE)**	**General nurse, occupational therapist or other health professional % (SE)**	**Social worker % (SE)**	**Counsellor % (SE)**	**Religious or spiritual advisor % (SE)**	**Any other healer % (SE)**
Very satisfied	32.3 (8.7)	41.8 (4.5)	40.0 (9.5)	33.7 (8.6)	43.0 (5.5)	33.0 (14.0)	39.1 (13.5)	76.3 (6.6)	62.0 (9.3)
Satisfied	30.8 (8.1)	35.1 (4.4)	36.3 (10.2)	41.0 (9.2)	46.2 (5.6)	51.0 (14.4)	41.3 (13.2)	17.3 (5.0)	30.9 (9.4)
Neither satisfied nor dissatisfied	20.8 (6.9)	12.9 (3.2)	18.7 (7.2)	10.0 (4.9)	6.6 (2.7)	15.9 (8.9)	9.8 (5.5)	3.5 (2.6)	5.1 (3.0)
Dissatisfied	11.6 (5.3)	5.3 (1.6)	3.3 (3.3)	8.0 (4.4)	4.3 (2.2)	0.0 (0.0)	9.8 (7.2)	0.0 (0.0)	0.0 (0.0)
Very dissatisfied	4.5 (3.2)	4.9 (1.8)	1.6 (1.6)	7.3 (6.3)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	2.9 (2.8)	1.9 (1.9)

9.10 Severity, days out of role, and health service visits in the past 12 months

In combining prevalence, severity, role impairment and health service contact data it is possible to show the relationship between mental health need and healthcare.
Table 9.19 shows the prevalence and impact of disorder by severity and the proportion who had contact of some form within the healthcare sector.

This table shows a strong relationship between the severity of disorder and the mean days out of role. Whereas Māori with a serious disorder reported a mean 82.7 days out of role, Māori with mild disorders reported a mean 1.1 days out of role. A relationship also exists between severity and visits to some form of healthcare, with 47.9% of Māori with serious disorder making some visits. Some form of contact with health services for mental health needs was made by 25.4% of Māori with moderate disorder and 15.7% with mild disorder. Thus 52.1% (just over half) of Māori with serious disorder and 74.6% (three in four) of Māori with moderate disorder had no contact with health services for their mental health.

Table 9.19: Severity, days out of role and percentage of Māori with a mental health visit in the past 12 months[1]

	Twelve-month disorder[2] % (95% CI)			
	Serious	**Moderate**	**Mild**	**None**
Prevalence (%)	8.7 (7.5, 10.1)	12.6 (10.7, 14.7)	8.2 (6.8, 9.9)	70.5 (67.5, 73.3)
Mean days out of role due to disorder	82.7 (65.3, 100.2)	18.2 (10.1, 26.4)	1.1 (0.3, 2.0)	
Percentage with at least one mental health visit in the healthcare sector (%)	47.9 (40.3, 55.7)	25.4 (19.7, 32.0)	15.7 (9.1, 25.6)	5.0 (3.7, 6.7)

1 Assessed in the subsample who did the long form of the interview, see 12.4.2.

2 DSM-IV CIDI 3.0 disorder with hierarchy, see 12.4.1. Severity is defined in 12.12.3.

9.11 Suicidal behaviour

In addition to measuring the prevalence of mental disorders, survey participants were asked about suicidal behaviour; ie, the presence of suicidal ideation (thoughts), suicide plan or suicide attempt. These measures are described in detail in chapter 7.

The findings for the prevalence of lifetime and 12-month suicidal ideation, suicide plan and suicide attempt over the past 12 months are shown for Māori, by sex, in Table 9.20 (see 9.11.1) and by age group and sex in Table 9.21 (see 9.11.2).

9.11.1 Lifetime and 12-month prevalences

At some time over their lifetime suicidal ideation was reported by 22.5% of Māori, with 8.5% making suicide plan and 8.3% making suicide attempt. Over the past 12 months, 5.4% of Māori reported suicidal ideation, with a smaller proportion reporting suicide plan (1.8%) and suicide attempt (1.1%).

Across the lifetime and over the past 12 months, Māori females reported higher rates of suicidal ideation, suicide plan and suicide attempt than Māori males. Over their lifetime 11.7% of Māori females reported suicide attempt.

Table 9.20: Twelve-month and lifetime prevalence of suicidal ideation, suicide plan and suicide attempt in Māori, by sex

	Lifetime prevalence % (95% CI)			Twelve-month prevalence % (95% CI)		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Suicidal ideation	17.2 (14.6, 20.1)	27.2 (24.5, 30.1)	22.5 (20.6, 24.5)	3.4 (2.3, 5.1)	7.1 (5.6, 9.0)	5.4 (4.4, 6.6)
Suicide plan	5.7 (4.2, 7.8)	10.9 (9.1, 12.9)	8.5 (7.2, 9.9)	1.4 (0.7, 2.5)	2.3 (1.5, 3.3)	1.8 (1.3, 2.5)
Suicide attempt	4.5 (3.3, 6.1)	11.7 (9.9, 13.8)	8.3 (7.2, 9.7)	0.8 (0.3, 1.8)	1.5 (0.9, 2.5)	1.1 (0.7, 1.8)

9.11.2 Prevalence of suicidal ideation, suicide plans and suicide attempts, by age and sex

Suicidal ideation

Lifetime prevalence rates of suicidal ideation were similar among Māori aged 16–24 (24.4%) and 25–44 (26.0%), with rates decreasing with increasing age for both males and females (see Table 9.21). Māori female rates (27.2%) were higher than Māori male rates (17.2%) overall. Female rates were also higher in all age groups apart from the group aged 65 and over.

Patterns of lifetime suicidal ideation differed between males and females, with the highest rates for Māori females in those aged 16–24 (33.3%). For Māori males, the highest rates were in those aged 25–44 (22.8%).

Twelve-month prevalence rates of suicidal ideation again were highest among females and in younger age groups. Overall 9.0% of Māori aged 16–24 reported suicidal ideation in the past 12 months and Māori females aged 16–24 had the highest rates of suicidal ideation among Māori (13.4%).

Suicide plans

Of Māori aged 25–44, 11.2% reported having made a suicide plan over their lifetime.

Lifetime rates of suicide plans were higher in Māori females than Māori males across all age groups, with the highest rates in both males and females aged 25–44 followed by those aged 16–24.

Māori females were also more likely to report suicide plans in the past 12 months than Māori males across all age groups. Rates were highest in those aged 25–44 (2.4%) followed by those aged 16–24 (1.6%).

Suicide attempts

Lifetime rates of suicide attempts for Māori females were higher than rates for Māori males for all age groups and were highest among Māori females aged 16–24 (15.2%). For Māori males, lifetime rates of suicide attempts were highest in those aged 25–44 (6.9%). Lifetime rates of suicide attempts reduced with increasing age from this age group.

With regard to the 12-month prevalence of suicide attempts, rates for Māori females were higher than for Māori males in all age groups, with rates in both males (1.4%) and females (2.9%) being highest in those aged 16–24.

Overall, in Māori participants aged 16–24, 2.2% reported making a suicide attempt in the previous 12 months.

Table 9.21: Prevalence of suicidal ideation, suicide plans or suicide attempts over lifetime and in past 12 months among Māori, by sex and age

	Lifetime prevalence % (95% CI)			Twelve-month prevalence % (95% CI)		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Suicidal ideation						
16–24	14.9 (9.9, 21.7)	33.3 (26.4, 41.0)	24.4 (20.1, 39.4)	4.3 (1.9, 9.3)	13.4 (8.8, 19.9)	9.0 (6.2, 12.8)
25–44	22.8 (18.8, 27.4)	28.7 (25.0, 32.6)	26.0 (23.2, 29.0)	3.8 (2.3, 6.4)	6.9 (5.2, 9.1)	5.5 (4.3, 7.1)
45–64	10.7 (7.4, 15.2)	22.6 (18.0, 27.9)	16.9 (13.9, 20.3)	2.1 (0.9, 4.9)	2.3 (1.2, 4.3)	2.2 (1.3, 3.7)
65 and over	7.2 (3.3, 14.9)	7.0 (3.5, 13.5)	7.1 (4.3, 11.6)	1.0 (0.1, 6.7)	1.3 (0.2, 8.3)	1.1 (0.3, 4.5)
All ages	17.2 (14.6, 20.1)	27.2 (24.5, 30.1)	22.5 (20.6, 24.5)	3.4 (2.3, 5.1)	7.1 (5.6, 9.0)	5.4 (4.4, 6.6)
Suicide plan						
16–24	5.5 (2.6, 11.3)	9.4 (6.2, 14.0)	7.5 (5.2, 10.8)	0.8 (0.1, 5.1)	2.4 (1.0, 5.4)	1.6 (0.7, 3.4)
25–44	7.9 (5.4, 11.4)	13.9 (11.1, 17.2)	11.2 (9.2, 13.4)	2.0 (1.0, 4.2)	2.8 (1.7, 4.5)	2.4 (1.6, 3.6)
45–64	2.8 (1.4, 5.7)	8.2 (5.6, 11.7)	5.6 (4.0, 7.8)	1.0 (0.3, 3.1)	1.3 (0.5, 3.0)	1.1 (0.6, 2.3)
65 and over	0.0	1.7 (0.4, 7.5)	0.9 (0.2, 4.2)	0.0	1.3 (0.2, 8.3)	0.7 (0.1, 4.7)
All ages	5.7 (4.2, 7.7)	10.9 (9.1, 12.9)	8.5 (7.2, 9.9)	1.4 (0.7, 2.5)	2.3 (1.5, 3.3)	1.8 (1.3, 2.5)
Suicide attempt						
16–24	3.8 (1.7, 8.1)	15.2 (10.5, 21.6)	9.7 (7.1, 13.3)	1.4 (0.3, 5.5)	2.9 (1.1, 7.0)	2.2 (1.0, 4.6)
25–44	6.9 (4.9, 9.7)	12.1 (9.7, 15.0)	9.7 (8.1, 11.7)	0.4 (0.1, 2.2)	1.5 (0.8, 2.9)	1.0 (0.5, 1.9)
45–64	1.4 (0.5, 3.6)	9.5 (6.5, 13.8)	5.6 (3.9, 8.0)	1.0 (0.3, 3.3)	0.2 (0.0, 1.7)	0.6 (0.2, 1.7)
65 and over	0.0	2.5 (0.7, 7.8)	1.3 (0.4, 4.3)	0.0	0.0	0.0
All ages	4.5 (3.2, 6.1)	11.7 (9.9, 13.8)	8.3 (7.2, 9.7)	0.8 (0.3, 1.8)	1.5 (0.9, 2.5)	1.1 (0.7, 1.8)

9.12 Findings for Māori compared with Pacific people and Others

Throughout chapters 2–4, 7 and 8 ethnicity comparisons have been included in the findings. Some key findings from these comparisons are summarised here, but it is recommended that specific sections in the other chapters are also read for more detailed comparative findings.

9.12.1 Twelve-month prevalence and ethnicity

Findings related to ethnicity comparisons for 12-month prevalence are presented in chapter 3 (see 3.5). Table 9.22 summarises those key findings. The unadjusted figure represents the prevalence within the populations by ethnic group, so is a measure of burden or need within the population.

The table shows that any 12-month disorder was present in 29.5% of Māori, 24.2% of Pacific people and 19.3% of the Other composite ethnic group (ie, non-Māori non-Pacific people). Anxiety disorders were the most common across all ethnicities (19.4% of Māori, 16.3% of Pacific people and 14.1% of Others). Mood disorders followed by substance use disorders were the next most prevalent disorders across ethnic groups. In all groups the prevalence of disorder was highest in Māori compared with the Pacific and Other groups.

Adjustment takes into account the differences between ethnic populations for demographic variables. Table 9.22 shows the impact of adjustment on the basis of age and sex and on the basis of age, sex and socioeconomic correlates. Adjustment reduces ethnicity differences, indicating that some of the differences between ethnic groups is due to different population characteristics such as age and socioeconomic position. When fully adjusted for age, sex and socioeconomic correlates, although Māori rates of disorder remain higher, some differences are no longer significant. Differences between ethnic groups for anxiety disorders are not significant and differences between Māori and Others for mood disorders are not significant. For substance use disorders, however, differences remain significant even when adjusted for all of these factors: rates in Māori are about twice those for Pacific people and Others.

Table 9:22: Twelve-month disorders in the Māori, Pacific and Other ethnic groups

	Unadjusted % (95% CI)	**Adjusted for age and sex % (95% CI)**	**Adjusted for age, sex, educational qualifications[1]and household income[1] % (95% CI)**
Any disorder[2]			
Māori	29.5 (26.6, 32.4)	26.4 (23.7, 29.0)	23.9 (21.3, 26.4)
Pacific	24.2 (21.2, 27.6)	21.8 (18.8, 24.7)	19.2 (16.4, 22.1)
Other	19.3 (18.0, 20.6)	19.8 (18.4, 21.1)	20.3 (18.9, 21.6)
Any anxiety disorder[2]			
Māori	19.4 (17.1, 21.7)	17.6 (15.4, 19.7)	15.6 (13.6, 17.6)
Pacific	16.3 (13.8, 18.9)	14. 8 (12.4, 17.3)	12.9 (10.6, 15.1)
Other	14.1 (13.0, 15.1)	14.4 (13.3, 15.5)	14.8 (13.7, 15.9)
Any mood disorder			
Māori	11.6 (10.1, 13.2)	10.1 (8.8, 11.5)	9.3 (8.0, 10.6)
Pacific	8.3 (6.6, 10.0)	7.2 (5.8, 8.7)	6.4 (5.1, 7.8)
Other	7.5 (6.8, 8.2)	7.7 (6.9, 8.4)	7.9 (7.1, 8.6)
Any substance use disorder			
Māori	9.1 (7.6, 10.6)	7.1 (6.0, 8.3)	6.0 (5.0, 7.1)
Pacific	4.9 (3.6, 6.1)	3.8 (2.8, 4.8)	3.2 (2.3, 4.0)
Other	2.7 (2.3, 3.2)	2.9 (2.9, 3.4)	3.0 (2.5, 3.6)

1 Sociodemographic correlates are defined in 12.12.1.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

9.12.2 Ethnicity difference in severity and health service contact

Findings presented in chapter 2 included analyses showing the relationship between severity of disorder and contact with health services by ethnic group. Table 9.23 (also presented in Table 2.4) shows findings for severity by ethnicity and health sector contact when severity is controlled for.

The table shows that the prevalence of serious disorder is higher in Māori (8.4%) than in the Pacific (5.9%) and Other (4.0%) groups. Although differences are reduced after adjusting for age, sex, education and equivalised household income, Māori rates of serious disorder remain higher than those for the Pacific and Other groups.

When health service contact is considered, taking into account the severity of disorder the pattern that emerges is that the Other group is most likely to have contact with health services (12.6%), followed by Māori (9.4%) then Pacific people (7.9%). Further adjustment for sociodemographic factors does not change this pattern.

Table 9.23: Ethnicity and 12-month prevalence of any disorder, severity and mental health visits

Prioritised ethnicity	Unadjusted % (95% CI)	Adjusted for age and sex % (95% CI)	Adjusted for age, sex, educational qualifications[4] and equivalised household income[4] % (95% CI)
Prevalence of serious disorder[1,2]			
Māori	8.4 (7.2, 9.7)	7.4 (6.2, 8.5)	6.0 (5.0, 7.0)
Pacific	5.9 (4.6, 7.2)	5.2 (4.0, 6.4)	4.1 (3.1, 5.0)
Other	4.0 (3.5, 4.5)	4.1 (3.6, 4.6)	4.3 (3.8, 4.9)
Percentage with a mental health visit to the healthcare sector, adjusted for severity[3]			
Māori	9.4 (8.0, 10.8)	11.4 (9.6, 13.2)	9.5 (8.1, 11.0)
Pacific	7.9 (6.2, 9.6)	8.3 (6.4, 10.1)	8.1 (6.3, 9.8)
Other	12.6 (11.5, 13.6)	12.2 (11.1, 13.1)	12.5 (11.5, 13.6)

1 DSM-IV CICI 3.0 disorders with hierarchy, see 12.4.1.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 For severity, see 2.3 and 12.12.3.

4 Sociodemographic correlates are defined in 12.12.1.

9.12.3 Lifetime risk

Chapter 4 presents findings for lifetime prevalence and lifetime risk of disorder. Section 4.4 describes hazard ratios for the development of disorders in the Māori, Pacific and Other ethnic groups. A summary of the findings from that analysis is provided in Table 9.24. The table shows overall and for each disorder group the risk (unadjusted) of developing a disorder is greater for Māori when compared with Pacific people and when compared with the Other group. Following adjustment for age and sex, statistical analyses shown in chapter 4 show that when comparisons are made between Māori and Others, Māori have significantly higher hazard ratios for anxiety ($p < .0001$), mood ($p = .0008$), substance use ($p < .0001$) and eating disorders ($p = .003$). Comparisons with Pacific people, when adjusted, show Māori have significantly higher hazard ratios for mood ($p = .0004$) and substance use disorders ($p < .0001$).

Table 9.24: Hazard ratios for lifetime disorders, by age, sex and ethnicity (unadjusted and adjusted for the influence of age and sex)

	Unadjusted % (95% CI)	Adjusted for age and sex % (95% CI)
Any disorder		
Māori	1.7 (1.5, 1.9)	1.4 (1.3, 1.6)
Pacific	1.4 (1.3, 1.6)	1.2 (1.1, 1.4)
Other[1]	1.0	1.0
Any anxiety disorder		
Māori	1.5 (1.3, 1.7)	1.3 (1.2, 1.5)
Pacific	1.3 (1.1, 1.5)	1.1 (1.0, 1.3)
Other[1]	1.0	1.0
Any mood disorder		
Māori	1.5 (1.4, 1.7)	1.2 (1.1, 1.4)
Pacific	1.1 (1.0, 1.3)	0.9 (0.8, 1.0)
Other[1]	1.0	1.0
Any substance use disorder		
Māori	3.1 (2.7, 3.5)	2.6 (2.3, 3.0)
Pacific	1.8 (1.6, 2.2)	1.5 (1.3, 1.8)
Other[1]	1.0	1.0

1 Reference population (ie, the population against which Māori and Pacific people are compared).

9.12.4 Suicidal behaviour

Analyses undertaken for chapter 7 found that rates of suicidal ideation, suicide plan and suicide attempt vary with ethnicity. Māori and Pacific people reported higher rates than the Other group for suicidal ideation (Māori, 5.4%; Pacific, 4.5%; Other, 2.8%); suicide plan (Māori, 1.8%; Pacific, 2.6%; Other, 0.8%); and suicide attempts (Māori, 1.1%; Pacific, 1.2%; Other, 0.3%). After adjusting for sociodemographic correlates, there were no ethnic variations in suicidal ideation. However, Māori and Pacific people continued to have higher rates of making suicide plans and suicide attempts.

9.13 Conclusions

Te Rau Hinengaro includes the first population survey of mental disorders in a representative population of Māori, spanning adults aged from 16.

Chapter 9 presents findings of particular relevance to Māori. Findings described are aligned with Te Rau Hinengaro's aims, which are to describe: the prevalence and pattern of mental disorder among Māori; the impact and severity of disorder among Māori; and Māori patterns of health service use for mental disorders. In addition this chapter presents findings for suicidal behaviour and summarises a range of comparisons by ethnic group. A range of other analyses describing aspects of Māori mental health could be described, but this chapter represents the first analyses related to the survey's aims pertaining to Māori. Further analyses will be reported in the future.
Findings show that mental disorders, as defined and measured in Te Rau Hinengaro, are common, with 50.7% of Māori with at least one disorder over their life until the interview, 29.5% with at least one disorder in the past 12 months and 18.3% with one disorder over the past 30 days. Multiple disorders were also common. In the past 12 months, among Māori who had at least one disorder, 55.5% had only one disorder, 25.7% had two disorders and 18.8% had three or more disorders.

Analyses of severity and impairment of role have helped to describe the impact of mental disorder among Māori. With regards to severity, a high proportion of Māori with disorders met criteria for a serious disorder (29.6%) or moderate disorder (42.6%). Mood disorders in particular were found to have high levels of severity, with 51.4% considered serious and a further 37.4% moderate. These findings indicate that the high prevalence rates among Māori are not predominantly attributed to mild disorders.

The nature and level of role impairment are also consistent with findings that suggest mental disorders are not only common among Māori, but have considerable impact on Māori with disorder.

As a cross-sectional survey, it is not possible to determine what factors cause mental disorders among Māori. However, Te Rau Hinengaro has investigated some associations with mental disorder. Findings for demographic correlates are consistent with findings for the total population, with higher rates of disorder in females, the young and those with low incomes. The relationship between mental disorders and chronic physical conditions provides a foundation to consider the impact of physical health on mental ill health in Māori.

Analyses of health service use provide information about how need associated with poor mental health is being addressed in the health and non-health sectors. Among Māori with any disorder in the past 12 months, 32.5% had some contact with a service provider. This was divided among mental health specialist services (14.6%), general medical services (20.4%) and non-healthcare providers (9.1%).

Investigation of the relationship between severity of disorder and service contact or visits provides additional evidence for considering unmet mental health need among Māori with mental disorders. It has been possible to calculate the proportion of Māori who were considered to have a disorder in the past 12 months but who had not visited any health service for their mental health needs. Of Māori with serious disorder, 52.1% had no contact within the health sector. Of Māori with moderate disorders, 74.6% had no contact, and of Māori with mild disorder 84.3% also had no contact.

Findings for suicidal behaviour among Māori have a consistent pattern compared with those for prevalence of disorders, with higher rates of suicidal behaviour among younger age groups (16–24 and 25–44 years) and females compared with older groups and males.

The samples of Māori and Pacific populations within Te Rau Hinengaro have allowed comparisons to be made between the Māori, Pacific and Other groups. The analyses undertaken reinforce the view that Māori rates of mental disorder overall and for specific disorder groups are comparatively high. At least one 12-month disorder was present in 29.5% of Māori, 24.2% of Pacific people and 19.3% of the Other group and reinforces evidence of a disproportionate burden of mental disorder among Māori.

Adjusting for age, sex and socioeconomic correlates has been important for understanding factors that may contribute to ethnic differences. Although these differences decreased after adjustment, it has been an important finding that differences often remained (see 9.12). For example, ethnicity comparisons for 12-month disorder found for substance use disorders that ethnicity differences remain significant when adjusted for age, sex and socioeconomic correlates. Analyses of lifetime risk adjusted (for age and sex) showed when comparisons are made between Māori and Others, Māori have significantly higher hazard ratios for anxiety, mood, substance use and eating disorders. Comparisons with Pacific people show Māori have significantly higher hazard ratios for mood and substance use disorders.

Ethnic comparisons for suicidal behaviour show higher Māori and Pacific rates for suicide plans and attempts (unadjusted and adjusted) compared with rates for Others.

The range of findings from Te Rau Hinengaro, describing aspects of Māori mental health, suicidal behaviour and service use, have wide-ranging implications across a range of sectors including policy, service planning and delivery, clinical practice and research.

With regards to mental health promotion and prevention in Māori, there is no single causative factor for mental disorder and this study was not primarily designed to investigate causation. The data do enable association to be made between a range of variables so the relative significance of educational qualifications or household income can be assessed. In addition, these may be assessed alongside cultural variables such as proficiency in te reo Māori, access to marae and the extent of cultural knowledge. Investigating the pattern of the relationship between ethnicity and socioeconomic circumstances will further guide options for prevention. Analyses exploring these relationships are planned.

A key finding has been the important role of general medical services and primary care in providing services for Māori with mental disorders. These data provide a platform for further exploration for enhancing public health and primary care services to address Māori mental health needs.

10 Pacific People

Key results

- A total of 2,374 Pacific people were interviewed: 49.2% were Samoan; 20.7% were Cook Island Māori; 16.5% were Tongan; and 17.5% were other Pacific peoples.
- Pacific people experience mental disorders at higher levels than the general population. Twenty-five percent of Pacific people had experienced a mental disorder in the past 12 months and 46.5% had experienced a disorder at some stage during their lifetime.
- In the 12 months before the survey, 16.6% of Pacific people experienced a single disorder, 5.1% experienced two disorders and 3.3% experienced three or more disorders.
- Of Pacific people who experienced a mood disorder, 34.9% also experienced an anxiety disorder and 16.8% a substance use disorder. Of Pacific people who had a substance use disorder, 27.6% also had a mood disorder and 41.8% an anxiety disorder.
- Within the past 12 months, 5.9% of Pacific people had a serious disorder, 11.6% had a moderate disorder and 7.6% had a mild disorder.
- Pacific people had lower rates of mental health visits compared with other ethnic groups. Within the past 12 months, 25.0% of Pacific people with serious disorder had a mental health visit in the healthcare sector. The total New Zealand population with serious disorder was twice as likely to have had a mental health visit in the healthcare sector (58.0%).
- Of Pacific people aged 16–24 and 25–44, 21.1% and 20.4% respectively reported suicidal ideation over their lifetime. A suicide attempt within their lifetime was reported by 4.8% (almost 1 in 20) of Pacific people. In the past 12 months, 4.5% of Pacific people reported suicidal ideation, with 1.2% of Pacific people having made a suicide attempt.
- Of New Zealand-born Pacific people, 31.4% had a 12-month prevalence of any mental health disorder compared with 15.0% of Pacific people who migrated after the age of 18.

10.1 Introduction

10.1.1 Purpose of this chapter

This chapter analyses the results of Te Rau Hinengaro: The New Zealand Mental Health Survey with specific reference to Pacific people. It provides current epidemiological information about Pacific people that has not been previously available. In total, 2,374 Pacific people were interviewed.

To obtain sufficient numbers of Pacific people for estimating the prevalence of mental disorders a higher proportion of Pacific people were required for this survey. This was achieved by making it more likely that Pacific people would be sampled. This survey technique (called ‘oversampling’) is described in chapter 12 (see 12.5). In addition, the use of weights takes into account this method of sampling when estimating the total population prevalence. The large number of Pacific people surveyed also allowed for comparisons between the different Pacific Island groups now resident in New Zealand.

10.1.2 Content of this chapter

This chapter provides information for Pacific people on:

- Pacific participation (see 10.2)
- methodological issues for the Pacific analysis (see 10.3)
- the prevalence of mental disorders for Pacific people (see 10.4)
- comorbidity (see 10.5)
- the use of health services by Pacific people (see 10.6)
- disability related to mental disorder and Pacific people (see 10.7)
- correlates of mental disorder relevant to Pacific people (see 10.8)
- findings from intra-Pacific comparisons (see 10.9)
- findings for suicidal behaviour among Pacific people (see 10.10)
- findings for Pacific people compared with Māori and the Other composite ethnic group (see 10.11).

10.1.3 Demography of Pacific people

Pacific people make up 6.5% of the New Zealand population (Statistics New Zealand 2003). The Pacific population is growing rapidly and it is projected to increase by over 59% by 2018 (Statistics New Zealand 2003). One child in 10 is a Pacific child, but it is predicted that by 2051 this will have risen to one in five (Statistics New Zealand 2003).

The six main Pacific ethnic groups in New Zealand (ordered by size of population) are Samoan, Cook Island Māori, Tongan, Niuean, Fijian and Tokelauan, while the Tuvaluan, Society Islander and I-Kiribatian populations are increasing (Ministry of Pacific Island Affairs 2003). A growing proportion of Pacific people are descended from more than one ethnic group.

Historically, the Pacific population has grown through migration to New Zealand from neighbouring Pacific nations. However, as migration policies have changed, the continued rapid escalation is attributed to 'natural increase' (Cook et al 1999). Consequently, six in 10 Pacific people are born in New Zealand and Pacific people can no longer accurately be considered an 'immigrant population' (Tertiary Education Commission 2004).

Pacific people living in New Zealand share some important commonalities. However, it must be recognised there are disadvantages in treating the Pacific population as if it were a single, homogeneous entity (Macpherson 1996). This chapter provides information about Pacific people as a total population, known as a 'pan-Pacific' approach. However, ethnic comparisons are also made, providing specific information about Pacific ethnic groups and acknowledging intra-Pacific differences.

10.1.4 Mental health of Pacific people

It has long been recognised in New Zealand that a significant gap exists not only in national information about mental health disorders in the general population (Finau and Tukuitonga 1999), but more specifically in the Pacific populations now resident here (Foliaki 1997).

Previous epidemiological studies in New Zealand have had too few Pacific people to generate reliable prevalence estimates for major mental disorders (Oakley Browne et al 1989; Wells et al 1989a). The international literature, however, points towards migrants having a lower lifetime prevalence of mental disorders (Vega et al 1998), but immigrants have higher rates of hospitalisation for psychotic disorders, demonstrated in the United Kingdom (Harrison et al 1997), the Netherlands (Selten et al 1997; Selten et al 2001) and Sweden (Zolkowska et al 2001). National data on acute admissions of Pacific people to psychiatric and forensic institutions support these findings. In 2005, the Ministry of Health reported that Pacific people used community mental health services less, but had higher rates of admission to adult acute inpatient mental health units and forensic services (Ministry of Health 2005b).

What little is known about the prevalence of mental disorders among Pacific people in New Zealand has been drawn from the few prevalence studies performed in the Island nations (Allen and Laycock 1997) or from Pacific people's use of mental health services in New Zealand (Bridgeman 1996; Ministry of Health 2005b). In the absence of community data, admission rates to inpatient facilities have been relied on to estimate the burden of mental disorder in the Pacific population (Bridgeman 1996).

Before 1999 utilisation rates of mental health services by ethnic groups were seriously undercounted, because of the poor recording of ethnicity in official data sets. This led to inaccurate reporting of mental health service use among Pacific people, and also contributed to the perception that Pacific people do not use mental health services as much as other people. This encouraged the widely held view that Pacific people experience lower rates of mental illness compared with other groups in New Zealand (Bridgeman 1996).

Pacific people are characterised by a history of migration to New Zealand from Pacific Island nations. This has resulted in experiences of rapid acculturation and sociocultural change. Significantly, rapid sociocultural change has also been linked to concerns about mental illness among Pacific people and linked to the increase of risk-taking behaviour, such as drug and alcohol abuse (Bridgeman 1996; Ministry of Health 2005b).

The international literature indicates that social adversity is commonly associated with increased risk for psychiatric disorders (Dohrenwend 2000). It is well established that the relatively low socioeconomic status of Pacific people is an important determinant of poor health outcomes (Corbett 1999). Pacific people tend to be geographically clustered in low socioeconomic areas, often living in households with extended families and low incomes. In 2003 Pacific people were reported to have a real median annual income of $14,600, with 61% earning less than $20,000 (Statistics New Zealand 2003).

Evidence demonstrates health disparities between Pacific people and non-Pacific populations of New Zealand (Mental Health Commission 2004a; Ministry of Health 2005b).

Community studies in the United States (US) have not found higher rates of psychiatric disorders among disadvantaged racial and ethnic minority groups (Kessler et al 1994; Somervell et al 1989). In addition, in New Zealand rates of mental health service use appear to be lower in areas of relative wealth than in areas of high socioeconomic deprivation (Ministry of Health 2005b).

10.1.5 Te Rau Hinengaro: providing Pacific mental health information

Information about Pacific people and their mental health is lacking in New Zealand. Te Rau Hinengaro provides an important opportunity to analyse the prevalences of the major mental disorders and correlates of mental health among Pacific people. Importantly, the oversampling of Pacific people has also allowed ethnic-specific differences in psychiatric disorders among the major Pacific groups to be established. (For detailed information about oversampling, see 12.5.3.)

Te Rau Hinengaro also allows for analysing the severity and impact of mental disorders on Pacific individuals and their resulting service utilisation. This information will greatly enhance the capacity for improved planning and delivery of health services to address the various unmet mental health needs of Pacific people and their families.

10.2 Pacific participation

10.2.1 Pacific participation in the survey

An important feature of Te Rau Hinengaro was a decision at the outset to provide reliable estimates of the prevalence of mental disorders among Pacific people living in New Zealand. To ensure valid input from Pacific people four levels of active involvement occurred:

- a team of Pacific researchers
- a Pacific reference group to provide community input into the work undertaken
- Pacific interviewers included in the interviewing team
- Pacific people as survey participants: an oversample of Pacific participants was planned to ensure the sample would be large enough to provide reasonably precise estimates of prevalence and service use (see 12.5.3) and several community-level actions were taken to encourage participation by Pacific people.

10.2.2 Profiles of Pacific participants

In total 2,374 Pacific people were interviewed in Te Rau Hinengaro: 49.2% were Samoan; 20.7% were Cook Island Māori; 16.5% were Tongan; and 17.5% were from other Island groups. (Some participants were counted in each Island group they indicated.) Twenty-one percent (21.2%) of Pacific people spoke only English, 74.2% were multilingual and 4.4% spoke only their native language. The demographic characteristics of the Pacific sample closely reflect those of the Pacific groups in the wider New Zealand population.

There were slightly more female (52.0%) than male participants. The Pacific population was also younger than the total New Zealand population: 26.7% were aged 16–24 (compared with 15.7% for the total New Zealand population). The Pacific sample also had very few older people (5.5% compared with 15.1% for the total sample). Forty-two percent (42.1%) of the Pacific sample were New Zealand born and 11.8% were aged under 12 when they migrated to New Zealand.

Under half the median income was earned by 28.7% of Pacific people compared with 18.5% of the total New Zealand population. No educational qualification was held by 24.6% (almost one-quarter) of Pacific people compared with 18.5% of the total New Zealand population. Conversely, 28.7% of Pacific people had both a school and post-school qualification compared with 44.4% of the total New Zealand population.

Pacific people tended to live in larger households than other participants. One-quarter (23.8%) of Pacific households had more than seven people, compared with 3.6% overall. Pacific people surveyed lived in areas designated as being of high deprivation according to the small area descriptor of socioeconomic deprivation (NZDep2001). Fifty-nine percent of Pacific people lived in areas of high deprivation (ie, NZDep2001 deciles 9 and 10) compared with 18.0% overall.

10.3 Methodological issues for the Pacific analysis

10.3.1 Prioritisation of ethnic groups

In total 2,374 Pacific people were interviewed in Te Rau Hinengaro. Of these, 138 people were of mixed Pacific and Māori ethnic groups. In ethnic group comparisons in all other chapters of this report these 138 people have been excluded from the Pacific group and included in the Māori group. This is consistent with the priority ethnic group methodology used in official New Zealand statistics since 1991 (Statistics New Zealand 1997). For more information about prioritised ethnicity, see 12.12.1. Except for the analysis in 10.11, the analyses in the other sections of this chapter include all 2,374 Pacific participants. Section 10.11 compares Pacific, Māori and the Other composite ethnic group combined, as in the other chapters.

10.3.2 Adjusting for confounding variables

In 10.11 comparisons are made between Pacific, Māori and the Other group.

It is important to note that prevalences are presented here in three ways:

- the ‘unadjusted’ or actual prevalence rates for each group
- the prevalences as they would look if each ethnic group had the same age and sex structures (ie, the prevalences adjusted for age and sex)
- the prevalences as they would look if each ethnic group had the same age and sex structures and education and income levels (ie, the prevalences adjusted for age, sex, equivalised household income and educational qualifications).

Thus, the analyses look first at how much of the difference between ethnic groups is due to differences in the age and sex structure and, secondly how much is due to socioeconomic correlates. For more information about the method of adjustment, see 12.10.2.

10.4 Prevalence of mental disorders for Pacific people

This section begins with an analysis of prevalence rates of mental disorders among Pacific people, focusing on two time periods: prevalence over the past 12 months and prevalence over the lifetime. This is followed by an examination of the severity of disorders as well as an analysis of lifetime risk. Information about comorbidity, suicidal behaviour, use of mental health services, disability and correlates of mental illness for Pacific people is provided. The analyses are completed with comparisons of intra-Pacific ethnic differences.

10.4.1 Period prevalences of mental disorders for Pacific people

Table 10.1 shows that 46.5% of Pacific people had experienced a DSM-IV CIDI 3.0 mental disorder (see 1.10.1 and 1.10.2.) at some stage during their lifetime compared with 39.5% of the overall New Zealand population. Over the past 12 months 25.0% of Pacific people experienced a disorder compared with 20.7% of the total New Zealand population.

The most commonly reported lifetime disorders were anxiety disorders (27.7%), followed by mood disorders (19.0%) and substance use disorders (17.7%). Eating disorders among Pacific people were much less common over the lifetime (4.4%).

In the 12 months leading up to the survey, 16.2% of Pacific people experienced an anxiety disorder compared with 14.8% of the total New Zealand population. In addition, 8.6% of Pacific people experienced a mood disorder compared with 7.9% of the total New Zealand population, and 1.5% of Pacific people had an eating disorder, which was similar to that for the total New Zealand population. Slightly over 5% (5.3%) of Pacific people had a substance use disorder compared with 3.5% for the total New Zealand population.

In the 12 months before the survey 16.6% of Pacific people had a single disorder, 5.1% had two disorders and 3.3% had three or more disorders. This compares with 13.0%, 4.4% and 3.3% respectively for the total New Zealand population. In the lifetime of Pacific people 23.4% experienced a single disorder, 12.4% two disorders and 10.7% three or more disorders. This compares with 20.0%, 9.9% and 9.7% respectively for the total New Zealand population.

Table 10.1: Lifetime and 12-month prevalences of mental disorders for Pacific people

Disorder groups[1]	Lifetime prevalence % (95% CI)	Twelve-month prevalence % (95% CI)
Anxiety disorders		
Panic disorder	3.0 (2.2, 4.0)	1.7 (1.2, 2.4)
Agoraphobia without panic	2.0 (1.3, 3.1)	1.2 (0.7, 1.9)
Specific phobia	12.8 (10.9, 15.0)	8.2 (6.7, 10.0)
Social phobia	10.0 (8.3, 12.0)	5.8 (4.6, 7.5)
Generalised anxiety disorder	3.6 (2.7, 4.7)	1.4 (1.0, 2.0)
Post-traumatic stress disorder[2]	6.6 (5.0, 8.5)	2.4 (1.6, 3.4)
Obsessive–compulsive disorder[2]	1.1 (0.6, 1.8)	0.7 (0.3, 1.3)
Any anxiety disorder[2]	27.7 (24.7, 30.9)	16.2 (13.9, 18.8)
Mood disorders		
Major depressive disorder	10.5 (8.6, 12.7)	4.9 (3.6, 6.8)
Dysthymia	1.1 (0.7, 1.7)	0.5 (0.3, 0.9)
Bipolar disorder	8.3 (6.6, 10.3)	3.7 (2.8, 4.8)
Any mood disorder	19.0 (16.4, 21.8)	8.6 (6.8, 10.9)
Substance use disorders		
Alcohol abuse	17.0 (14.6, 19.6)	3.7 (2.8, 5.0)
Alcohol dependence	7.6 (6.1, 9.6)	3.4 (2.4, 4.7)
Drug abuse	6.1 (4.7, 8.0)	1.1 (0.7, 1.8)
Drug dependence	1.9 (1.3, 2.8)	0.7 (0.4, 1.3)
Marijuana abuse[3]	5.8 (4.5, 7.6)	1.1 (0.6, 1.7)
Marijuana dependence[3]	1.5 (1.0, 2.2)	0.4 (0.2, 0.9)
Any alcohol disorder	17.0 (14.7, 19.6)	4.7 (3.6, 6.2)
Any drug disorder	6.2 (4.7, 8.2)	1.5 (1.0, 2.3)
Any substance use disorder	17.7 (15.4, 20.4)	5.3 (4.1, 6.8)
Eating disorders		
Bulimia[2]	3.9 (2.7, 5.5)	1.5 (0.7, 2.6)
Any eating disorder[2]	4.4 (3.1, 6.2)	1.5 (0.7, 2.6)

Disorder groups[1]	Lifetime prevalence % (95% CI)	Twelve-month prevalence % (95% CI)
Any disorder[2]		
Any disorder[2]	46.5 (42.5, 50.5)	25.0 (21.8, 28.4)
One disorder[2]	23.4 (20.4, 26.7)	16.6 (13.9, 19.6)
Two disorders[2]	12.4 (10.3, 14.9)	5.1 (4.0, 6.5)
Three disorders[2]	10.7 (8.7, 13.0)	3.3 (2.5, 4.4)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1. For severity, see 2.3 and 12.12.3.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 Those with a marijuana disorder are a subgroup of those with a drug use disorder. They may or may not have met criteria for abuse or dependence on other drugs.

10.4.2 Prevalence and severity of disorders in the past 12 months, by age and sex

Te Rau Hinengaro estimates that 25.0% of Pacific people will meet criteria for a DSM-IV mental disorder in a 12-month period. This is slightly higher than for the total New Zealand population, but lower than some prevalence estimates in overseas communities (Kessler et al 1994).

Table 10.2 indicates that younger Pacific people are more likely to experience any mental disorder compared with older Pacific people (p =.009). Younger Pacific people were also more likely to experience a mental disorder classified as serious than older Pacific people (p=.04). This is consistent with findings for the overall New Zealand population.

The survey found that 26.7% (23.0, 31.7) of Pacific females were classified as meeting criteria for disorder in the past 12 months compared with 22.0% (18.1, 28.0) of Pacific males, but this result was not statistically significant. No statistical difference existed between Pacific males and Pacific females who reported having a serious disorder (5.4% (3.8, 7.6) compared with 6.4% (4.8, 8.4)).

Table 10.2: Twelve-month prevalence of disorder and severity for Pacific people, by age group[1,2]

Age group (years)	Twelve-month prevalence % (95% CI)	Percentage with serious disorder % (95% CI)
16–24	29.0 (22.0, 37.0)	7.5 (4.4, 11.9)
25–44	27.1 (22.7, 31.9)	6.1 (4.6, 8.0)
45–64	17.3 (13.4, 22.1)	4.2 (2.2, 7.0)
65 and over	16.1 (8.4, 26.9)	2.3 (0.2, 8.4)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 For severity see 2.3 and 12.12.3.

10.4.3 Lifetime prevalence and lifetime risk

The lifetime prevalence is the prevalence of mental illness occurring in a group of people across their lifetime up to the time they were interviewed. (Overall lifetime prevalence estimates for individual disorders are presented in Table 4.1.) As shown in Table 10.1, 46.5% of Pacific people had experienced a mental illness in their lifetime at the time of interview. Similar to the findings for 12-month prevalence, age continues to be important for lifetime prevalence, with higher rates of disorders in the younger age groups ($p < .0001$).

When broken down by diagnosis there are significant differences between the sexes (Table 10.3). Pacific females have higher anxiety and mood disorders than males ($p < .0001$) and Pacific males have higher substance use disorders than females ($p < .0001$).

Table 10.3: Lifetime prevalence of mental disorders[1] for Pacific people, by age and sex

	Total % (95% CI)	Age group (years) % (95% CI)				Sex % (95% CI)	
		16–24	25–44	45–64	65 and over	Male	Female
Any anxiety disorder[2]	27.7 (24.7, 30.9)	29.1 (22.7, 36.3)	32.3 (27.6, 37.5)	18.6 (14.5, 23.6)	15.7 (8.0, 26.7)	24.6 (19.9, 29.9)	30.7 (26.1, 35.7)
Any mood disorder	19.0 (16.4, 21.8)	18.1 (12.9, 24.8)	22.7 (19.0, 26.9)	13.2 (9.6, 18.0)	13.4 (7.0, 22.3)	14.8 (11.3, 19.2)	22.8 (19.8, 26.1)
Any substance use disorder	17.7 (15.4, 20.4)	19.6 (15.4, 24.7)	22.2 (18.6, 26.3)	9.2 (6.6, 12.8)	3.5 (1.3, 7.5)	24.4 (20.3, 29.1)	11.6 (9.4, 14.1)
Any eating disorder[2]	4.4 (3.1, 6.2)	3.0 (1.0, 6.7)	6.6 (4.2, 10.1)	2.3 (0.9, 4.6)	0.9 (0.0, 6.3)	2.8 (1.5, 4.8)	5.9 (3.8, 9.2)
Any disorder[2]	46.5 (42.5, 50.5)	44.0 (35.8, 52.6)	57.2 (50.5, 63.6)	30.0 (23.9, 37.0)	29.0 (17.3, 43.3)	46.7 (40.3, 53.3)	46.2 (40.4, 52.1)
No disorder[2]	53.5 (49.5, 57.5)	56.0 (47.4, 64.2)	42.8 (36.4, 49.5)	70.0 (63.0, 76.1)	71.0 (57.0, 81.8)	53.3 (46.7, 59.7)	53.8 (47.9, 59.6)
One disorder[2]	23.4 (20.4, 26.7)	20.3 (14.6, 27.5)	28.1 (23.1, 33.6)	17.4 (12.6, 23.6)	21.8 (12.2, 34.3)	24.5 (19.5, 30.2)	22.4 (18.3, 27.0)
Two disorders[2]	12.4 (10.3, 14.9)	14.0 (9.5, 20.1)	15.3 (12.0, 19.3)	6.4 (3.9, 9.7)	2.5 (0.3, 8.8)	11.5 (8.4, 15.3)	13.3 (10.2, 17.2)
Three or more disorders[1]	10.7 (8.7, 13.0)	9.8 (5.8, 15.1)	13.8 (10.8, 17.5)	6.3 (3.9, 9.6)	4.7 (1.0, 13.2)	10.8 (7.7, 15.0)	10.5 (8.4, 13.1)

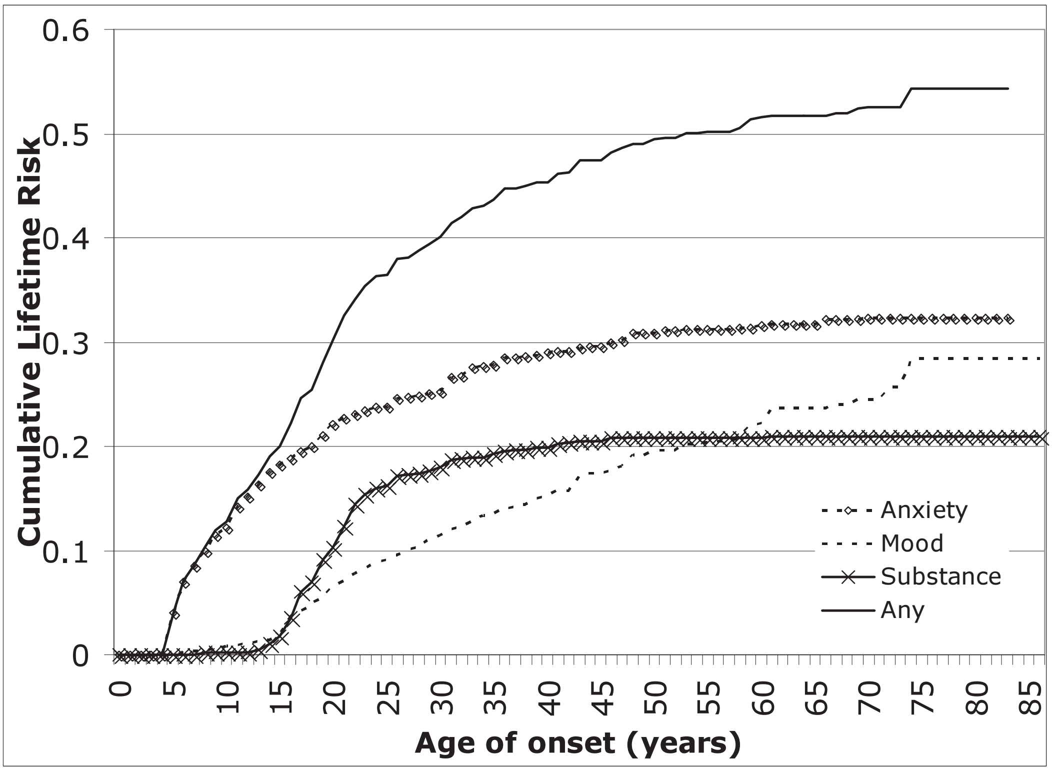
[1] DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

[2] Assessed in the subsample who did the long form of the interview, see 12.4.2.

Estimated lifetime risk is a projected estimate of the proportion of people in the population who would ever have experienced a disorder by the end of their lifetime (Kessler et al 1994) or by a specific age such as 75 years (see 4.1.3). Figure 10.1 shows the cumulative lifetime risk of mental illness occurring among Pacific people, by age. From the age of onset these curves increase as more individuals experience a disorder. They do not convey any information about continued disorder or repeated episodes.

There are clear differences in the pattern of onset between disorder groups. For example, the onset of mood disorders can occur throughout adult life, with 6.4% of Pacific people experiencing a mood disorder by age 20, 15.2% by age 40 and 22.3% by age 60. In contrast, the onset of anxiety disorders in Pacific people often occurs earlier, between ages 5 and 15. For substance use disorders, a very marked period of onset exists between 15 and 25 years with almost no further onset after age 40.

Figure 10.1: Cumulative lifetime risk, by disorder



10.5 Comorbidity

10.5.1 Comorbidity among Pacific people

The term 'comorbidity' refers to the co-occurrence of two or more mental disorders within one individual or the co-occurrence of a mental disorder and a physical disorder within one individual. Comorbidity, particularly among mental health service clients, has long been an issue (Andrews 1996). The most prominent is the comorbidity of clients with a mental illness and a substance use disorder, leading to the development of specialist services for dual diagnosis: substance abuse and mental illness. It is also well documented that many people experiencing a chronic physical condition also experience a mental illness (Davidson et al 2001).

Table 10.1 shows the proportion of Pacific people with one disorder (16.6%), two disorders (5.1%), three or more disorders (3.3%) over the past 12 months. Table 10.4 shows further detail about mental comorbidity among Pacific people in New Zealand. It shows that the patterns of comorbidity seen in the total New Zealand population are similar to those seen for Pacific people. Some differences exist, however, with Pacific people who have anxiety and mood disorders experiencing lower rates of comorbid substance abuse than the total New Zealand population.

Table 10.4: Percentage of comorbid mental disorder[1] for Pacific people in the past 12 months

Disorder group	Any anxiety disorder[2] % (95% CI)	Any mood disorder % (95% CI)	Any substance use disorder % (95% CI)
Any anxiety disorder[2]		18.6 (14.4, 23.7)	13.7 (9.5, 19.4)
Any mood disorder	34.9 (26.0, 44.9)		16.8 (10.5, 25.7)
Any substance use disorder	41.8 (30.2, 54.3)	27.6 (17.9, 40.0)	
Any disorder[2]	64.8 (57.9, 71.1)	34.6 (28.5, 41.2)	21.2 (16.5, 26.8)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

10.5.2 Comorbidity between substance use disorders among Pacific people

Table 10.5 provides more detail on comorbidity within the substance use category. From this we see that comorbidity of substance use disorders is common, in particular the overlap of alcohol and drug dependence. Some 34.3% of those experiencing alcohol dependence also reported drug abuse symptoms in the past 12 months, and 28.6% met criteria for drug dependence compared with 28.1% of the total New Zealand population (see Table 5.3). For those with drug use disorders, even greater proportions had alcohol use comorbidity. Fifty-four percent (53.7%) of those with drug dependence also reported alcohol abuse symptoms in the past 12 months, and 57.3% of those with drug dependence were alcohol dependent.

Table 10.5: Percentage of Pacific people with 12-month comorbid substance use disorders[1]

	Comorbid drug use disorder % (95% CI)					
	Alcohol abuse	**Alcohol dependence**	**Any alcohol disorder**	**Drug abuse**	**Drug dependence**	**Any drug use disorder**
Alcohol abuse		46.8 (37.7, 56.1)		28.0 (19.6, 38.3)	15.6 (9.2, 25.2)	30.7 (21.8, 41.3)
Alcohol dependence	80.6 (70.2, 87.9)			34.3 (23.0, 47.6)	28.6 (18.1, 42.3)	36.3 (24.8, 50.0)
Any alcohol use disorder	89.9 (83.9, 93.8)	52.2 (43.4, 60.8)		28.8 (20.8, 38.2)	17.0 (10.8, 25.8)	31.2 (22.8, 50.0)
Drug abuse	50.4 (37.0, 63.9)	35.8 (24.1, 49.5)	57.6 (43.7, 70.3)		45.1 (32.1, 58.9)	
Drug dependence	53.7 (35.1, 71.4)	57.3 (38.3, 74.3)	65.2 (45.9, 80.5)	86.3 (69.6, 94.6)		
Any drug use disorder	51.6 (38.4, 64.5)	35.4 (24.3, 48.3)	58.3 (44.9, 70.6)	93.3 (84.4, 97.3)	48.8 (36.1, 61.6)	
Any substance use disorder	73.5 (65.6, 80.1)	42.7 (35.1, 50.6)	81.8 (74.1, 87.5)	40.8 (32, 6, 49.6)	21.3 (15.1, 29.2)	43.7 (35.3, 52.6)

1 DSM-IV CIDI 3.0 substance use disorders, see 12.4.1.

10.5.3 Comorbidity between chronic physical condition and mental disorders

For New Zealand overall, Table 5.9 shows that people with chronic physical conditions experience higher rates of mental disorders than people without physical conditions. Table 10.6 shows a similar pattern among Pacific people with chronic conditions particularly for anxiety and mood disorders, although confidence intervals are wide because of the small numbers with some physical conditions.

Table 10.6: Prevalence of 12-month mental disorder[1] among Pacific people with chronic physical conditions, adjusted for age and sex

Chronic physical condition	Any anxiety disorder[2] % (95% CI)	Any mood disorder % (95% CI)	Any substance use disorder % (95% CI)	Any disorder[2] % (95% CI)
Chronic pain[3]	23.7 (18.4, 28.9)	12.5 (8.6, 16.5)	6.9 (4.0, 9.8)	35.2 (28.2, 42.1)
Cardiovascular disease	26.9 (13.4, 40.4)	11.6 (2.9, 20.3)	4.8 (0.0, 12.4)	36.0 (20.5, 51.5)
High blood pressure	26.9 (17.1, 36.8)	11.6 (5.0, 18.1)	3.9 (0.0, 8.4)	33.6 (22.8, 44.5)
Respiratory conditions[4]	16.3 (11.2, 21.5)	19.4 (11.3, 27.5)	8.5 (3.9, 13.1)	33.0 (23.1, 42.9)
Diabetes	22.7 (7.0, 38.5)	10.2 (2.7, 17.6)	1.9 (0.0, 4.4)	30.1 (14.1, 46.0)
Cancer	24.9 (7.4, 42.3)	23.0 (6.0, 40.1)	4.7 (0.0, 12.0)	44.0 (22.7, 65.4)
No chronic condition	13.0 (9.8, 16.2)	5.8 (3.9, 7.6)	4.8 (3.1, 6.6)	19.8 (15.9, 23.7)

1 DSM-IV CIDI 3.0 disorders, see 12.4.1.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 Chronic pain: arthritis or rheumatism; chronic back or neck pain; frequent or severe headaches; any other chronic pain.

4 Respiratory conditions: asthma; chronic obstructive pulmonary disease; emphysema; other chronic lung disease.

10.6 Health service use

In 2001, according to Ministry of Health reports, about 1.8% of Pacific people used a mental health service compared with 2.2% of the total New Zealand population (Ministry of Health 2005b). Compared with the total population, Pacific people used community mental health services less often, were slightly more likely to use acute inpatient services, and 70% more likely to enter forensic services (Ministry of Health 2005b). In addition, although the number of acute episodes per Pacific client tends to be less than the number per New Zealander, the length of stay in an inpatient unit per episode of illness is about four days longer (Ministry of Health 2005b).

Furthermore, while Pacific people are less likely than the total population to use alcohol or other drug services, Pacific people aged 15–19 appear to use these services as much as other New Zealanders aged 15–19.

Te Rau Hinengaro shows only small differences between Pacific people and the total New Zealand population with regard to the prevalence of serious mental disorder (5.9% compared with 4.7% (4.2, 5.2)). However, Pacific people with the most serious disorders were less likely to have had a mental health visit; that is, visited any health service for a mental health reason.

Table 10.7 shows 25.0% of Pacific people who had experienced a serious mental disorder had visited any health service for their mental health reason compared with 58.0% (53.3, 62.6) of the total New Zealand population. Of Pacific people who had experienced a moderate mental disorder, 26.5% had a mental health visit compared with 36.5% (32.9, 40.4) of the total New Zealand population.

The lower estimates of Pacific people receiving treatment for severe and moderate mental disorders support previously documented evidence showing the rate of Pacific people in New Zealand receiving treatment was 35% lower than the rate for the total New Zealand population (Ministry of Health 2005b).

The results above show that Pacific people's mental health visits are low. Chapter 9 shows that when comparing across Pacific, Māori and Other (ie, non-Māori non-Pacific) ethnic groups for any visit for a mental health reason, significant differences exist across the three ethnic groups (Baxter et al in press). Without adjustment, 25.4% (19.4, 31.4) of Pacific people with a disorder made a mental health visit compared with 32.5% (28.3, 36.7) of Māori and 41.1% (38.1, 44.1) of Others. For pairwise comparisons, Pacific people have lower percentages of visits than Others ($p < .0001$); and, while Pacific people have lower percentages of visits than Māori, this difference approaches, but does not reach, statistical significance ($p = .06$).

Adjustment by age and sex alone or by age, sex, educational qualification and equivalised household income leads to minimal changes in these percentages and no change in the significance of the difference between them. This means that, unlike the pattern for prevalence, some reason exists for Pacific people not using health services for mental health reasons that is not accounted for by the Pacific population structure.

Table 10.7: Severity, days out of role and percentage with a mental health visit in the past 12 months among Pacific people

	Twelve-month disorder[1] % (95% CI)			
	Serious	**Moderate**	**Mild**	**None**
Prevalence (%)	5.9 (4.7, 7.3)	11.6 (9.2, 14.5)	7.6 (6.0, 9.4)	75.0 (71.6, 78.2)
Mean days out of role due to disorder	64.0 (41.7, 86.2)	23.4 (10.5, 36.2)	1.3 (0.0, 3.1)	7.5 (2.6, 12.5)
Percentage with at least one mental health visit in the healthcare sector (%)	25.0 (16.9, 35.4)	26.5 (18.0, 37.1)	12.9 (6.1, 23.1)	4.3 (3.1, 5.9)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1. For severity, see 2.3 and 12.12.3.

Table 10.8 shows the services used by Pacific people with disorder compared with Pacific people without a disorder. It also shows that Pacific people with a serious disorder were no more likely to use health services as Pacific people with a moderate disorder.

Table 10.8: Twelve-month mental health service use in separate service sectors, by 12-month anxiety, mood, substance use and eating disorders among Pacific people

	Healthcare % (95% CI)					Non-healthcare % (95% CI)			Any service use % (95% CI)
	Mental health specialty			General medical[1]	Any healthcare provider	Human services	Complementary and alternative medicine[2]	Any non-healthcare provider	
	Psychiatrist	Other mental health specialist	Any mental health specialist						
Type of disorder group[3]									
Any anxiety disorder	3.5 (1.6, 6.8)	5.9 (2.8, 10.8)	8.6 (5.3, 13.8)	14.2 (10.0, 19.7)	19.5 (14.6, 25.6)	2.6 (1.3, 4.7)	4.7 (2.0, 9.2)	6.9 (3.9, 11.4)	22.2 (17.0, 28.5)
Any mood disorder	5.3 (1.5, 13.1)	7.9 (4.2, 13.4)	12.1 (6.4, 20.2)	25.5 (16.5, 37.1)	31.8 (22.3, 43.1)	3.8 (1.7, 7.2)	11.1 (3.0, 26.5)	14.1 (6.4, 28.2)	36.1 (26.4, 47.0)
Any substance use disorder	9.7 (2.5, 23.7)	8.3 (3.4, 16.2)	16.8 (7.7, 30.0)	17.9 (9.5, 29.5)	31.8 (20.9, 45.1)	5.0 (1.9, 10.5)	6.3 (1.4, 16.9)	10.2 (4.2, 20.0)	35.6 (24.8, 48.2)
Any eating disorder	1.0 (0.0, 15.0)	5.0 (0.3, 21.3)	5.0 (0.3, 21.3)	11.0 (2.2, 29.5)	11.0 (2.2, 29.5)	0.0 (0.0, 10.9)	2.9 (0.0, 18.2)	2.9 (0.0, 18.2)	11.0 (2.2, 29.5)
Composite									
Any disorder	3.7 (1.8, 6.9)	6.0 (3.7, 9.5)	9.0 (6.1, 13.2)	16.2 (11.8, 21.7)	22.0 (17.1, 27.9)	2.8 (1.6, 4.5)	5.6 (2.8, 11.0)	8.0 (4.8, 13.0)	25.1 (20.0, 31.1)
No disorder	0.8 (0.3, 1.7)	0.8 (0.3, 1.6)	1.4 (0.7, 2.4)	3.5 (2.5, 5.1)	4.3 (3.1, 5.9)	1.1 (0.5, 2.1)	0.3 (0.0, 0.9)	1.3 (0.6, 2.3)	5.3 (3.9, 7.0)
Total sample	1.4 (0.8, 2.2)	1.9 (1.3, 2.7)	3.0 (2.2, 4.0)	6.5 (5.2, 8.1)	8.2 (6.8, 10.0)	1.3 (0.9, 2.0)	1.8 (1.0, 3.3)	3.0 (2.0, 4.4)	9.7 (8.2, 11.5)
Severity[4]									
None	0.8 (0.3, 1.7)	0.8 (0.3, 1.6)	1.4 (0.7, 2.4)	3.5 (2.5, 5.1)	4.3 (3.1, 5.9)	1.1 (0.5, 2.1)	0.3 (0.0, 0.9)	1.3 (0.6, 2.3)	5.2 (3.9, 7.0)
Serious	8.6 (2.3, 20.8)	8.0 (4.3, 13.4)	15.7 (8.1, 26.4)	13.6 (8.2, 20.7)	25.0 (16.9, 35.4)	4.5 (1.9, 9.0)	8.8 (2.6, 20.5)	12.5 (5.5, 23.3)	29.9 (20.8, 41.1)
Moderate	2.9 (1.2, 5.8)	5.4 (2.4, 10.3)	7.2 (3.7, 12.4)	23.2 (15.1, 33.9)	26.5 (18.0, 37.1)	3.1 (1.3, 6.0)	6.1 (1.2, 17.7)	8.7 (2.9, 19.0)	29.4 (20.7, 40.0)
Mild	1.2 (0.1, 5.5)	5.3 (0.7, 17.3)	6.5 (1.4, 17.9)	7.4 (3.6, 13.2)	12.9 (6.1, 23.1)	1.1 (0.1, 4.3)	2.5 (0.6, 6.5)	3.5 (1.2, 7.9)	15.0 (7.8, 25.2)

1 The general medical sector includes nurses and other healthcare professionals as well as doctors.

2 CAM includes self-help groups.

3 DSM-IV CIDI 3.0 disorders with hierarchy.

4 For severity, see 2.3 and 12.12.3.

10.7 Disability

Chapter 6 explains how the World Health Organization's Disability Assessment Scale II (WHO-DAS-II) has been used to calculate the number of days of impairment and shows how these were used to compare the number of days out of role in the past 30 days. Table 10.9 shows the results for each of the four questions that make up the role impairment domain of the WHO-DAS-II.

The proportion of the Pacific people who reported 1–5 or six or more days completely out of role was 16.8% (11.2% plus 5.6%); 17.1% reported days when the amount accomplished was cut down, 13.2% reported days when quality was reduced and 15.4% reported days when role performance took extreme effort. A smaller proportion of the population reported days completely out of role due to mental health problems (5.2%), with at least 8.6% reporting days cut down and 8.2% days where it took extreme effort due to mental health problems. Presumably much of the impairment due to non-mental health problems is the result of the high prevalence of relatively minor physical ailments such as colds and influenza.

Table 10.9: Distribution of the number of days in the past 30 days with role impairment for Pacific people due to health problems, in total and specifically attributed to mental health problems[1,2]

		Days with impairment in past 30 days % in each category % (95% CI)		
		Zero days	**One to five days**	**Six or more days**
Days completely out of role	All health	83.2 (80.2, 85.8)	11.2 (8.9, 14.1)	5.6 (4.4, 7.1)
	Mental health	94.9 (93.2, 96.2)	3.9 (2.8, 5.4)	1.3 (0.7, 2.3)
Days cut down amount	All health	82.9 (79.9, 85.5)	10.7 (8.5, 13.3)	6.4 (5.0, 8.3)
	Mental health	91.5 (89.0, 93.5)	6.7 (4.9, 9.0)	1.9 (1.1, 3.2)
Days cut back on quality[3]	All health	86.8 (84.2, 89.0)	8.3 (6.5, 10.6)	4.9 (3.8, 6.4)
Days it took extreme effort	All health	84.6 (81.8, 87.0)	9.7 (7.8, 12.1)	5.7 (4.4, 7.4)
	Mental health	91.8 (89.5, 93.6)	7.0 (5.3, 9.2)	1.2 (0.7, 2.1)

1 Mental health problems included those resulting from the use of alcohol or other drugs.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 This question did not ask the respondent to specify whether the impairment was due to mental health problems.

10.8 Correlates of mental illness

10.8.1 Socioeconomic correlates

Education and income

Table 10.10 shows that for Pacific people neither educational qualifications nor equivalised household income had a significant impact on the prevalence (p = .4 and p = .5, respectively) or severity of mental disorder (p = .1 and p = .2). This contrasts with overseas studies that tend to support Australian findings that poorer groups in society experience higher prevalences of mental illness (Dohrenwend 2000). However, it is indirectly consistent with the results shown below by geographic deprivation.

Deprivation

In New Zealand the use of mental health services has been reported as higher among Pacific people who live in areas with low NZDep2001 scores (ie, in relatively less deprived areas). This differs from the total New Zealand population whereby people living in low NZDep2001 areas use fewer mental health services (Ministry of Health 2005b).

Te Rau Hinengaro shows that 12-month prevalence rates appear higher among Pacific people living in areas of low deprivation compared with Pacific people living in areas of high deprivation, although this result was not statistically significant (p = .3).

Table 10.10: Socioeconomic correlates, by 12-month prevalence, severity and mental health visits for Pacific people

	Disorders % (95% CI)		
	Twelve-month prevalence[2,3]	Serious disorder[2,3]	Made a mental health visit[4]
Educational qualification[1]			
None	25.6 (19.3, 33.1)	5.4 (3.3, 8.1)	4.2 (1.4, 9.5)
School or post-school only	25.9 (21.7, 30.7)	7.0 (5.1, 9.5)	12.4 (7.4, 20.1)
Both school and post-school	22.7 (17.8, 28.6)	4.4 (2.6, 7.0)	7.3 (3.1, 14.2)
Equivalised household income[1]			
Under half of median	29.9 (23.5, 37.2)	6.9 (4.8, 10.0)	9.9 (4.8, 17.5)
Half median to median	21.9 (17.7, 26.8)	5.3 (3.4, 7.8)	9.6 (4.4, 17.6)
Median to one and a half times median	24.1 (17.9, 31.6)	4.9 (2.4, 8.7)	8.6 (2.0, 22.4)
One and a half times median and over	22.2 (15.4, 31.0)	6.0 (2.7, 11.1)	2.9 (0.3, 11.3)
Total	25.0 (21.8, 28.4)	5.9 (4.7, 7.3)	9.0 (6.1, 13.2)

1 Sociodemographic correlates are defined in 12.12.1.

2 DSM-IV CIDI 3.0 disorders, see 12.4.1. For severity, see 2.3 and 12.12.3.

3 Assessed in the subsample who did the long form of the interview, see 12.4.2.

4 Visit to any mental health specialist by those with 12-month mental disorder.

10.8.2 Migration

There have been no New Zealand-based migration studies undertaken on the prevalence of mental disorder among Pacific immigrants. Most studies on the prevalence of mental illness among migrant populations have been carried out overseas. A US-based prevalence study of Hispanic migrants showed 12-month prevalence rates of 32% for any disorder, 21% for anxiety disorders, 13% for mood disorders and 11% for substance abuse and dependence. This compared with 32%, 19%, 11% and 12% respectively for the non-Hispanic white population (Breslau et al 2005).

Table 10.11 shows a significant difference between 12-month prevalence rates of Pacific people depending on whether they were born in New Zealand or migrated from the Pacific as children or adults ($p < .0001$). Of New Zealand-born Pacific people, 31.4% had a mental disorder in the past 12 months compared with 15.1% of Pacific people who migrated at age 18 and over. Age at the time of migration was significantly related to the prevalence of serious disorder: 6.7% of New Zealand-born Pacific people compared with 3.7% of Pacific people who migrated at age 18 and over had a serious mental disorder ($p = .01$).

Table 10.11 shows a significant difference between the 12-month prevalence of mental health service visits of Pacific people born in New Zealand and the age at which people migrated from the Pacific (p = .007). Of New Zealand-born Pacific people, 13.4% had visited a mental health service in the previous 12 months compared with 1.6% of Pacific people who had migrated when aged under 12.

A strong relationship existed between age at interview and age at migration: almost all (93.6%) of the New Zealand-born population were aged under 45 compared with 47.1% of those who had migrated at age 18 and over. Nonetheless, adjustment for age and sex had little impact on the prevalences reported for age at migration (Table 10.11) and no effect on the pattern of results. Age at migration and time since migration were also related, and in a joint analysis of any disorder in the past 12 months, age at migration remained influential while time since migration did not. This indicates that age at migration is the more important correlate.

Table 10.11: Twelve-month prevalence, severity and treatment of disorders for Pacific people, by age at migration

Age at migration	Twelve-month prevalence % (95% CI)	Serious disorder[1,2] % (95% CI)	Sought mental health treatment[3] % (95% CI)
New Zealand born	31.4 (26.2, 37.1)	6.7 (4.7, 9.5)	13.4 (8.3, 21.3)
Under 12 years	29.2 (20.4, 39.8)	8.0 (4.6, 13.5)	1.6 (0.4, 8.0)
12–17 years	19.5 (12.6, 29.1)	6.7 (3.7, 12.0)	10.8 (4.9, 24.7)
18 years and over	15.1 (12.0, 18.9)	3.7 (2.4, 5.4)	3.6 (1.6, 9.0)

1 For severity, see 2.3 and 12.12.3.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

3 Visit to any mental health specialist by those with 12-month mental disorder.

10.8.3 Language barriers to survey responses

The 2001 New Zealand Census of Population and Dwellings reported that 8% of Pacific people in New Zealand did not speak English compared with 4% of Pacific people in this survey.

Although no individual requested an interpreter, Pacific people were four times more likely to require assistance from the interviewer or a family member when responding to the survey compared with non-Pacific participants.

Cook Island Māori were more likely to be English-only speakers (46%), while Samoan and Tongan participants were more likely to be bilingual (81% and 83% respectively) (see 12.5.1).

Table 10.12 shows that Pacific people who could speak only English had a 12-month prevalence rate for any disorder of 37.5%. Pacific people who could speak more than one language had a lower 12-month prevalence rate of 21.7% ($p < .05$). There is no significant difference between English-only and multilingual Pacific people in relation to who visited a mental health service ($p = .1$). However, this will be looked at in more detail in future analyses.

Table 10.12: Twelve-month prevalence, severity and treatment of disorders for Pacific people, by language proficiency

Language proficiency	Twelve-month prevalence[1] % (95% CI)	Serious disorder[1,2] % (95% CI)	Sought mental health treatment[1] % (95% CI)
English-only speaker	37.5 (29.4, 46.2)	6.9 (4.1, 10.7)	11.2 (5.0, 20.6)
Pacific language-only speaker	29.7 (14.8, 48.6)	0.5 (0.0, 6.3)	1.2 (0.0, 16.4)
Multilingual speaker	21.7 (18.7, 24.9)	5.9 (4.6, 7.6)	8.6 (5.2, 13.9)
Total	25.0 (21.8, 28.4)	5.9 (4.7, 7.3)	9.0 (6.1, 13.2)

1 DSM-IV CIDI 3.0 disorders, see 12.4.1. For severity, see 2.3 and 12.12.3.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

10.9 Findings from intra-Pacific comparisons

Pacific people were oversampled in this study to enable intra-Pacific comparisons (ie, comparisons among Pacific Island groups). This section explains the composition of the Pacific sample, then looks at patterns of mental disorder among the various Pacific Island groups. The comparison by larger Pacific ethnic groups within New Zealand is performed at a general level.

The differences in the levels of prevalence in each Pacific Island group may be influenced by factors that cannot be adjusted for in this analysis, such as migration experiences, socioeconomic status and education levels. This section also examines results on suicidal behaviour by Pacific ethnic groups.

10.9.1 Composition of Pacific Island groups

The majority of the participants were Samoan (49.2%), Cook Island Māori (20.7%) and Tongan (16.5%). This reflects the pattern in the general Pacific population in New Zealand. The remaining Pacific peoples (13.5%) were grouped into an 'Other' Pacific group because there were insufficient numbers for each group to be analysed individually. Most people in the Other Pacific group were Niuean, with smaller numbers of Tokelauan and Fijian people. Each of the larger three Pacific Island groups had a similar age and sex profile to each other.

10.9.2 Twelve-month prevalence of disorder: comparison of Pacific Island groups

Table 10.13 shows a breakdown of 12-month prevalence by disorder for the four Island groups described above compared with the total Pacific population.

Cook Island Māori have the highest rate (29.3%) of any mental disorder, followed by Other Pacific people (25.5%), Samoans (24.5%) and Tongans (19.6%). The results are not statistically significant, but the pattern is consistent throughout the individual disorder groups.

Table 10.13: Twelve-month prevalence of disorders for Pacific people, by Pacific Island group[1]

	Island % (95% CI)				Total Pacific population % (95% CI)
	Samoa	Cook Islands	Tonga	Other	
Any disorder[2]	24.5 (20.4, 29.2)	29.3 (22.5, 37.1)	19.6 (13.5, 27.5)	25.5 (18.0, 34.8)	25.0 (21.8, 28.4)
Any anxiety disorder[2]	15.5 (12.6, 19.0)	18.0 (13.3, 23.9)	13.2 (8.0, 20.3)	18.7 (13.0, 26.1)	16.2 (13.9, 18.8)
Any mood disorder	8.3 (6.4, 10.6)	12.1 (7.8, 18.4)	6.7 (3.9, 10.6)	8.8 (4.6, 16.1)	8.7 (6.9, 11.0)
Any alcohol disorder	4.6 (3.2, 6.6)	7.8 (4.7, 12.6)	4.9 (2.0, 9.9)	1.4 (0.5, 3.2)	4.7 (3.6, 6.2)
Any drug disorder	1.3 (0.7, 2.4)	2.9 (1.2, 5.9)	1.1 (0.1, 4.0)	0.5 (0.1, 1.8)	1.5 (1.0, 2.3)

1 DSM-IV CIDI 3.0 disorders, see 12.4.1.

2 Assessed in the subsample who did the long form of the interview, see 12.4.2.

10.10 Suicidal behaviour among Pacific people

Suicide is a growing problem for Pacific people in their homelands, with more people dying from suicide than from tuberculosis in the Pacific Islands (Baravilala 2001). The possible negative effects of migration and the subsequent sociocultural disintegration and low socioeconomic status have led to concern that suicidal behaviours may have increased further in Pacific people now resident here in New Zealand (Foliaki 1997).

New Zealand national data indicate that for completed Pacific suicide, the age-adjusted rate is slightly lower than the rate for non-Pacific people (8.3 per 100,000 population compared with 13.5 per 100,000) (Ministry of Health 2005b). Table 10.14 shows estimated lifetime and 12-month prevalence of suicidal ideation and suicide attempt for Pacific people, by sex.

10.10.1 Lifetime and 12-month prevalence of suicidal behaviour

The estimated lifetime prevalence of suicidal ideation for Pacific people was 16.9%, compared with an overall population rate of 15.7% (14.9, 16.6). Pacific females had higher rates of suicidal ideation than Pacific males (19.3% compared with 14.3%, $p = .03$). The difference between the sexes is consistent with findings for the total New Zealand population. Lifetime suicidal ideation decreases with age, with the group aged 16–24 having the highest rates of suicidal ideation ($p < .0001$).

The estimated 12-month prevalence of suicidal ideation for Pacific people was 4.5%, with 1.2% having attempted suicide. Again Pacific females had higher rates of suicidal ideation than Pacific males (5.2% compared with 3.7%), although this result was not statistically significant. The highest rate of suicidal ideation was observed in the group aged 16–24, which had more than twice the rate of any other Pacific age group ($p < 0.0004$).

The estimated lifetime prevalence of suicide attempt for Pacific people was 4.8%, which was marginally higher than the prevalence for the total population (4.5%). Consistent with both ideation patterns, Pacific females had a higher prevalence of suicide attempt than Pacific males (6.3% compared with 3.2%; $p = .006$).

The estimated 12-month prevalence for suicide attempts was 1.2% for Pacific people, which was three times the rate of the general population (0.4%; 0.3, 0.6). Pacific females had a prevalence rate of 1.3% for suicide attempts compared with 1.0% for Pacific males. The group aged 16–24 had the highest prevalence of suicide attempt in the previous 12 months (3.1%; 1.5, 6.5), which was five times higher than the following age cohort (25–44 years (0.6%; 0.32, 1.22)). However, age was not shown to have a statistically significant effect on the 12-month prevalence of suicide because of the small numbers of participants who had attempted suicide and the consequent insufficient statistical power to show a statistically significant difference.

Table 10.14: Lifetime and 12-month prevalence of suicidal ideation, suicide plan and suicide attempt among Pacific people, by sex

	Lifetime prevalence % (95% CI)			Twelve-month prevalence % (95% CI)		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Suicidal ideation	14.3 (11.2, 18.0)	19.3 (16.3, 22.8)	16.9 (14.6, 19.4)	3.7 (2.2, 6.0)	5.2 (3.6, 7.5)	4.5 (3.3, 6.1)
Suicide plan	5.7 (3.8, 8.5)	7.0 (5.2, 9.3)	6.4 (5.1, 8.0)	2.7 (1.2, 5.8)	2.3 (1.2, 4.3)	2.5 (1.5, 4.0)
Suicide attempt	3.2 (2.0, 4.9)	6.3 (4.7, 8.3)	4.8 (3.8, 6.1)	1.0 (0.4, 2.8)	1.3 (0.7, 2.5)	1.2 (0.7, 2.0)

10.10.2 Socioeconomic correlates

Table 10.15 shows that for Pacific people, neither education nor equivalised household income had a significant impact on the prevalence of suicidal ideation or suicide attempt (p = .7 for education and p = .2 for equivalised household income).

Te Rau Hinengaro shows that 12-month prevalence rates of suicidal ideation and suicide attempts appear higher among Pacific people living in areas of low deprivation compared with Pacific people living in areas of high deprivation, although this result was not statistically significant (p = .4).

Comparisons of Pacific people with Māori and Others shows Pacific participants reported significantly higher prevalence than Other (non-Māori) participants of ideation, plan and attempt. In addition, Māori had a significantly higher prevalence of suicidal ideation than Pacific participants, whereas Pacific participants had a significantly higher prevalence of plans and attempts than Māori participants. However, adjusted estimates suggest some of these ethnic differences may be sociodemographic in origin. After adjustment for sociodemographic factors, there were no ethnic variations in suicidal ideation. However, Māori and Pacific participants had a significantly higher prevalence of making plans and attempts after adjustment for sociodemographic factors.

Table 10.15: Sociodemographic correlates and prevalence of suicidal ideation, suicide plan and suicide attempt in the past 12 months for Pacific people

Correlate	Suicidal ideation % (95% CI)	Suicide attempt % (95% CI)
Individual characteristic		
Educational qualifications[1]		
None	5.0 (2.6, 9.4)	0.9 (0.3, 2.5)
School or post-school only	4.4 (2.8, 6.8)	1.2 (0.5, 2.9)
Both school and post-school	4.2 (2.6, 6.8)	1.3 (0.5, 3.5)
Equivalised household income[1]		
Under half of median	4.4 (2.4, 7.7)	0.5 (0.2, 1.4)
Half median to median	5.6 (3.5, 8.8)	1.7 (0.6, 4.8)
Median to one and a half times median	2.3 (0.9, 5.8)	0.3 (0.0, 2.4)
One and a half times median and over	1.4 (0.5, 3.9)	0.2 (0.0, 1.7)
Area characteristic		
NZDep2001 deciles[1]		
9 and 10 most deprived	4.8 (3.1, 7.3)	1.2 (0.7, 2.1)
7 and 8	3.8 (2.0, 6.9)	1.0 (0.2, 4.4)
5 and 6	4.0 (1.8, 8.6)	0.3 (0.1, 1.1)
3 and 4	1.5 (0.4, 6.4)	0.6 (0.1, 3.8)
1 and 2 least deprived	9.2 (3.0, 24.8)	4.8 (0.7, 27.0)

1 Sociodemographic correlates are defined in 12.12.1.

10.10.3 Migration, language and prevalence of suicidal behaviour

Table 10.16 shows that 6.5% of New Zealand-born Pacific people had suicidal ideation in the previous 12 months and this compares with Pacific people who migrated at the age of 18 and older who had a 12-month rate of 1.8%. Table 10.16 also shows that 1.8% of New Zealand-born Pacific people had a suicide attempt in the previous 12 months compared with Pacific people who migrated at the age of 18 and older who had a 12-month rate of 0.3%. There were no significant differences between 12-month rates of suicidal ideation or suicide attempt between Pacific people born in New Zealand and age of migration ($p = .2$).

As mentioned in 10.8.2 a strong relationship existed between age at interview and age at migration. Nonetheless, adjustment for age and sex had little impact on the prevalences reported in Table 10.16 and no effect on the pattern of results.

Age at migration and time since migration were also related, and in a joint analysis of any disorder in the past 12 months, age at migration remained influential while time since migration did not. This indicates that age at migration is the more important correlate.

Table 10.16: Sociodemographic characteristics and prevalence of suicidal ideation and suicide attempt in the past 12 months among Pacific people

	Suicidal ideation % (95% CI)	Suicide attempt % (95% CI)
Age at migration		
New Zealand born	6.5 (4.1, 10.1)	1.8 (0.9, 3.6)
Under 12 years	6.0 (3.1, 11.2)	2.0 (0.5, 7.7)
12–17 years	4.7 (2.2, 9.8)	0.5 (0.1, 1.8)
18 years and over	1.8 (1.0, 3.2)	0.3 (0.1, 0.7)
Language		
English only	6.1 (3.4, 10.6)	2.8 (1.1, 7.0)
Pacific only	0.6 (0.1, 2.5)	–
Multilingual	4.4 (2.9, 6.4)	0.8 (0.4, 1.5)

10.10.4 Suicidal behaviour: comparison of Pacific Island groups

Table 10.17 compares the 12-month prevalences of suicidal behaviour for the major Pacific groups. Cook Island Māori had rates of suicidal ideation of 6.6%, followed by Samoans (4.4%), Other Pacific peoples (4.1%) and Tongans (1.9%). This compares with an overall rate of 4.5% for the total Pacific population, although because of the small numbers involved the results are not statistically significant.

Table 10.17: Twelve-month prevalence of suicidal ideation and suicide attempt among Pacific people, by Pacific Island group

	Island % (95% CI)				Whole sample % (95% CI)
	Samoa	Cook Islands	Tonga	Other	
Suicide attempt	1.0 (0.4, 2.0)	2.5 (0.7, 6.0)	0.0 (0.0, 0.8)	1.0 (0.1, 4.2)	1.2 (0.6, 2.0)
Suicidal ideation	4.4 (2.7, 7.2)	6.6 (4.1, 10.4)	1.9 (0.6, 4.4)	4.1 (1.1, 10.3)	4.5 (3.3, 6.1)

10.11 Findings for Pacific people compared with Māori and Others

The unadjusted rates for all mental disorders for the three ethnic groups are: 23.9% for Pacific people, 28.9% for Māori and 19.2% for the Other composite ethnic group. (Note that these figures are slightly different from those presented in the rest of this chapter as participants identifying as both Māori and Pacific are now included only as Māori, using prioritised ethnicity (see 12.12.1).)

Adjusting for age and sex reduces the differences in rates to: Pacific, 21.3%; Māori, 25.8%; and Other, 19.7%. Further adjustment for educational qualification and equivalised household income reduces the differences further to: Pacific, 19.0%; Māori, 23.5%; and Other, 20.1%. These results suggest that if the different ethnic groups had the same age and sex structures and education and income levels then Pacific people and Other people would have similar levels of mental illness.

The unadjusted rates for mood disorders were: 8.3% for Pacific people, 11.6% for Māori and 7.5% for Others. Adjusting for age and sex reduces the differences between the three groups to: Pacific, 7.2%; Māori, 10.1%; and Other, 7.7%. Further adjustment for educational qualification and equivalised household income reduces the differences further to: Pacific, 6.4%; Māori, 9.3%; and Other, 7.9%. These results suggest that if the different ethnic groups had the same age and sex structures and education and income levels then Pacific people and Other people would have similar prevalences of mood disorders.

A similar result occurs for substance use disorders. Adjusting for age and sex and education and income levels reduced the disparities, although Māori had the highest rate: Pacific, 3.2%; Māori, 6.0%; and Other, 3.0%.

Table 10.18 shows similar results to those reported above for severity (rather than presence) of disorder. The unadjusted rates for all mental disorders classified as serious were: Pacific, 6.0%; Māori, 8.7%; Other, 4.1%. After adjustment Pacific and Other groups had similar prevalences (Pacific, 4.1%; Other, 4.5%) but Māori still had significantly higher prevalence of serious disorder (6.1%).

Table 10.18: Twelve-month prevalence of any disorder and severity,[1] by prioritised ethnicity

	Prioritised ethnicity[2] % (95% CI)		
	Pacific	**Māori**	**Other**
Unadjusted			
Serious	6.0 (4.7, 7.4)	8.7 (7.4, 10.0)	4.1 (3.6, 4.6)
Moderate	10.9 (8.4, 13.3)	12.6 (10.6, 14.6)	8.9 (8.1, 9.8)
Mild	7.5 (5.7, 9.3)	8.2 (6.6, 9.8)	6.3 (5.6, 7.0)
Adjusted for age and sex			
Serious	5.3 (4.1, 6.5)	7.6 (6.4, 8.8)	4.2 (3.7, 4.7)
Moderate	9.6 (7.5, 11.8)	11.2 (9.4, 12.9)	9.2 (8.3, 10.0)
Mild	6.8 (5.2, 8.5)	7.4 (6.0, 8.9)	6.4 (5.7, 7.1)
Adjusted for age, sex, educational qualifications[3] and equivalised household income[3]			
Serious	4.1 (3.1, 5.0)	6.1 (5.2, 7.1)	4.5 (3.9, 5.0)
Moderate	8.6 (6.7, 10.6)	10.2 (8.5, 11.8)	9.4 (8.5, 10.2)
Mild	6.6 (5.0, 8.3)	7.2 (5.8, 8.6)	6.5 (5.7, 7.2)

1 DSM-IV CIDI 3.0 disorders with hierarchy, see 12.4.1. For severity, see 2.3 and 12.12.3.

2 For the method of adjustment, see 12.10.2.

3 Sociodemographic correlates are defined in 12.12.1.

10.12 Conclusions

10.12.1 Mental health of Pacific people

Te Rau Hinengaro is the first major epidemiological survey able to generate specific information about the mental health of Pacific people in New Zealand. The survey incorporated a high level of Pacific involvement in the study design and implementation. Importantly, it also oversampled Pacific participants, which enabled the participation of sufficient numbers of Pacific people to provide estimates of acceptable precision.

Before this survey very little information existed about the prevalence of mental disorders among Pacific people. Te Rau Hinengaro has provided some landmark findings.

First, Te Rau Hinengaro has demonstrated that Pacific people experience mental disorders at higher levels than the general population. This is particularly significant as it is contrary to previously held beliefs that Pacific people have relatively low levels of mental illness. As reported, the unadjusted 12-month prevalence for Pacific people was 23.9% compared with 19.2% of the Other composite ethnic group. While this finding is confounded by the young age structure of the Pacific population, it provides important information for future policy planning.

In addition, Te Rau Hinengaro has provided evidence that Pacific people have higher prevalences of suicidal ideation, suicide plans and suicide attempts than the Other group. The difference remains after adjusting for sociodemographic correlates.

The study also showed that the prevalence of mental disorder was lower among Pacific people born in the Islands than among New Zealand-born Pacific people even after accounting for the young age structure of the New Zealand-born Pacific population.

Pacific people in the survey who experienced serious disorders were much less likely to access treatment (25.0%) than the total New Zealand population (58.0%). This provides a considerable challenge to the mental health sector.

Te Rau Hinengaro did not support, for Pacific people, the finding from international literature that social adversity (associated with migration) is linked to increased risk for mental disorder. Analysis of the effects of migration showed that recent migrants tended to have lower rates of mental illness compared with New Zealand-born Pacific people.

These findings have potentially serious implications for Pacific communities as the results suggest environmental factors in New Zealand may be impacting negatively on their mental health and wellbeing. It is also possible protective factors within Pacific cultures (or for migrating generations) explain the differences in the prevalences of mental disorder between New Zealand-born and Island-born Pacific people. Another possible explanation is the ‘healthy migrant effect’, a concept that suggests only the more robust individuals within any community can navigate the sometimes complex task of migration.

The study has provided an important opportunity to analyse the prevalence, severity and impact of mental disorders on the Pacific population. This is the first time this empirical information has been available. Importantly, the oversampling of Pacific people also allowed for investigation of ethnic-specific differences among the major Pacific groups. Although these results were not statistically significant, the differences that emerged certainly warrant further investigation.

10.12.2 Implications

Te Rau Hinengaro showed that Pacific people have high prevalence rates of mental disorders and suicidal behaviour. This fact is compounded by significant underutilisation of health services for a mental health reason. These findings combine to paint a picture of a population whose current and future mental health is particularly vulnerable and at risk.

Underutilisation of existing services, especially by those Pacific people with serious mental disorders, has significant implications for the mental health sector. For Pacific people, significant gaps in the available data remain about the acceptability of existing mental health services, availability of appropriate services, provider fit with need and other issues of accessibility for Pacific people.

The findings from Te Rau Hinengaro raise interesting questions about the position of New Zealand-born Pacific people in relation to migrant Pacific people. The results suggest that length of time exposed to the New Zealand environment may be associated with higher levels of mental disorder among Pacific people. There is a need for further research on the relationship between adverse socioeconomic conditions, the breakdown of traditional social structures, Pacific values, and mental health and wellbeing. The results also raise questions about possible Pacific ethnic-specific differences. Although the differences were not statistically significant, they warrant further study. There is generally a need for better understanding of the underlying protective and risk factors for mental health and mental illness among Pacific populations.

In conclusion, Te Rau Hinengaro provides a robust evidence base in relation to Pacific people in New Zealand for policy development and a strong platform for further research.

11 The Study in Perspective

11.1 Community mental health surveys and policy

What is the place of this community mental health survey in helping health policy decision makers, service funders, providers, consumers and their families address the health needs of the New Zealand community? Whiteford (2001: 428) suggests that research can impact on the development, adoption and implementation of policy 'by providing options which are scientifically validated and data which allow decisions to be made more on the basis of fact and less on political expediency and ideology'.

The results of community surveys such as this may be used by health policy decision makers, in several ways. Jenkins (2003: 190–191) outlines four reasons, from a government policy perspective, for such large-scale surveys.

- 'Effective policy needs to be based on epidemiology and the social and economic costs of psychiatric morbidity.'
- '[R]epresentative information in a defined geographic area can document the use of existing services and can estimate the extent of unmet needs and services required meeting those needs.'
- '[V]alid information on prevalence and associated factors of presumed causal importance allow aetiological hypotheses to be generated and tested, albeit with the limitations inherent in cross-sectional studies.'
- '[B]y repeating community surveys it is possible to monitor the health of the population and trends together with changes in potential risk factors.'

As stated in the introduction to this report (chapter 1), the major task of the World Mental Health (WMH) Survey Initiative is to facilitate the conduct of general population mental health surveys. From the outset, the initiative has aimed to provide data to health policy decision makers in the participating countries on prevalences and societal costs of mental disorder, the unmet need for treatment of mental disorders, as well as potentially modifiable barriers to treatment. The initiative also aims to independently evaluate the conclusions of the Global Burden of Disease Study that mental disorders are among the most burdensome in the world (Kessler and Ustun 2000; World Mental Health Survey Consortium 2005). Independent confirmation of this finding will have important health resource allocation implications.

11.2 Key findings

11.2.1 Prevalence of disorder

In relation to prevalence of disorder the key findings from the survey are as follows.

- Mental disorder is common in New Zealand: 46.6% of the population are predicted to meet criteria for a disorder at some time in their lives, with 39.5% having already done so and 20.7% having a disorder in the past 12 months.
- Younger people have a higher prevalence of disorder in the past 12 months and are more likely to report having ever had a disorder by any particular age.
- Females have higher prevalences of anxiety disorder, major depression and eating disorders than males, whereas males have substantially higher prevalences for substance use disorders than females.
- Prevalences are higher for people who are disadvantaged, whether measured by educational qualification, equivalised household income or using the small area index of deprivation (NZDep2001).
- The prevalence of disorder in any period is higher for Māori and Pacific people than for the Other composite ethnic group. For disorder in the past 12 months the prevalences are 29.5% for Māori, 24.4% for Pacific people and 19.3% for Others, which indicates that Māori and Pacific people have a greater burden due to mental health problems. Much of this burden appears to be due to the youthfulness of the Māori and Pacific populations and their relative socioeconomic disadvantage.
- After adjusting for sociodemographic correlates no ethnic differences in the prevalence of anxiety disorders in the past 12 months are apparent, but even with adjustments the prevalence of bipolar disorder remains higher for Māori and Pacific people (Māori, 3.4%; Pacific people, 2.7%; Others, 1.9%), and substance use disorder is higher for Māori (6.0%) (Pacific people, 3.2%; Others, 3.0%). Major depression shows a different pattern: after adjustment Māori and Others have very similar prevalence (5.7%, 5.8%), whereas Pacific people have lower prevalence (3.5%).

11.2.2 Comorbidity

In relation to comorbidity the key findings from the survey are as follows.

- Comorbidity of mental disorders (the co-occurrence of two or more disorders) is common, with 37.0% of those experiencing 12-month disorders having two or more disorders. Mood disorders and anxiety disorders are most likely to co-occur. Comorbidity is associated with suicidal behaviour and increases service use.

- There is also comorbidity between mental and physical disorders. People with mental disorders have higher prevalences of several chronic physical conditions compared with people without mental disorders of the same age. People with chronic physical conditions are also more likely to experience mental disorders compared with those without physical conditions.

11.2.3 Disability

In relation to disability the key findings from the survey are as follows.

- Mental disorders are associated with impairment in several domains of functioning. Mood disorders are reported to be more disabling than either anxiety disorders or substance use disorders. The experience of multiple mental disorders is associated with greater role impairment than is associated with single disorders. Mental disorders and chronic physical conditions are, on average, associated with similar degrees of disability, and the combination of the two is more disabling than either alone.

11.2.4 Suicidal behaviour

In relation to suicidal behaviour the key findings from the survey are as follows.

- Of the population, 15.7% reported ever having thought seriously about suicide (suicidal ideation), 5.5% had ever made a suicide plan and 4.5% had ever made an attempt. The levels of suicidal ideation and suicide attempt are broadly comparable with those for several other developed countries.
- In the past 12 months, 3.2% experienced suicidal ideation, 1.0% made a suicide plan and 0.4% made a suicide attempt.
- The risk of suicidal ideation in the past 12 months was higher in females, younger people, people with lower educational qualifications and people with low household income, and among people living in more deprived areas (measured using the small area descriptor of socioeconomic adversity, the New Zealand Index of Deprivation) and in urban areas. The risk of making a suicide plan or suicide attempt was more common among younger people, people with low household income and people living in more deprived areas. The risk of making a suicide attempt was higher in people in urban areas.
- Individuals with a mental disorder had elevated risks of suicidal behaviour, with 11.8% of people with any mental disorder reporting suicidal ideation, 4.1% making a suicide plan and 1.6% making a suicide attempt.

- Mood disorders, anxiety disorders, eating disorders and substance use disorders were all associated with suicidal ideation, suicide plan and suicide attempt. Of individual disorders, major depressive episode had the strongest association with suicidal ideation, suicide plan and suicide attempt.
- Māori and Pacific people had higher prevalences of suicidal ideation, suicide plans and suicide attempts in the past 12 months than Others.
- After adjustment for sociodemographic correlates differences in suicidal ideation disappeared, but Māori and Pacific people still had higher prevalences of suicide plans and suicide attempts (plans: Māori, 0.9%; Pacific people, 1.0%; Others, 0.3%; attempts: Māori, 0.7%; Pacific people, 0.8%; Others 0.3%).

11.2.5 Health service use

In relation to health service use the key findings from the survey are as follows.

- People with more serious mental disorder in the past 12 months are more likely to have visited the healthcare sector for mental health reasons, including for problems with their use of alcohol or other drugs, in that period. However, the proportion making a mental health visit to the healthcare sector is low (only 58.0% of those with serious disorder, 36.5% of those with moderate disorder and 18.5% of those with mild disorder), which indicates under-treatment.
- In contrast to the marked differences in prevalence across sociodemographic correlates, only a few small differences exist in the percentage seeking help, and these are sometimes not in the same direction as for prevalence. For example, the youngest age group had a much higher prevalence of disorder in the past 12 months than the oldest age group, but almost identical percentages from both groups made contact with treatment services, when the distribution of severity in these two age groups was taken into account. These findings indicate that, given a need for treatment, no marked inequality of access to healthcare treatment in relation to sociodemographic correlates is apparent. However, people with lower educational attainment and people resident in rural centres or areas had lower rates of visits to the mental health specialty sector.
- Pacific people and, to a lesser extent, Māori are less likely than Others to make contact for mental health reasons with services. For those with disorder in the past 12 months 25.4% of Pacific people, 32.5% of Māori and 41.1% of Others made a mental health visit. The extent of these disparities is little affected by adjustment for sociodemographic correlates. This indicates barriers to access for Māori and Pacific people that are not explained by youthfulness or socioeconomic disadvantage.

11.3 Strengths of the survey

The utility of data from community mental health surveys, for health policy decision makers, is dependent on the scientific soundness of the study (Cooper and Singh 2000). The New Zealand survey has several strengths that will ensure it meets its stated aims and provides useful information for health policy decision makers.

First, the researchers used a survey design and sample frame that are consistent with best survey practice and will generate results estimates of acceptable precision that can be generalised to the New Zealand adult population. Within this sample, Māori and Pacific people were selected at higher rates ('oversampled') to allow, for the first time, estimates of acceptable precision for those communities. There was extensive consultation with overseas and local experts to achieve the optimal survey design.

Second, the conduct of the fieldwork and the data management conformed to best practice standards and incorporated quality controls to ensure adherence to best practice, as required by the WMH Survey Initiative (see 1.7.5) (World Mental Health Survey Consortium 2005). Extensive data cleaning and checking were conducted by the National Research Bureau, the research team and the WMH Survey Initiative Data Coordinating Center based at Harvard University (Boston, United States). The response rate of 73.3% exceeded the 70% required by the Ministry of Health and was similar to that obtained in the 1996/97 Health Survey (73.8%) (Haslett and Statistics New Zealand c1999) and the 2002/03 Health Survey (72%) (Ministry of Health 2004b). Post-stratification by age, sex and ethnicity was used to attempt to ameliorate any non-response bias.

Third, the diagnostic instrument used (the CIDI 3.0) was designed for cross-national community surveys and has been widely used for that purpose. It has acceptable reliability when it is used in such community surveys (Andrews and Peters 1998; Janca et al 1992; Wittchen 1994; Wittchen et al 1998). The CIDI 3.0 has been significantly revised on the basis of experience with earlier versions. Some of the important innovations compared to earlier versions include: a focus on 12-month as well as lifetime disorders in the same interview; detailed assessment of clinical severity; and disorder-specific and global assessment of the impact of both mental and common medical conditions (Kessler and Ustun 2004). Another important addition to previous versions of the CIDI is the inclusion of a section on health service use and treatment.

There is ongoing vigorous debate about the comparative reliability and validity of fully structured interviews such as the CIDI, administered by trained lay-interviewers, compared to semi-structured clinician-administered interviews, such as the Schedules for Clinical Assessment in Neuropsychiatry (SCAN) (Wing et al 1990). Some critics have questioned the validity of lay-person-administered fully structured interviews and attributed the variability in prevalence rates between studies to problems with such questionnaires (Brugha et al 1999; Cooper and Singh 2000; Weich and Araya 2004). Proponents of the use of lay-person structured interview in large-scale community surveys have responded to these criticisms by arguing that the current evidence does support the contention that clinician-administered diagnostic interviews are more valid or reliable than lay-person-administered structured diagnostic interviews (Wittchen et al 1999). Within some of the WMH Survey Initiative sites, these issues are being explored further through clinical calibration studies. In these studies the researchers will examine the consistency of diagnoses by the lay-person-administered structured interview (the CIDI 3.0) and a clinician-administered semi-structured interview (the Structured Clinical Interview for DSM-IV (SCID)) (Kessler et al 2004a). Although the New Zealand study has not included a clinical validation study (because of resource limitations and cost), the results of clinical calibration studies from similar countries may be informative for interpretation of the New Zealand results.

11.4 Limitations of the survey

The survey does have limitations. As the sample frame is based on selection of participants from households and does not include people in institutions, people with severe, but uncommon, disorders are likely to be underrepresented. Thus, the survey does not provide useful prevalence rate estimates for people with severe low-prevalence disorder. It is noteworthy, that in the Australian Survey of Mental Health and Well-being (see 1.7.4), a survey of low-prevalence disorders was undertaken in parallel to the national community survey (Jablensky et al 2000). This low-prevalence disorder survey used a different survey design, sampling frame and diagnostic instrument than the community survey. For similar reasons, this New Zealand survey does not provide estimates of rates of dementia and associated cognitive impairment in the elderly. Accurate estimates of such disorders would require a different survey design and use of more extensive psychometric testing and medical evaluation.

Although the response rate of 73.3% is regarded as a satisfactory result for a household survey, it does mean that 26.7% of the intended sample were not interviewed. One consequence of non-response is a reduction in sample size. However, the likely response rate was taken into account when planning the survey. Furthermore, the confidence intervals presented throughout the report reflect the obtained sample size, so this consequence of the response rate is known. The second consequence of non-response is that response bias may occur. If respondents and non-respondents differ on some characteristics measured in the survey then there will be bias in survey estimates of those characteristics (Groves et al 2004, chapter 6, p 182). There are three important features of non-response bias.

- No information from respondents can establish whether there is non-response bias.
- Non-response bias is specific to the characteristic being measured; it is not a feature of a survey as a whole.
- Reducing non-response is likely to reduce non-response bias but does not necessarily do this.

Therefore, although best practice was followed there is no way of knowing to what extent and for what outcomes there was non-response bias. Nonetheless, some estimates of the extent of bias come from sensitivity analyses considering the effects of hypothetical ratios of prevalences in respondents and non-respondents. For example, if the prevalence of disorder X was 5% for respondents and 10% for non-respondents (a ratio of 2), and the response rate was 70%, then the true prevalence must have been 6% (100*(0.7*0.05 + 0.3*0.10)), so that the observed prevalence underestimated the true prevalence by one-sixth. If the ratio was only 1.5, the true prevalence must have been 5.75%. These examples show that with a response rate of 70% or more, even if non-responders have up to twice the prevalence of responders, the resulting bias is relatively small.

In the US two surveys have made additional efforts to obtain interviews from people who were ‘hard to reach’ and to interview them using a short form instead of the full interview. Even with financial incentives the response rate among hard-to-reach people is low (18.6% in the NCS-R). In the NCS the main response rate was 80.2% and a higher proportion of hard-to-reach people reported problems than was found for full interview respondents. A decade later in the NCS-R the response rate had fallen to 70.9% but comparing full interview and hard-to-reach respondents there was no evidence of non-response bias on any of those questions which covered anxiety, mood, substance problems and impulse–control problems (Kessler et al 2004b). Nonetheless, it is likely that people with rare serious current disorders such as anorexia or psychosis might be more likely to refuse to be interviewed.

The CIDI 3.0 does not generate diagnoses for specific psychotic disorders (such as schizophrenia or schizoaffective disorder), although a screening questionnaire for psychoses is included. It is known that lay-person-administered, fully structured interviews have poor reliability and validity for diagnosing such disorders (Anthony et al 1985; Cooper et al 1998). Given this difficulty and the issue with the sampling frame described above, it was decided early in the planning for this study not to try to ascertain the prevalence rates for such severe, but uncommon, conditions, as the validity and precision of such estimates would be poor.

The CIDI 3.0 does generate estimates of point and lifetime prevalence rates by disorder from the same interview. There is now considerable evidence that estimates of lifetime prevalence rates are biased by inaccurate recall of past episodes ('recall bias') (Andrews et al 1999a; Patten 2003; Wells and Horwood 2004). Put simply, when asked about past episodes of illness or disorder people forget episodes or tend to bring them forward in time to a time closer to the interview. This recall bias, along with 'telescoping' of episodes in time, results in underestimates of lifetime prevalence rates. These underestimates are more marked for older age groups. However, it is important to emphasise that the bias results in an underestimation of lifetime rates, not an overestimation of rates, so the lifetime prevalences presented in this report are conservative estimates of the 'true' rates. Recall bias may also influence estimates of mental health service use. Self-reported use is higher than administrative records indicate, for those who have been highly distressed (Rhodes and Fung 2004; Rhodes et al 2002). This implies that the extent of unmet need in this report is likely to be a conservative estimate of the 'true' extent.

This study, along with other previous cross-sectional studies, has shown an apparent cohort effect: younger age groups having higher rates of disorder than older age groups; or stated alternatively, older age groups having lower than expected (based on projections from incidence studies) rates of disorder. The possible explanations for this effect are provided in the chapter on lifetime prevalence rates. It is possible that recall bias and differential mortality in the elderly accounts, in part, for this effect (Patten 2003). It must be noted that the recall bias explanation does not challenge the high rates of depressive, anxiety and substance use disorder in the younger age groups; it does call into question the observed low lifetime rates of these disorders in the elderly.

The survey questionnaire was not formally translated into languages, other than New Zealand English. Interpreters were available to assist with interviews with participants from the Pacific communities. For people from other ethnic groups and non-English-speaking backgrounds, translators were not available. The costs and logistics of providing trained interpreters to all non-English-speaking participants made such provision impractical. If comprehension of the interview by the participant, due to language difficulties, was a problem, the interviewer did not proceed.

As previously stated, people living in institutions (rest homes, hospitals, sheltered accommodation, university colleges, prisons, armed forces group accommodation) and homeless people were not included in the sampling frame. Other surveys with different sampling strategies would be needed to study these groups.

The CIDI 3.0 (see 12.4), although originally designed to be used in cross-national surveys with different language groups, does follow the DSM and ICD classification systems. It can be argued that these systems reflect Western or Eurocentric conceptualisations and beliefs about mental disorder. For instance, the diagnostic instrument used does not incorporate Māori or other Pacific communities' beliefs about health. Furthermore, the study is quantitative and aggregates information across individuals to arrive at estimates for the population and subgroups within the population. Such an approach captures what is common across people but does not capture the unique experience of each person. These limitations accepted, this survey is best regarded as a pragmatic attempt to address some large information gaps about rates of mental disorder, the associated disability, correlates and patterns of health service use in the New Zealand population. The information is relevant to the strategic aims of the Second National Mental Health Plan (Minister of Health 2005). The information obtained will help inform the decisions of policy makers, but will also be useful for service funders, service providers, consumers and their families. Of itself, the survey will not be sufficient for these purposes and additional information from other types of study will be needed.

12 Methods

12.1 Background

Te Rau Hinengaro: The New Zealand Mental Health Survey was initiated by the Mental Health Research and Development Strategy Steering Committee. The policy reasons for such a study and the history of such studies in New Zealand and elsewhere are described in chapter 1. Chapters 9 and 10 outline reasons for particular concern about the mental health of Māori and Pacific peoples. These concerns arose from routinely collected data on the use of mental health services. Such data cannot provide evidence on community prevalence or unmet need for treatment. Therefore, a community survey was required. The consequent focus on ethnicity affected the design of the survey, the conduct of the survey, the membership of the research team, the support available to the research team, and the structure of this report.

The design was set up to provide adequately precise estimates for Māori and Pacific people. Oversampling was used to double the number of Māori and quadruple the number of Pacific people.

As described in chapter 9, after initial consultation with Māori mental health workers and others, Māori had three levels of participation and input: in the research team, through the Kaitiaki Group and as participants. To encourage participation by Māori, numerous promotional activities were arranged. Māori print, radio and television media were contacted, which led to several interviews to enlist Māori participation and to promote the study within Māori communities. Profiles and photos of the Māori research team were also given to potential participants as additional information.

Similarly, a Pacific research team was set up within the main research team for the survey, with a Pacific reference group to provide guidance. Promotional activities aimed specifically at Pacific communities were also carried out.

Consumer participation and input occurred throughout the survey. Jim Burdett of Mind and Body was appointed to the Management Group to provide advice and comments from a consumer perspective. Representatives of consumer groups were present at a major meeting in 2004 to plan this report, and others were present at the first major meeting to present key preliminary findings. In addition a draft report was sent to Lina Samu for comment, as the chairs of regional consumer networks had nominated her to read it on their behalf.

12.2 Objectives

The four main objectives of Te Rau Hinengaro: The New Zealand Mental Health Survey (see 1.5) were, for the total New Zealand, Māori and Pacific populations living in New Zealand, to:

- describe the one-month, 12-month and lifetime prevalence rates of major mental disorders among those aged 16 and over living in private households, overall and by sociodemographic correlates
- describe patterns of and barriers to health service use for people with mental disorder
- describe the level of disability associated with mental disorder
- provide baseline data and calibrate brief instruments measuring mental disorders and psychological distress to inform the use of these instruments in future national health surveys.

12.3 Ethical approval

The Auckland Y Ethics Committee was the lead ethics committee for this national survey. Ethics review and approval was obtained from all 14 regional ethics committees that considered health research proposals in New Zealand at that time.

All households and participants received a small brochure about the study and those who requested it were provided with a more extensive information booklet, both approved by the Ethics Committees to ensure that adequate information was provided and that access to clinical backup was in place.

The brochure given to everyone listed under the heading 'Further enquiries' the National Research Bureau telephone number, the Mental Health Research and Development website, and health and disability advocates throughout the country.

Under the heading 'If I need to talk or get support' the brochure contained the following section.

> If you feel after you've done the survey that you need support or help with your thoughts or feelings, your call will be welcomed by professional health workers at this number 0800... There is no toll cost and no cost for the help, and you can call at any time of night or day.
>
> You may already have a service or person you talk to and feel confident with. For example, a Helpline, your general practitioner, a counsellor or a friend. If you prefer to call such a person instead, feel free to do so.

The 0800 number was answered by a triage service that could refer acute cases to appropriate services nearby. A psychiatrist from the research team was also available on call. A clinical psychologist from the research team also responded to some participants who made contact.

Section 12 of the information booklet contained a list of regional contacts for groups for support, information and advocacy for people with mental illness. It also provided contacts for family, whānau and friends involved with or caring about someone with a mental illness.

12.4 The interview

The interview used in Te Rau Hinengaro was based on version 15 of the World Mental Health (WMH) Survey Initiative version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI) (http://www.hcp.med.harvard.edu/wmhcidi/). This has been referred to as the WMH-CIDI (Kessler and Ustun 2004), but version 20 has now become the official WHO CIDI 3.0.

Large-scale epidemiological studies cannot use mental health professionals to carry out all interviews because of the expense and the lack of such professionals for this work. One solution has been to develop fully structured psychiatric diagnostic interviews that can be administered by trained lay interviewers. The first such interview was the Diagnostic Interview Schedule (DIS) (Robins et al 1981), which was developed for the Epidemiologic Catchment Area Study (ECA) (see 1.7.1) in the United States (US) (Robins and Regier 1991) to produce diagnoses based on the definitions and criteria of the then current American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* version three (DSM-III) (see 1.10.1).

Other structured interviews were developed subsequently. The most widely used has been the WHO CIDI (Robins et al 1988), which is called a composite interview because it extended the DIS so that diagnoses could be produced according to both DSM and WHO International Classification of Disease (ICD) definitions and criteria.

The CIDI 3.0 is a revised and expanded version of the 1990 WHO CIDI (Kessler and Ustun 2004). One important revision has been the introduction of questions for each disorder on interference with life (see 12.12.2), which enables participants to be categorised into levels of severity (see 12.12.3). Previous interview schedules were criticised for detecting disorders that met diagnostic criteria, but which, for many people, had little impact on their lives. Hence, it was argued, these interviews produced high prevalences and low proportions accessing services. Also, since no country could afford specialist mental healthcare for about 20% of its population each year, it was important to ascertain what proportion of those with serious or moderate disorder accessed services.

The full CIDI 3.0 has an introductory screening and lifetime review section. There are 22 diagnostic sections: mood (two sections); anxiety disorders (seven sections); substance use disorders (two sections); childhood disorders (four sections); and other disorders (seven sections). In addition there are four sections on functioning and physical comorbidity, two on treatment and six on sociodemographics. There are sections everyone enters or is potentially screened into and then there are sections in the long form of the interview that are administered to only a subset of participants. The interview can be viewed at http://www.hcp.med.harvard.edu/wmhcidi/, but cannot be used without training. Completion of training ensures the interview is administered correctly, and is required before access to diagnostic algorithms is provided. In general population samples the complete CIDI 3.0 takes about two hours to administer, with widely varying times depending on how many diagnostic sections a participant is screened into (Kessler and Ustun 2004). Even within a section participants are screened out as soon as it is clear they could not reach criteria for a diagnosis. This enables a large number of diagnoses to be covered.

As the interview is complex and lengthy for some participants, in some WMH Survey Initiative countries (see 1.7.5), participants were paid for completing the interview. This option was not available in New Zealand. To reduce the burden on participants, the interview was shortened by deleting childhood disorders and several other disorders that were not part of the core set of disorders from the CIDI 3.0. Trials of various versions were carried out in the pilot study for the New Zealand survey (Oakley Browne et al 2000). The remaining sections are shown in Figure 12.1. Two sections for Māori were added, one on Māori health services and one on additional demographics and cultural knowledge and participation (see 12.4.3).

Diagnostic sections from the CIDI 3.0 were used with little modification apart from minor wording changes such as ‘insects’ in place of ‘bugs’. Non-trivial changes were made in only two diagnostic sections.

- In the anorexia section women whose lowest weight after age 12 occurred before menarche were asked a set of symptom questions otherwise skipped for women who had not experienced a period of three months of amenorrhea (this affected fewer than 10 women).

- In the drug section participants who had used marijuana and other drugs were first asked each symptom question in relation to drugs. If they reported a symptom they were then asked if they experienced it for marijuana. This followed the pattern used in the Australian National Survey of Mental Health and Well-being (see 1.7.4) (Teesson et al 2000), except that the Australian interview asked separately about all types of drugs used.

12.4.1 Diagnoses in the New Zealand interview

Although both DSM-IV and ICD-10 diagnoses can be made from the CIDI 3.0, this report uses only DSM-IV diagnoses as they are the ones clinicians use in practice.

Diagnoses are reported with organic exclusions, as specified in DSM-IV. An organic exclusion means that in the judgment of a psychiatrist the symptoms experienced were the result of an organic cause. If a participant reported that symptoms were always due to a physical cause they were asked to describe this, and this open text response was coded. One psychiatrist carried out all the coding for the New Zealand survey. Three other psychiatrists, one each from the main ethnic groups (Māori, Pacific and Other), discussed coding and also coded around 50 cases from their own ethic group.

It is important to note that the psychosis section was merely a screening section and not a diagnostic one. Previous clinical reassessment has shown a considerable amount of over-diagnosis with this section (Kendler et al 1996). Clinicians within the research team who looked at the text responses in this section of the interview agreed it was an almost impossible task from that evidence alone to determine positively that a reported symptom was a symptom of psychosis, although many reported experiences were clearly not psychotic. Therefore, no results from that section are included in this report. Nonetheless the relationship between responses to psychosis symptom questions, reports of diagnosis, medication, service use and other diagnoses will be investigated subsequently.

The WMH algorithms were used to produce diagnoses. There have been some refinements of these algorithms, particularly for bipolar disorder, as clinical re-appraisal indicated that bipolar I disorder was over-diagnosed with the previous algorithm. A broad definition of bipolar disorder is used now that includes three subgroups: a stricter definition of bipolar I; bipolar II; and mania or hypomania not classified as bipolar I or bipolar II. The versions of the algorithms used for this report were those current in January 2006, which differ slightly from those used in previous publications (Demyttenaere et al 2004; Kessler et al 2005b; Kessler et al 2005c; Wang et al 2005a, 2005b). A minor modification was required for agoraphobia for New Zealand because separation anxiety was not assessed. The marijuana abuse and dependence algorithms were written in New Zealand using the WMH drug abuse and dependence algorithms as models.

Hierarchy in diagnoses

Within DSM-IV diagnoses can be made with or without hierarchy restrictions. When hierarchy rules are applied, a person is excluded from a diagnosis, even though they have sufficient symptoms to meet criteria, because they have another disorder that is thought to account for those symptoms. Throughout this report hierarchy rules are applied, just as they are in clinical practice. The only exceptions are clearly noted; for example, as in substance use disorder. The relevant hierarchy rules are given below for the diagnoses covered in this report.

- *Major depressive disorder:* no mania or hypomania is permitted.
- *Dysthymia:* no major depressive episode is permitted in the first two years as otherwise the diagnosis is more one of major depression with partial remission. Also, no mania or hypomania is permitted.
- *Generalised anxiety disorder:* this must not occur exclusively within a mood disorder. In addition, if both post-traumatic stress disorder (PTSD) and generalised anxiety disorder (GAD) occur within the past 12 months and PTSD duration is longer than GAD duration, then GAD is not diagnosed.
- *Bulimia:* this must not occur exclusively within periods of anorexia.
- *Alcohol and drug abuse:* in DSM-IV abuse is diagnosed only in the absence of dependence, but throughout this report abuse includes those with and without dependence in order to show the prevalence of abuse behaviour. This is consistent with publications from the WMH Survey Initiative project (Kessler et al 2005c). In the version of the interview used in New Zealand participants did not reach the abuse section unless they reported some problems in the screener, and they did not reach the dependence section unless they reported at least one symptom of abuse. This is likely to have resulted in some underestimation of the prevalence of dependence. These ‘skips’ were found in the versions used at many WMH sites (Demyttenaere et al 2004).

Because separation anxiety was not included in the New Zealand interview it could not be used as an exclusion criterion for agoraphobia. Therefore, some of what is reported as agoraphobia might be separation anxiety. Comparison of prevalences from six countries with and without the separation anxiety exclusion showed little effect on prevalence (personal communication, 29 July 2004, Data Coordinating Center, WMH Survey Initiative, Harvard Medical School, Harvard University).

List of diagnoses

The following list contains all the diagnoses included this report. There are three major groups of disorders (anxiety, mood and substance use disorders) plus eating disorders.

- *Anxiety disorders:* panic disorder, agoraphobia without panic, specific phobia, social phobia, GAD, PTSD and obsessive–compulsive disorder.
- *Mood disorders:* major depressive disorder, dysthymia and bipolar disorder.
- *Substance use disorders:* alcohol abuse, alcohol dependence, drug abuse, drug dependence, marijuana abuse, and marijuana dependence (marijuana diagnoses are included within drug diagnoses).
- *Eating disorders:* bulimia and anorexia.

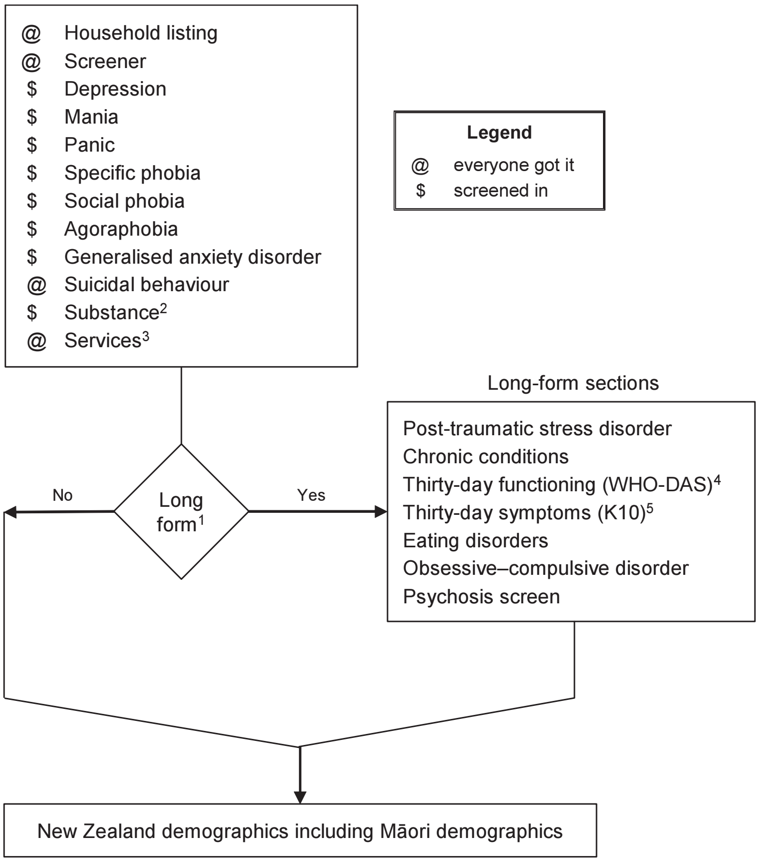
The term 'any diagnosis' refers to the disorders listed above and counts of diagnosis are based on this list. However, as in DSM-IV, alcohol abuse in someone with dependence is seen as part of that dependence, so dependence plus abuse is counted as only one disorder. Similarly, drug dependence plus abuse is counted as only one disorder.

12.4.2 Long and short forms of the interview

Figure 12.1 shows the sections everyone was given or screened into and those additional sections included in the long form of the interview that were asked of only a subsample of participants.

Alcohol consumption was asked about using either the CIDI 3.0 questions or the Alcohol Use Disorders Identification Test (AUDIT). Drinkers (12 drinks in a year ever) were randomly assigned to these two alternatives with a 50:50 chance of either. Similarly for the Kessler 10-Item Scale (K10), participants were randomly assigned to respond about the past month or the worst month in the past 12 months.

Figure 12.1: New Zealand interview: long form and short form logic and sections[1]



1 Long-form subsample: participants who had ever met certain criteria for depression, mania or the anxiety disorders in the first part of the interview, or who had ever had a suicide plan or suicide attempt, or who had ever been hospitalised for psychiatric problems all went on to the long-form sections. Others were randomly selected in, with the probability of selection increasing with the number of eligibles in the household. There were two sets of selection probabilities: participants with some evidence of psychiatric problems had selection rates of 27%–100%, whereas those with no evidence had selection rates of 9%–45%.

2 All entered section. Fifty percent did CIDI 3.0 consumption questions and 50% did the Alcohol Use Disorders Identification Test (AUDIT). Screened into symptom questions.

3 Plus Māori Health Services.

4 WHO-DAS = World Health Organization's Disability Assessment Scale II.

5 K10 = Kessler 10-item scale. Fifty percent did K10 for the worst month in the past 12 months and 50% did K10 for the past month.

12.4.3 New Zealand demographics and Māori sections

The New Zealand demographics questions were a subset of those in the CIDI 3.0 with some additions or modifications to conform to standard New Zealand questions for ethnicity, unemployment and educational achievement.

Two sections specifically for Māori were added. One asked Māori who had ever sought help for emotional problems or problems with alcohol or drugs about their use of Māori services. The other section asked additional demographic and cultural information of everyone who reported being of Māori descent.

12.5 Survey

12.5.1 Target population

The target population for the survey was defined as the usually resident, non-institutionalised population of New Zealand aged 16 years and over, residing in permanent private dwellings.

Excluded from the survey were:

- people living in temporary private residences
- people living in non-private dwellings
- long-term residents of rest homes, hospitals and psychiatric institutions
- inmates of penal institutions
- people living on offshore islands other than Waiheke Island.

The interview was available only in English. Formal interpreters were used in only a very few interviews, although friends or family helped with 1.5% and interviewers helped with 3.2% (unweighted percentages). Pacific people required more assistance to interpret questions (6.0% required some help from friends or family and 11.2% required some help from interviewers). Therefore, apart from Pacific people, the target population was effectively English speaking.

12.5.2 Sampling frame

Participants were selected through a multi-stage area probability sample of the population living in permanent private dwellings in the North Island and South Island of New Zealand plus Waiheke Island. This region covers 99.99% of the New Zealand population. Small area data collected by Statistics New Zealand from the 2001 New Zealand Census of Population and Dwellings (2001 Census) were used to select the sample. These small areas are called meshblocks and were originally set up to contain about 40–70 dwellings. However, subsequent changes have resulted in considerable variability in the number of dwellings in a meshblock.

12.5.3 Sample design

The survey was required to produce at least 12,000 interviews, with 2,500 interviews with people of Māori ethnicity and 2,500 with people of Pacific ethnicity, based on total response. (‘Total response’ means people listing more than one ethnicity would be counted for each ethnicity they mentioned, so the total response count for Pacific, for instance, would be the total number reporting Pacific ethnicity regardless of what else they might also report.)

These proposed sample sizes required doubling the number of Māori and quadrupling the number of Pacific people in the sample from what would be expected without measures to oversample these two ethnic groups.

It was a major challenge to try to meet these sample size requirements within the funds available without the oversampling becoming counterproductive. It is relatively easy to increase sample sizes for subgroups, particularly if they mostly live in certain areas, but this may result in a sample with less precision than if no oversampling had been carried out (Gray 2003; Kalsbeek 2003; Wells 2003, 2005).

Strategies for oversampling Māori and Pacific people

Two mechanisms were used to oversample Māori and Pacific people: targeting and screening.

Pacific people were targeted by having a High Pacific stratum consisting of meshblocks with 55% or more Pacific people at the 2001 Census (this is the total response; that is, the percentage reporting Pacific ethnicity regardless of what other ethnicities they also reported). These meshblocks had on average a 34.2% probability of selection in contrast to a 3.1% probability of selection for meshblocks in the General stratum (the actual selection was with probability proportional to meshblock size at the 2001 Census).

Pacific and Māori were screened for in the General stratum. There were three samples within the General stratum: the main sample, for which everyone was eligible; the Māori and Pacific (M&P) sample, for which only Māori and Pacific people were eligible; and the Pacific-only sample, for which only Pacific people were eligible.

Targeting saves money, but at the cost of precision; whereas screening preserves precision, but entails costs for door-knocking to establish eligibility. The response rate section (12.8) shows the extent to which this design required interviewers to screen households and the yield from such screening.

Strata

As defined above there were two strata: a High Pacific stratum and a General stratum.

Sample selection: primary sampling unit

Census meshblocks were the primary sampling units. Within each stratum meshblocks were sorted in order of District Health Boards (DHBs) before systematic selection with probability proportional to size (PPS) (Kish 1965). This produced implicit stratification by DHB.

The number of meshblocks selected was 150 out of 439 in the High Pacific stratum and 1,170 out of 37,926 in the General stratum. Note that there was no clustering above the census meshblock level.

Sample selection: secondary sampling unit

A dwelling was the secondary sampling unit. Within each meshblock all dwellings were enumerated. Under PPS sampling a set number of dwellings were to be approached, although this was altered appropriately if the number of dwellings had changed since the last census in 2001.

The number of dwellings to be approached depended on the stratum and on the sample within the General stratum (main, M&P, Pacific only). The expected numbers were:

• High Pacific stratum	12 dwellings
• General stratum:	
– main sample (all eligible)	11 dwellings
– M&P sample (Māori, Pacific)	16 dwellings
– Pacific-only sample	30 dwellings on average.

As screening for the Pacific-only sample took place in all dwellings in the General stratum that had not been allocated to the main sample or the M&P sample, the number approached for that screening depended on the size of the meshblock. Small meshblocks caused problems for this design. In each General stratum meshblock at least one dwelling was always approached for the M&P sample. (For Pacific people, the Pacific and the M&P samples were combined using Horvitz-Thompson weights (Cochran 1977; Horvitz and Thompson 1952), by summing the probability of selection through each sample, so it was not necessary to reserve one dwelling per meshblock for the Pacific-only sample.)

Sample selection: participant sampling

The final stage of sampling involved selecting one participant within a dwelling. All people aged 16 years and over who lived at that dwelling were listed from oldest to youngest, then one was selected using a Kish grid (Kish 1965) modified to accommodate up to eight eligibles.

Ethnicity was not asked about when the listing of residents was obtained in the High Pacific stratum or for main sample households in the General stratum, as it was irrelevant for selection. For M&P and Pacific-only sample dwellings there was a preliminary listing of residents, then the interviewer asked, 'Can you tell me which ethnic group or groups [X] identifies as?'. The response categories given were Māori, Pacific, Asian and Other (Asians were listed separately because this had been found to work best in fieldwork. For all other purposes Asians were included with Others as they were not oversampled). A list of eligible residents was then entered into a Kish grid. The interview had a question about ethnicity very early on, 'Looking at showcard 1, which ethnic group or groups do you belong to?'. A longer list of ethnic groups was given, exactly as in the 2001 Census. If the participant did not report the ethnicities screened for, the interview was terminated, the household listing was revisited and another household member was selected if anyone was eligible.

Replicates

The sample meshblocks were originally randomly assigned to five replicates to be run in sequence, with only minor exceptions for outlying areas. However, with repeated call-backs to improve the response rates, there was considerable temporal overlap between interviews from each replicate. Nonetheless, the initial replicates provided a way to obtain unbiased estimates of the response rate early on, which would not have been possible with a roll-out across the country such as from north to south.

12.6 Fieldwork

The research team carried out the initial pilot study in South Auckland and Horowhenua to test versions of the interview for length and acceptability (Oakley Browne et al 2000). The final version of the New Zealand interview was based on this work.

The National Research Bureau (NRB) carried out a field test and the main survey.

12.6.1 Consent

Verbal and written consent were obtained from each participant. (The consent form is in Appendix D and other background information is available from the Mental Health Research and Development Strategy website (http://www.mhrds.govt.nz), the main content of which is listed in Appendix E.)

12.6.2 Data collection

NRB staff administered the interview. Over 120 professional survey interviewers and a team of 27 experienced regional supervisors participated in the data collection. NRB interviewers completed a course in general interviewer training before working on any survey and had refresher courses periodically. Each interviewer who worked on the survey received three days of study-specific training.

The staff of the Institute of Social Research, University of Michigan, provided the interview training course material. They have provided training for all other sites involved in the WMH Survey Initiative. Additional material relating to cultural empathy and to safety was developed in New Zealand.

Institute of Social Research staff and members of the research team monitored the training of the NRB staff. Each interviewer was required to complete a test that involved administering a series of practice interviews designed to take different pathways through the questionnaire, thereby giving them practice with the different sets of questions before beginning work in the field.

The survey was carried out using a laptop computer assisted personal interview (CAPI).

12.6.3 Quality control for data collection

Rigorous field quality control procedures, following those prescribed for the WMH Survey Initiative, were used in the survey. These included the following.

- Interviewers were assigned meshblocks and were given a start position within the meshblock and instructions on how to space main sample households in which all ethnic groups were eligible. Interviewers were instructed on how to alter this spacing if the number of households enumerated differed from that from the 2001 Census. In the General stratum they were to sample the first 16 households not in the main sample to screen for Māori or Pacific people. All other households in this stratum were to be screened for Pacific people only. Therefore, in the General stratum all households had to be approached. Supervisors checked that these procedures were followed. Supervisors and interviewers had detailed maps of each meshblock showing each property.

- Participants were selected within households using a standardised method that minimises interviewer non-random selection of easy-to-recruit household members, namely using a Kish grid (see ‘Sample selection: participant sampling’ in 12.5.3).
- The CAPI program controlled skip logic and used a built-in clock to record speed of data entry, making it difficult for interviewers to truncate interviews by skipping sections or to fabricate interviews. Furthermore, if this did occur, it could be detected, something not possible with pencil and paper interviews.
- Completed CAPI interviews were sent to NRB’s website weekly to allow immediate quality control checks. If problems were detected, interviewers were instructed to re-contact the participant to obtain missing data or to resolve inconsistent responses.
- Supervisors contacted a random 10% of interviewed households to confirm selection procedures and length of interview. Enumeration of the sample areas was checked against census counts.
- Computerised tracking of interview-level response rate, average interview length, capture of Māori and Pacific participants, and capture of male participants was used to pinpoint interviewers with aberrant patterns for remedial retraining. Interviewers who persisted in low performance or who were found to make conscious errors were exited from the survey and their cases re-interviewed.
- Interviewers were paid by the hour and the kilometre, rather than by interview, to avoid financial incentives to focus on easy-to-recruit participants.

12.6.4 Timing of survey

The period of fieldwork was between October 2003 and December 2004. In the last three months of 2003 the number of interviews was just building up whereas in that period in 2004 only hard-to-reach participants were still being contacted. The seasonal breakdown was 24% of interviews in summer, 32% in autumn, 23% in winter and 22% in spring.

12.7 Data cleaning and editing

The Blaise software (http://blaise.sourceforge.net/) used for the interview had many internal checks for inconsistency and wild codes. NRB also developed its own set of additional checks. There were several cycles of data cleaning as the interviews came in. After a round of cleaning by NRB, a data set was sent to the WMH Survey Initiative Data Coordinating Center at Harvard University, where it was run through cleaning programs and any problems were reported back to NRB. Occasionally these cleaning checks required re-contact with participants. Data sets were returned to Harvard University until the final complete data set met all requirements.

For most questions with ‘other’ responses, NRB staff recoded the text provided. Usually such responses were readily fitted into existing categories. Questions with text responses requiring clinical expertise to code were coded by a psychiatrist (see 12.4.1).

12.7.1 Imputation

Little item non-response occurred. Of the sociodemographic correlates used throughout this report, only household income required statistical imputation. No data were missing for age, sex, ethnicity, urbanicity or region.

For education, fewer than 10 participants gave incomplete education responses, and education was imputed for these participants by inspecting responses on age, sex, age of first employment and current or last employment, country of birth, and age of entry to New Zealand.

NZDep2001 was missing for two meshblocks. The value was imputed from other meshblocks in the same area unit.

Of the participants, 1.8% refused to report household income and 11.2% said they did not know it (weighted percentages). Household income was more likely to be missing for participants who were not married or were not living with a partner, those who lived in households with more people aged 16 years and over, those who were young, and those who were female. The WMH Survey Initiative analysis team at Harvard University used linear regression with weights to impute household income with a large set of dummy variables derived from age, sex, education, marital status, employment status, the current or last job held, time since last worked, the number in the household, and the New Zealand Index of Deprivation 2001 (NZDep2001; see 12.12.1).

There were very few data missing on age of onset for disorders. This was because the interview asked first for an exact age; if that was not available it asked about when onset occurred, and if the participant could still not answer, it asked a series of questions as required such as, ‘Was it before you started school?’ and ‘Was it before you were a teenager?’. The WMH Survey Initiative analysis team at Harvard University imputed any missing values by a variant of hot deck imputation.

There were also few missing data on recency. However, there were some discrepancies between onset or recency and time of first treatment. If the first treatment was reported at an earlier age than the onset of disorder then the age of first treatment was set to the age of onset. If the time of first treatment was reported after the end of the disorder then the time until treatment was still calculated in the usual way from onset until time of treatment. These ways of resolving inconsistencies include all those who did report reaching treatment. Had they been treated as missing the percentage reaching treatment in the first year or ever would have been underestimated.

12.8 Response rate

The response rate was 73.3%.

The response rate was calculated from the following four aggregated categories:

1. eligible interviewed (completed whole interview even if some item non-response)
2. eligible non-responding
3. known ineligible
4. unknown eligibility (mostly no contact or refusal to provide a household listing, so eligibility could not be determined).

$$\text{Response rate} = \frac{\text{number of eligibles interviewed x 100}}{\left(\begin{array}{c}\text{number of eligibles}\\ \text{interviewed}\end{array}\right) + \left(\begin{array}{c}\text{number of eligibles}\\ \text{non-responding}\end{array}\right) + \left(\begin{array}{c}\text{estimated number of}\\ \text{eligibles from the unknowns}\end{array}\right)}$$

The estimated number of unknowns was calculated for each of the four design cells separately (the High Pacific stratum and the three General stratum cells: main sample, M&P screened sample, and the Pacific-only screened sample) then summed.

$$\left(\begin{array}{c}\text{estimated}\\ \text{number of}\\ \text{eligibles}\end{array}\right) = \left(\begin{array}{c}\text{number of}\\ \text{unknown}\\ \text{eligibility}\end{array}\right) \text{ x } \frac{\left(\begin{array}{c}\text{number known}\\ \text{to be eligible}\end{array}\right)}{\left(\begin{array}{c}\text{number known}\\ \text{to be eligible}\end{array}\right) + \left(\begin{array}{c}\text{number known}\\ \text{to be ineligible}\end{array}\right)}$$

All these calculations used unweighted counts. The response rate calculated this way is a measure of the success of the field operation. Because the probability of selection differed across participants, the unweighted response rate may differ from that calculated using weights that take account of selection probabilities.

All reports of door-to-door area surveys treat dwellings known to be vacant as ineligible. Because of ethnic screening, in this survey many dwellings did not contain anyone eligible on those grounds. There were also 155 dwellings not screened that were judged not eligible for a variety of reasons. There were 276 dwellings where language difficulties prevented an interview with the selected participants and 450 where the selected participant was too infirm. In keeping with the WMH Survey Initiative rules for response rates, those with inadequate English language skills or who were infirm were also included as ineligible. If they were included as eligible the response rate would be 70.2%, but this is an unfair measure of fieldwork as interviewers cannot interview those without adequate English language skills and should not interview those too infirm to be interviewed.

A total of 75,340 dwellings were approached for this survey. Overall 5.5% were found to be vacant. Because of screening many dwellings were approached but were found to be ineligible. Of the 17,076 dwellings approached for the M&P screened sample in the general stratum, after a household listing was obtained 13,552 were found to have no one of the appropriate ethnicity (79%). Of the Pacific-only sample 41,924 dwellings were approached and 37,022 had no Pacific inhabitants (88%). These numbers show something of the fieldwork costs associated with doubling the number of Māori and quadrupling the number of Pacific people from that which would have been obtained without oversampling (see 12.5.3).

12.9 Sample weights

Four steps were taken to create weights for each participant in the whole sample. For the subsample of participants who had the long form of the interview there were an additional two weighting steps involving selection into the long form and repeated post-stratification (see Figure 12.1, which shows the short and long pathways through the interview).

The four steps required to weight everyone in the sample involved:

- calculation of the probability of selection of a participant (one per dwelling)
- adjustment for oversampling of Māori and Pacific people through screening
- adjustment for non-response
- post-stratification.

The additional calculations involved in the calculation of weights to use with the long form subsample were:

- the probability of selection into the long form
- post-stratification of the long-form sample.

At all stages weights were the inverse of probabilities of selection.

However, for ease of checking analyses, the weights used for most analyses had been normalised to either the total sample size or the size of the subsample who did the long form of the interview, as appropriate.

These procedures for calculating weights were discussed with Professor Steve Heeringa, a survey statistician from the Institute of Social Research, University of Michigan, who is part of the WMH research team, and with members of the WMH Survey Initiative Data Coordinating Center at Harvard University.

12.9.1 Probability of selection of participant (one per dwelling)

The initial calculation of the probability of selection of a participant (P_0) and the consequent weight ($W_0 = 1/P_0$) ignored oversampling, except for Pacific participants selected through screening in the general stratum.

P_0 was calculated as the probability of selecting a particular meshblock multiplied by the probability of selection for that sample within a meshblock divided by the number of eligibles in the dwelling. For example, in the High Pacific stratum 150 meshblocks (out of 439) were selected from this stratum, which contained 13,797 households in all. Meshblocks were selected with probability proportional to size at the 2001 Census, so for a meshblock with 30 households at the last census:

$$\text{probability of selection of this meshblock} = \frac{150 \times 30}{13{,}797} = 0.33$$

If there were still 30 dwellings at enumeration, then the standard 12 dwellings per meshblock for this stratum would be approached. If there were two people eligible in a dwelling and one was selected, then:

$$\text{probability of selection of this participant} = \left(\frac{150 \times 30}{13{,}797}\right)\left(\frac{12}{30}\right)\left(\frac{1}{2}\right) = 0.065$$

The same procedure was carried out separately for the main sample in the General stratum and for Māori without Pacific ethnicity in the sample screened for Māori or Pacific people, the M&P sample (see 12.5.3).

For Pacific people in the M&P sample or in the Pacific-only sample the probability of selection was summed across both samples using a Horvitz-Thompson type weight, which summed the probability of selection through each of these two samples (Cochran 1977; Horvitz and Thompson 1952). For example, for a Pacific person obtained through screening from a meshblock with 60 dwellings, of which 11 were approached for the main sample, 16 for the M&P sample and 33 for the Pacific-only sample, who lived in a dwelling with two other Pacific people and one Māori with no Pacific ethnicity, then:

$$\text{probability of selection of this Pacific participant from a screened dwelling} =$$

$$\left(\frac{1{,}170 \times 60}{1{,}353{,}807}\right)\left[\left(\frac{16}{60}\right)\left(\frac{1}{4}\right)+\left(\frac{33}{60}\right)\left(\frac{1}{3}\right)\right] = 0.013$$

In the General stratum some extremely high weights arose from very small meshblocks or meshblocks small enough that only one dwelling was screened. Twenty came from the main sample and 12 from the screened sample. These extreme weights were trimmed to the remaining highest weight within the sample they came from and all weights in that sample were rescaled to the same total previously obtained. These rescaled weights are W_1.

12.9.2 Adjustment for oversampling of Māori and Pacific people through screening

The second major stage of weighting involved adjusting for the oversampling of Māori and Pacific people through screening in the General stratum. For the W_1 weights the main sample and the screened sample were treated as if they were two separate surveys. The sum of main sample Māori W_1 weights estimated the total Māori population in that stratum. The sum of the screen sample Māori W_1 weights also estimated the same total, so that the sum across both samples estimated twice the population. Therefore, it was necessary to adjust the weights for oversampling, so the sum across both samples provided only one estimate of the population. To do this the W_1 weights in each sample were multiplied by the proportion of the total yield of Māori in the General stratum that came from that sample. Fifty-six percent of Māori participants in the General stratum came from the screened sample, so their W_1 weights were multiplied by 0.56 to produce a W_2 weight, whereas those from the main sample had their W_1 weights multiplied by 0.44.

The same procedure was applied for Pacific participants with adjustment multipliers of 0.78 for those from the screened sample and 0.22 for those from the main sample.

For the Other group, $W_2 = W_1$ as there was no oversampling to adjust for. Note that Asians who were not oversampled were included in Others (see 'Sample selection: participant sampling' in 12.5.3).

This 'yield' method was required because ethnicity was not known for all residents aged 16 years and over in dwellings in the main sample (see 'Sample selection: participant sampling' in 12.5.3). Ethnicity was not asked about when a household listing was obtained from these dwellings, although it was obtained from each participant. The Horvitz-Thompson method could not be applied because the number eligible for the M&P sample and Pacific-only sample was not known for main sample dwellings, so it was not possible to calculate the combined probability of selection for an individual across these three samples. Analysis of ethnic household composition in the screened samples showed that Māori and Pacific people live with each other and with other ethnicities too often for the number eligible for the main sample to be used as the number eligible under the two types of screening. The 'yield' method was used in the Christchurch Psychiatric Epidemiology Study (Wells et al 1989a). It is likely that Horvitz-Thompson weights would have been slightly more efficient statistically (Wells 1998), but these could have been used only if interviewers had asked about the ethnicity of everyone aged 16 years and over in the 11,500 dwellings contacted in the main sample.

12.9.3 Adjustment for non-response

Two component response rates were calculated: the probability of obtaining a household listing and the probability of obtaining a complete interview from a household given a listing for the household. For administrative purposes the response from a household was coded into one of 13 categories. These were grouped into four classes:

- eligible interviewed (A)
- eligible non-responding (B)
- known ineligible (C)
- unknown eligibility (D).

Household listing response rate

The outcome for a household listing was modelled using logistic regression, with the outcome as the number of successful listings (A + B + C) out of all households approached (A + B + C + D).

Interview response rate among known eligibles

The outcome for a household listing was modelled using logistic regression, with the outcome as the number of interviews (A) out of all listings obtained with someone known to be eligible (A + B).

Covariates for non-response modelling

Apart from the four design cells, all the variables that might predict the response rates were at meshblock level. The following variables were considered:

- region (18 areas)
- region grouped (North, Midland, Central and South)
- urbanicity (main urban, secondary urban, minor urban and rural areas)
- occupied dwellings count at the 2001 Census
- mean usually resident population per dwelling
- mean usually resident adult population (aged 15 and over) per dwelling
- percentage of usually resident population of Māori ethnicity
- percentage of usually resident adult population of Māori ethnicity
- percentage of usually resident population of Pacific ethnicity
- percentage of usually resident adult population of Pacific ethnicity
- NZDep2001 (deciles and quintiles)
- percentage of usually resident population who were female
- age, median and mean
- percentage married, derived from the usually resident population aged 15 and over
- percentage never married, derived from the usually resident population aged 15 and over
- percentage not in the labour force, derived from the usually resident population aged 15 and over.

Modelling non-response

It was decided to model the response rates of the four design cells separately. The High Pacific stratum was known to contain only areas with high levels of deprivation. Within the General stratum the number of meshblocks varied slightly in each sample (main, M&P, Pacific only) as some meshblocks did not have any eligibles in screened households. Only a few of the covariates were related to response rates at either stage.

Adjustment after modelling

After modelling non-response the W_3 weights so created were the W_2 weights divided by the probability of a household listing and the probability of an interview as estimated in the models. This compensated for non-response.

12.9.4 Post-stratification for the whole sample

For the 2001 Census, Statistics New Zealand decided to report 'total response', which is the number reporting any given ethnicity regardless of what other ethnicities they may have reported. This avoids allocating priority rules of the sort used previously where, for example, any mention of Māori led to a person being listed as Māori. However, it is not possible to post-stratify without having a list of mutually exclusive categories. There are seven possible combinations of Māori, Pacific and Other, allowing for one, two or all three of these groups, with small numbers in some combinations, making it not possible to use with age and sex for our sample. Therefore, prioritised ethnicity was required for post-stratification.

We obtained a customised table with prioritised ethnicity from the 2001 Census for the population aged 16 years and over in permanent private dwellings plus absentees usually resident in such dwellings in New Zealand but not at home on census night. Substitute forms are included in the census for people known to exist who did not fill out a census night form (4% of those aged 16 and over). Age and sex are imputed for these forms but not ethnicity. Therefore, within each age and sex group those with ethnicity 'not elsewhere specified' (4% of total) were distributed across the three prioritised ethnic groups used in this report (Māori, Pacific and Other) in proportion to the observed distribution in that age and sex group. The age groups used were 16–24 years, 10-year age bands up to age 64, and 65 years and over. The sum of weights in each age, sex and ethnicity cell was adjusted to match that in the table derived from the 2001 Census. For example, if the census table had 50,000 people in a cell and the sample sum of W_3 weights was 52,000, then each W_3 weight in that cell would be multiplied by 50,000/52,000 to produce a W_4 weight. Because of population growth since 2001 the sample sum of weights in a cell was often larger than the population size given in the census table.

12.9.5 Probability of selection into long form

Participants who had ever met certain criteria for depression, mania or the anxiety disorders in the first part of the interview, or who had ever had a suicide plan or attempt, or who had ever been hospitalised for psychiatric problems all went on to the long form sections (see Figure 12.1). Those with some problems and those without any problems reported in these early sections were selected into the long form, with probability inversely proportional to household size. These probabilities were higher for those with some problems than for those with no problems. W_5 weights were W_4 weights divided by the probability of selection into the long form. W_5 weights were calculated only for the long-form subsample.

12.9.6 Post-stratification for the long-form sample

To produce W_6 weights, the long-form subsample was also post-stratified to the same 2001 Census table used for the whole sample. This post-stratification means both the whole sample and the long-form subsample provide estimates for the same target population, with W_4 weights being used in analyses of the whole sample and W_6 weights being used for analyses of the long-form subsample.

12.10 Statistical analysis

Data manipulation and exploratory analyses were carried out using the SAS 9.1.3 software, and all analyses involving standard errors, confidence intervals and significance tests were carried out using SUDAAN 9.0.1 software to take account of the complex sample design, including weighting.

12.10.1 Estimation of standard errors and confidence intervals

For analyses in SUDAAN primary sampling units were treated as being sampled with replacement. This was appropriate for the general stratum as the probability of selection of meshblocks was low (3.1%), but not for the high Pacific stratum in which about a third of meshblocks were selected (34.2%). The effect will be conservative, as the finite population correction factor is not used, leading to slightly higher standard errors.

Taylor series linearisation (Shah 1998) was used to approximate the variance of estimates, with two strata and meshblocks as primary sampling units.

For prevalences or proportions with less than 30 events in the numerator, confidence intervals were calculated according to a method by Korn and Graubard (Korn and Graubard 1998, 1999). This method has been shown to yields results similar to those using an exchangeable bootstrap for the 1999 New Zealand Gaming Survey, which had a design more like that used for our survey than the standard survey design in the US, which has 50–100 large primary sampling units (Gray and Haslett 2004). Our practice contrasts with a policy of not reporting any prevalences with high relative error (Ministry of Health 2004b). Because confidence intervals are provided, the precision or otherwise of estimates is apparent. Our practice was chosen to provide estimates of low prevalences that otherwise have to be inferred from the absence of estimates. However, results are not reported for any prevalence or proportion for which the denominator was less than 30.

12.10.2 Adjustment

Throughout the report, prevalences and proportions are reported for correlates considered one at a time. However, for ethnicity comparisons a series of analyses has been carried out. First unadjusted results are presented for the three ethnic groups, then they are adjusted for age and sex, and finally they are adjusted for age, sex, educational qualification and equivalised household income (see 12.12.1).

The results for ethnic comparisons are reported in tables as predictive margins (Graubard and Korn 1999; Korn and Graubard 1999), which are also called predicted marginals (eg, in SUDAAN). These have been more commonly known as adjusted percentages (Lee 1981) if obtained from logistic regression. These are a form of direct adjustment. With predictive margins a model is fitted to the data, then, using the model parameters, the probability of an outcome is calculated for everyone in the sample, by first assigning them all to one level of the predictor of interest, then assigning them to another level and so on for all levels, For instance, everyone would be assigned to be Māori but their other covariate values remain the same, then everyone is assigned to be Pacific and so on. This way each group has the same covariate distribution because the whole sample is used for each assignment.

The use of predictive margins enables adjustment for any set of covariates for which data have been collected, not just for age, or age within males and age within females. The presentation of results as adjusted percentages rather than odds ratios or relative risks also has some advantages by using measures understood by a wider range of readers, by showing actual magnitudes of each outcome in each group, and by avoiding what is sometimes an arbitrary decision about which group is the reference group (Korn and Graubard 1999).

In several other tables results have also been adjusted using predicted marginals (eg, Tables 2.3 and 6.4). For Tables 5.7–5.9 two sets of models were used for adjustment. The adjusted prevalence reported for a disorder (total: males and females combined) is the predicted marginal from a model with that disorder (yes/no), age and sex. However, for males and females within a disorder the adjusted prevalences presented are two of the predicted marginals from a four-way classification variable formed from that disorder (yes/no) and sex, in a model with that variable and age. The consequence is that in these three tables all adjusted prevalences are standardised to the weighted age distribution of the sample, which is the age distribution from the 2001 Census (see 12.9.4 and 12.9.6).

In comparing results from this survey with those from national health surveys it should be noted that different populations have been used for age standardisation, although the distributions are not very different. The 2002/03 New Zealand Health Survey (Ministry of Health 2004b) standardised to the latest WHO world age distribution (Ahmad et al 2000). The 1996/97 New Zealand Health Survey standardised to the 1996 usually resident population (Haslett and Statistics New Zealand c1999; Minister of Health 1999).

12.10.3 Survival analysis

Survival analysis was used for onset of disorder and for time to treatment. At the time of interview most people had not developed a disorder and many who had experienced disorder had not made treatment contact. However, they might subsequently develop a disorder or reach treatment. The technical term for these people is that their outcome was censored, in that it is not known if or when they would experience the event of interest. On a timeline it is as if a censor had blotted out all time after the time of the interview. Survival analysis is the only technique to correctly take account of censoring. In this interview participants reported age of onset in whole years so discrete time analyses were carried out with one-year intervals.

Note that in analysis of time to treatment, if someone reported that their disorder had ended but that they had not made treatment contact then they contributed to the analysis only the time from onset to recency; namely, the duration of the disorder.

One way of presenting survival results is to report hazards or hazard ratios. For a particular point in time, for those who have not yet experienced the event of interest, the risk of onset at that time is called the hazard. Comparison of groups produces hazard ratios. Proportional hazard models were used for Table 4.3. Hazard functions for the onset of suicidal behaviours are shown in Figure 7.1.

The percentage who will ever develop a disorder or who will reach treatment is estimated from the survival estimate for the oldest age or the longest duration. The median onset age or the median time to treatment is obtained by recalibrating the onset curve to be 100% at the largest observed value (Elandt-Johnson and Johnson 1980). Other percentiles of the onset curves are calculated similarly.

12.11 Participants

The numbers of participants, unweighted percentages and weighted percentages in each age and sex group, for each prioritised ethnic group, are shown in Table 12.1 for the whole sample and in Table 12.2 for the subsample interviewed with the long form of the interview. Table 12.3 shows the demographic characteristics for each ethnic group for the whole sample.

Table 12.1 shows numbers for prioritised ethnicity; namely Māori, Pacific people who were not also Māori, and Other. In the whole sample 138 listed both Māori and Pacific ethnicity, so there were 2,374 who listed Pacific ethnicity (this is what Statistics New Zealand calls 'total response'), although only 2,236 were counted as Pacific under prioritised rules.

Table 12.1: Unweighted and weighted age distributions, by sex within each prioritised ethnic group for the whole sample

Sex	Age group (years)	Māori	Pacific	Other	Total
		Number			
Male	16–24	175	173	365	713
	25–44	520	459	1,252	2,231
	45–64	288	272	1,193	1,753
	65 and over	65	95	777	937
	All ages 16+	1,048	999	3,587	5,634
Female	16–24	239	208	375	822
	25–44	770	688	1,615	3,073
	45–64	415	264	1,477	2,156
	65 and over	123	77	1,107	1,307
	All ages 16+	1,547	1,237	4,574	7,358
Male and female	All ages 16+	2,595	2,236	8,161	12,992
		Unweighted percentage within each ethnic group **%**			
Male	16–24	16.7	17.3	10.2	12.7
	25–44	49.6	45.9	34.9	39.6
	45–64	27.5	27.2	33.3	31.1
	65 and over	6.2	9.5	21.7	16.6
	All ages 16+	100.0	100.0	100.0	100.0
Female	16–24	15.4	16.8	8.2	11.2
	25–44	49.8	55.6	35.3	41.8
	45–64	26.8	21.3	32.3	29.3
	65 and over	8.0	6.2	24.2	17.8
	All ages 16+	100.0	100.0	100.0	100.0
% of sample	All ages 16+	20.0	17.2	62.8	100.0
		Weighted percentage within each ethnic group[1] **%**			
Male	16–24	25.2	24.8	14.7	16.3
	25–44	46.3	47.2	38.0	39.3
	45–64	23.1	22.7	31.7	30.4
	65 and over	5.4	5.2	15.6	14.0
	All ages 16+	100.0	100.0	100.0	100.0
Female	16–24	23.8	24.3	13.4	15.1
	25–44	48.7	47.9	38.4	40.0
	45–64	21.7	21.5	30.2	28.9
	65 and over	5.7	6.4	17.9	16.0
	All ages 16+	100.0	100.0	100.0	100.0
		Percentage of population aged 16 and over **%**			
	All ages 16+	11.2	4.5	84.3	100.0

[1] The 2001 Census ethnicity distribution, see 12.9.4.

Age distributions were inspected at each stage of weighting. About half the increase in the percentage in the youngest age group occurred through taking account of the probability of selection, presumably because they lived with more other adults, and about half because of post-stratification, indicating more difficulty in reaching this age group. The decrease for the oldest age group occurred with post-stratification.

Table 12.2: Unweighted age distributions, by sex within each prioritised ethnic group for the subsample who received the long form of the interview

Sex	Age group (years)	Māori	Pacific	Other	Total
		Number			
Male	16–24	115	112	220	447
	25–44	311	264	678	1,253
	45–64	154	154	634	942
	65 and over	30	42	302	374
	All ages 16 +	610	572	1,834	3,016
Female	16–24	165	157	258	580
	25–44	543	424	995	1,962
	45–64	267	149	908	1,324
	65 and over	58	37	458	553
	All ages 16+	1,033	767	2,619	4,419
Male and female	All ages 16+	1,643	1,339	4,453	7,435
		Unweighted percentage within each ethnic group %			
Male	16–24	18.9	19.6	12.0	14.8
	25–44	51.0	46.2	37.0	41.5
	45–64	25.2	26.9	34.6	31.2
	65 and over	4.9	7.3	16.5	12.4
	All ages 16+	100.0	100.0	100.0	100.0
Female	16–24	16.0	20.5	9.9	13.1
	25–44	52.6	55.3	38.0	44.4
	45–64	25.8	19.4	34.7	30.0
	65 and over	5.6	4.8	17.5	12.5
	All ages 16+	100.0	100.0	100.0	100.0

Because both the whole sample and the long-form subsample were post-stratified to the 2001 Census, the weighted age, sex and ethnicity distribution is the same for both samples and is reported only in Table 12.1.

Table 12.3: Weighted sociodemographic distributions within each prioritised ethnic group for the whole sample

Correlate	Māori %	Pacific %	Other %	Total %
Individual characteristics				
Sex				
Male	46.6	47.3	48.2	48.0
Female	53.4	52.7	51.8	52.0
Age group (years)				
16–24	24.5	24.5	14.1	15.7
25–44	47.6	47.6	38.2	39.7
45–64	22.4	22.1	31.0	29.6
65 and over	5.6	5.8	16.8	15.0
Educational qualifications				
None	31.9	24.2	16.5	18.5
School or post-school only	41.5	47.2	35.9	37.0
Both school and post-school	26.7	28.6	47.6	44.4
Household income[1]				
Under half of median	26.9	20.7	21.2	21.8
Half median to median	25.6	28.3	20.4	21.3
Median to one and a half times median	24.3	27.1	23.5	23.8
One and a half times median and over	23.1	23.9	34.9	33.1
Equivalised household income[1]				
Under half of median	31.8	32.6	17.7	20.0
Half median to median	32.2	39.5	27.6	28.7
Median to one and a half times median	19.9	16.6	25.7	24.6
One and a half times median and over	16.1	11.2	28.9	26.7
Area characteristics				
NZDep2001 deciles[1]				
9 and10 most deprived	43.7	59.7	12.4	18.0
7 and 8	21.3	18.9	18.7	19.0
5 and 6	15.7	10.5	23.6	22.1
3 and 4	11.3	6.4	21.0	19.3
1 and 2 least deprived	8.0	4.4	24.4	21.7
Urbanicity[1]				
Main	66.8	94.9	72.7	73.1
Secondary	7.6	2.4	6.4	6.3
Minor	14.0	1.7	7.5	8.0
Other (rural)	11.6	1.0	13.3	12.6
Region[1]				
North	34.0	74.4	33.7	35.5
Midland	34.4	5.4	18.3	19.5
Central	18.5	14.6	20.5	20.0
South	13.1	5.6	27.6	25.0

1 Sociodemographic correlates are defined in 12.12.1.

Compared with the Other group, Māori and Pacific people were more likely to be young and less likely to have educational qualifications. They also tended to have lower household incomes and this was much more marked for equivalised household income, which takes account of the number of people in the household. There were 43.7% of Māori and 59.7% of Pacific people living in the most deprived quintile (NZDep2001 deciles 9 and 10) compared with only 12.4% of the Other group. Pacific people were found almost exclusively in the main centres, predominantly in the North region. Compared with the Other group, Māori were more likely to live in the Midland region and less likely to live in the South region.

12.12 Definitions of key terms

12.12.1 Sociodemographic correlates

Ethnicity

Prioritised ethnicity is used throughout the report except in chapter 10, the chapter about Pacific people. The 2001 Census ethnicity question was used in the interview (see Appendix B). It asks about which ethnic group or groups the participant belongs to. This allows multiple responses. The prioritisation rule is that anyone mentioning Māori is classified as Māori, then anyone mentioning any of the Pacific Island groups but not Māori is classified into the Pacific ethnic group and the remainder are classified into the Other category. In much of chapter 10 everyone who mentioned Pacific ethnicity is included (this is known as classification by total response). There were 138 participants who reported both Māori and Pacific ethnicities (see 12.11).

Educational qualifications

Education was asked about using the two 2001 Census education questions about school qualifications and post-school qualifications. Those with no qualifications were asked for their age at the end of their last complete year at school. A three-level grouping is used throughout the report: no qualification; school or post-school qualification only; and both school and post-school qualifications. Combining those with only school qualifications and those with only post-school qualifications was a way of producing a category of people with usually no more than 13 years of education and a qualification. It accommodated the pattern in older generations to leave school without a qualification, but to complete some kind of trade training. Fewer than 10 participants had missing data on education and these were imputed by consideration of other variables such as age and employment (see 12.7.1).

Equivalised household income

Household income was asked about in one question. Because of the 13.0% non-response on this question imputation was carried out (see 12.7.1). A modification of the revised Jensen equivalence scale (Jensen 1988) was used to take account of the number of children. In this survey the age of individual children was not known, just the number aged under 16. Therefore, an average age of eight years was assumed.

HI = household income

E = the equivalence adjustment

EHI = equivalised household income

a = the number of adults in the household (aged 16 years and over)

c = the number of children in the household (under 16 years)

$$E = \frac{\left(a + c * \left(0.460697 * 8.0\right) * 0.0283848\right)^{0.621488}}{2^{0.621488}}$$

Note that E equals 1 for a household with two adults and no children, which is the reference household. The more adults and the more children there are, the larger E is.

$$EHI = \frac{HI}{E}$$

New Zealand Index of Deprivation 2001

NZDep2001 is a small area index of deprivation provided by Statistics New Zealand for each 2001 Census meshblock. This index has also been provided from the 1991 Census and the 1996 Census (Crampton and Davis 1998; Salmond et al 1998). It is based on census data on the percentage of people lacking a telephone, receiving means-tested benefits, being unemployed, having a low income, having no access to a car, being in a single-parent family, lacking qualifications, renting, and having inadequate living space for a household. It is most commonly reported in deciles, with decile 10 being the most deprived.

Because of variability within a meshblock, NZDep2001 may not be a good measure of deprivation for an individual. This is why throughout this report individual measures are used predominantly, but NZDep2001 is also used in some analyses to enable comparison with results from routinely collected data. National standard health and mental health service use data sets (MHINC) (see http://www.nzhis.govt.nz) have been able to use only NZDep2001 or earlier versions, as income and education data are not routinely available for individuals, whereas NZDep data can be obtained from residential addresses.

Urbanicity

The standard Statistics New Zealand definitions were used for urbanicity (Statistics New Zealand 2006). These are:

- main urban areas (a minimum population of 30,000)
- secondary urban areas (a population of 10,000 to 29,999)
- minor urban areas (a population of 1,000 to 9,999)
- other (rural centres and rural areas).

Regions

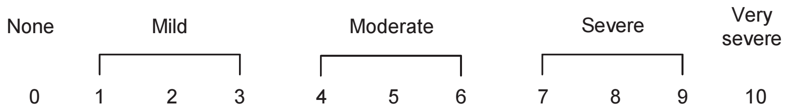
The four major regions are based on District Health Boards and are (Mental Health Commission 2002b):

- North: Northland, Waitemata, Auckland and Counties–Manukau
- Midland: Waikato, Bay of Plenty, Tairawhiti (Gisborne), Lakes and Taranaki
- Central: Hawke’s Bay, Midcentral (Manawatu), Whanganui, Wairarapa, Hutt, Capital & Coast
- South: Nelson–Marlborough, Canterbury, West Coast, South Canterbury, Otago, and Southland.

12.12.2 Interference with life

Participants who were likely to reach criteria for a disorder and who reported symptoms in the past 12 months were assessed using the WMH Survey Initiative version of the Sheehan Disability Scales (Demyttenaere et al 2001; Leon et al 1997) at the end of that diagnostic section. The questions assessed interference with life resulting from each disorder by asking:

> Think about the month or longer in the past 12 when your [XXX] was most severe. Using the 0 to 10 scale where 0 means *no* interference and 10 means very *severe* interference, what number describes how much your [XXX] interfered with each of the following activities during that time?
>
> - Your home responsibilities, like cleaning, shopping and taking care of the house, flat or apartment
> - Your ability to work or study
> - Your ability to form and maintain *close* relationships with other people
> - Your social life



The words used for disorder [XXX] were lay terms such as sadness or fear, not psychiatric terms.

For each activity non-applicable responses were treated as missing. The mean interference with life was calculated across all activities with non-missing responses.

Sheehan Scales were not included for substance use disorders in the version of the WMH CIDI interview used for the New Zealand interview although they have since been added. Participants with alcohol dependence and symptoms in the past 12 months were asked five questions about how much they had experienced consequences of drinking. The response options were ‘a lot’, ‘some’, ‘a little’ and ‘not at all’. The same questions were asked about consequences of drug use for those with 12-month drug dependence symptoms. The questions were:

- How much has your physical health been harmed by your use of [XXX]?
- How much has your family been hurt by your use of [XXX]?
- How much have you done impulsive things that you regretted later because of using [XXX]?
- How much have you failed to do what was expected of you because of your use of [XXX]?
- How much have you been unhappy because of using [XXX]?

12.12.3 Severity

A composite severity measure was developed for the WMH Survey Initiative to classify people with 12-month prevalence of any disorder (cases) as mild, moderate or severe (Demyttenaere et al 2004). In New Zealand the same set of definitions was used except for substance dependence.

For substance dependence the WMH definition of ‘serious’ required at least one symptom in the past 12 months and the presence of physiological symptoms ever. In the US National Comorbidity Survey Replication (NCS-R), Kessler and colleagues (2005c) used a definition that required substantial impairment in the past 12 months before substance dependence was classified as serious; otherwise substance dependence was classified as moderate. Substantial impairment was defined as at least two areas in which a participant experienced consequences of substance use ‘a lot’ (see 12.12.2).

Using the NCS-R definition instead of the WMH definition reduced the percentage of New Zealand participants with substance dependence in the past 12 months who were classified with serious dependence from 90.4% to 25.7%. This strongly supports the contention that physiological symptoms can have occurred at some time without substance dependence symptoms necessarily having a major impact in the past 12 months.

In the definitions below for severity in the past 12 months, disorders had to have occurred in that period. Impairment in the Sheehan Disability Scales was for the worst month in the past 12 months (see 12.12.2).

- *Serious disorder:* Twelve-month bipolar I disorder, 12-month substance dependence with substantial impairment, a suicide attempt in the past 12 months and a DSM-IV CIDI 3.0 12-month disorder; at least two areas of severe role impairment due to a 12-month psychiatric disorder in the disorder-specific Sheehan Disability Scales, or a combination of other criteria found in the NCS-R (Kessler et al 2005c) to predict a global assessment of functioning (APA 2000) of 50 or less in conjunction with a DSM-IV CIDI 3.0 disorder (12-month disorder and 51 or more days out of role in the past 12 months, and no more than one Sheehan domain with a maximum score less than 7 for work or social domains or less than 8 for home and personal relationship domains).
- *Moderate disorder:* Cases not classified as severe were classified as moderate if they reported at least moderate interference in any Sheehan Disability Scales domain or if they had substance dependence without substantial impairment.
- *Mild disorder:* Everyone else with any 12-month diagnosis, not classified as serious or moderate, was classified as mild.

Inevitably such classifications are to some degree arbitrary but they can be extremely useful. In the WMH surveys (Demyttenaere et al 2004) and in New Zealand these three categories of serious, moderate and mild disorder have been partially validated by the maximum days out of role (Table 2.2) and relate strongly to treatment contact (Tables 2.2 and 8.1).

Appendix A: Description of DSM-IV Mental Disorders

Introduction

This appendix describes the DSM-IV mental disorders (APA 2000) included in Te Rau Hinengaro: The New Zealand Mental Health Survey.

All mental disorders

The symptoms associated with the individual mental disorders are listed below. These are brief summaries only; they do not itemise all the additional information that was obtained by the survey questionnaire to inform diagnostic classification. *For all disorders, to reach diagnostic threshold the one common criterion required is that the individual must report that their symptoms cause significant disruption in their usual social or occupational functioning, and/or marked distress*. Because this is common to all disorders, it is not restated in the summaries below.

Anxiety disorders

Panic disorder

Panic disorder involves experiencing recurrent panic attacks and, between attacks, being worried and distressed about the possibility of future attacks. Panic attacks are defined as a period of intense fear or discomfort that arises unexpectedly, in which four or more of the following symptoms develop quickly and peak within 10 minutes:

- pounding heart or accelerated heart rate
- sweating
- trembling or shaking
- sensations of shortness of breath or smothering
- feeling of choking
- chest pain or discomfort
- nausea or abdominal distress
- feeling dizzy, lightheaded or faint
- feelings of unreality or being detached from oneself
- fears of losing control or going crazy
- fear of dying
- numbness or tingling sensations
- chills or hot flushes.

At least two panic attacks plus a period of at least a month of persistent worry about having another attack are required for diagnosis.

Agoraphobia

Agoraphobia is anxiety about, or avoidance of, places or situations from which escape might be difficult, or embarrassing, should a panic attack (or panic-like symptoms) occur.

Typically feared situations include being in crowded places, travelling on public transport, and being in shops, elevators or lecture theatres. The feared situations are either avoided altogether (which can then lead to the individual having difficulty leaving the house at all) or are endured with extreme distress. Agoraphobia typically occurs in conjunction with panic disorder (and in such cases it is included in the panic disorder category in this survey), but it may also occur without a history of full panic attacks (in which case it is classified separately as 'agoraphobia without panic').

Specific phobia

Specific phobia is characterised by an intense and enduring fear of a specific object or situation/s. Encountering the feared situation provokes immediate anxiety or panic-like symptoms. Adults with specific phobia usually recognise that the level of fear provoked by the object or situation is excessive, although this insight does not reduce the anxiety they experience. The feared object is avoided or endured with extreme anxiety.

As with all the anxiety disorders, the diagnosis of specific phobia is made only if the fear or the associated avoidant behaviour causes significant interference with the person's usual functioning and/or substantial distress.

Social phobia

Social phobia represents a strong and persistent fear of social or performance situations in which embarrassment might occur. Exposure to the feared situation provokes great anxiety, so it is avoided or endured with dread. Individuals with social phobia are greatly embarrassed by what they consider to be obvious signs of their anxiety (eg, trembling hands, blushing or sweating). They fear others will observe these signs and judge them to be 'weak' or 'stupid' or 'crazy' as a result.

Generalised anxiety disorder

The key feature of generalised anxiety disorder (GAD) is excessive worry and anxiety, occurring on more days than not for a period of at least six months, in connection with several issues or events (ie, not just in relation to one specific issue or event). The individual with GAD finds it difficult to control the worry, and the worry is accompanied by at least three of the following symptoms:

- restlessness or feeling on edge
- being easily fatigued
- difficulty concentrating or mind going blank
- irritability
- muscle tension
- sleep disturbance.

Post-traumatic stress disorder

Post-traumatic stress disorder (PTSD) is characterised by the experience of a specific set of symptoms (see below), of more than one month's duration, which develop following exposure to an extreme traumatic stressor. The stressor is defined as one in which the person has experienced, or witnessed, an event that involved actual or threatened death or serious injury, or threat of physical injury to the individual or others. In response to that event the person must have reacted with fear, helplessness or horror.

The symptom set that subsequently develops involves three components, all three of which must be experienced to receive a diagnosis of PTSD:

- re-experiencing the trauma, as indicated by one or more of the following:
  - recurrent and intrusive distressing recollections of the traumatic event (eg, images or thoughts)
  - recurrent distressing dreams of the event
  - acting or feeling as if the event were recurring (including flashbacks and hallucinations)
  - intense distress or physiological reactivity at exposure to cues that are reminiscent of the event
- avoiding stimuli associated with the traumatic event and the numbing of general responsiveness, as indicated by three or more of the following:
  - efforts to avoid thoughts, feelings or conversations associated with the traumatic event
  - efforts to avoid activities, places or people that arouse recollections of the event
  - an inability to recall an important aspect of the trauma

  - greatly diminished interest or participation in significant activities
  - feelings of detachment or estrangement from others
  - a restricted range of emotion
  - a sense of a foreshortened future
- persistent symptoms of increased arousal, as indicated by two or more of the following:
  - difficulty falling or staying asleep
  - irritability or outbursts of anger
  - difficulty concentrating
  - hypervigilance
  - exaggerated startle response.

Obsessive–compulsive disorder

Obsessive–compulsive disorder (OCD) is characterised by recurrent obsessions and or compulsions (see below) that are severe enough to be time consuming (ie, take more than one hour in the day) or cause marked distress or functional impairment.

Obsessions are intrusive thoughts, ideas, impulses or images the person considers inappropriate or abhorrent, and that they feel they cannot control (although they can recognise they are a product of their own mind). Typical obsessions include thoughts about contamination (eg, from touching doorknobs or shaking hands), repeated doubts (eg, about whether they turned the stove off or whether they have hurt someone in a car accident) or horrific impulses (eg, to harm a loved one or shout an obscenity in church). The individual with obsessions usually attempts to ignore or suppress the obsession or 'neutralise' it with some other thought or action (ie, a compulsion).

Compulsions are repetitive behaviours that are carried out to prevent or reduce the anxiety associated with an obsession or to prevent some dreaded event (eg, washing hands until they are raw to reduce anxiety about contamination or checking doors constantly to ensure they are locked).

Mood disorders

Major depressive disorder

Major depressive disorder consists of one or more episodes of major depression; that is, a period of at least two weeks in which the individual experiences depressed mood (most of the day, nearly every day), or a marked loss of interest in all or almost all usual activities, plus at least four of the following symptoms every day or nearly every day:

- significant weight loss when not dieting, or weight gain or change in appetite
- insomnia or oversleeping
- psychomotor agitation (restlessness) or retardation (being slowed up)
- fatigue or loss of energy
- feelings of worthlessness or excessive or inappropriate guilt
- diminished ability to think or concentrate, or indecisiveness
- recurrent thoughts of death or suicidal thoughts or plans.

These symptoms should constitute a change from previous functioning in order to be criteria for a major depressive episode.

Dysthymia

Dysthymic disorder involves depressed mood for most of the day, for more days than not, for at least two years, plus at least two of the following:

- poor appetite or overeating
- insomnia or oversleeping
- low energy or fatigue
- low self-esteem
- poor concentration or difficulty making decisions
- feelings of hopelessness.

To meet criteria for dysthymia, during the two-year period the person should not have been without the symptoms for more than two months at a time.

Bipolar disorders

Bipolar disorder (subtype I) is characterised by the experience of one or more episodes of mania.

Bipolar II is characterised by the experience of one or more hypomanic episodes, in addition to one or more episodes of major depression.

A manic episode is a distinct period of abnormally and persistently elevated or irritable mood, lasting at least one week, and accompanied by three or more (or, if the mood is only irritable, four or more) of the following symptoms, which should be present to a significant degree:

- inflated self-esteem or grandiosity
- decreased need for sleep (eg, only three hours)

- more talkative than usual or feel pressure to keep talking
- flight of ideas or feeling that thoughts are racing
- distractibility
- increase in goal-directed activity (at work or school, or socially) or psychomotor agitation
- excessive involvement in pleasurable activities that have a high potential for painful consequences (eg, spending sprees, sexual indiscretions, foolish business investments).

Hypomania is a milder form of mania. The symptoms of hypomania are much the same as for mania except they need be present for only four days and they are not severe enough to cause marked impairment in usual functioning.

Substance use disorders

The main substance use disorders are substance abuse and substance dependence. This survey collected information that enabled subclassification of the substance use disorders into alcohol use disorders, drug use disorders, and within drug use disorders marijuana use disorders. The summary provided here is generic across these substance types.

Substance abuse

Substance abuse is a maladaptive pattern of substance use that involves recurrent and significant adverse consequences, namely, one or more of the following:

- repeated failure to fulfil major role obligations at work, school or home
- recurrent substance use in situations in which it is hazardous (eg, driving or operating machinery)
- recurrent substance-related legal problems
- continued substance use despite recurrent social or interpersonal problems (eg, arguments with spouse about consequences of intoxication, or fights while intoxicated).

Substance dependence

Substance dependence is a pattern of use that is characterised by three or more of the following symptoms occurring at any time in the same 12-month period:

- tolerance, as defined by either:
  - a need for markedly increased amounts of the substance to achieve intoxication or the desired effect, or

  - markedly diminished effect with continued use of the same amount of the substance
- withdrawal (a substance-specific set of physiological, behavioural and cognitive symptoms associated with stopping regular use of the substance) or the taking of the substance to avoid withdrawal symptoms
- the substance is often taken in larger amounts or over a longer period than was intended
- a persistent desire or unsuccessful efforts to cut down or control substance use
- a great deal of time spent in activities necessary to obtain the substance
- important social, occupational or recreational activities given up or reduced because of substance use
- the substance use is continued despite its known negative effect on a physical or psychological problem (eg, an ulcer made worse by drinking alcohol).

Eating disorders

Anorexia nervosa

The key feature of anorexia nervosa is a refusal to maintain a minimally normal body weight (eg, less than 85% of that expected for age and height), accompanied by an intense fear of gaining weight and a disturbance in body weight perception (such that the individual sees herself to be overweight when she is actually underweight). To meet criteria for anorexia a woman who would normally menstruate should have experienced an absence of at least three consecutive menstrual cycles.

Bulimia nervosa

Bulimia nervosa involves recurrent episodes of binge eating (consuming an objectively much larger amount of food than would normally be consumed under similar circumstances), with inappropriate compensatory behaviour (eg, self-induced vomiting, use of laxatives or diuretics, fasting, excessive exercise). The episodes of binging and compensatory behaviour both occur at least twice a week for at least three months. These behaviours are accompanied by excessive emphasis on body shape and weight in the individual’s self-evaluation and self-esteem.

Appendix B: Screening Section Ethnicity Questions

The following question was asked of the participant at the beginning of the interview to determine the ethnic group the participant regarded herself or himself as belonging to. For more information, see 12.12.1.

*NZRDA2 Looking at showcard 1, which ethnic group or groups do you belong to?

New Zealand European	1
Māori	2
Samoan	3
Cook Island Māori	4
Tongan	5
Niuean	6
Chinese	7
Indian	8
Other (such as Dutch, Japanese, Tokelauan, etc)	9

Specify other ____________________________________

Don’t know	98
Refused	99

Appendix C: Guiding Principles for the Kaitiaki Group and Research Team

The following principles were established to provide support and guidance to the Kaitiaki Group and researchers of Te Rau Hinengaro: The New Zealand Mental Health Survey (initially called the New Zealand Survey of Mental Health and Wellbeing). These principles also accompany the Protocol for Access to Māori Data.

The principle of Partnership: The entire research endeavour will actively recognise the Treaty of Waitangi as the basis of a joint undertaking between Crown and Māori; the principle of Partnership will be reflected in research practice and implementation of findings.

The principle of Active Protection: In all aspects of the research process the New Zealand Mental Health Survey will endeavour first and foremost to 'do no harm' to Māori and Māori interests.

The principle of Relevance: The New Zealand Mental Health Survey through implementation and application will contribute to health gains for Māori.

The Tikanga principle: All aspects of the New Zealand Mental Health Survey must be consistent with tikanga Māori.

The principle of Reciprocity: The relationships between researchers, participants and communities of interest will ensure reciprocal benefits.

The principle of Development: The New Zealand Mental Health Survey will be consistent with the broad directions of positive Māori development.

The Mātauranga principle: The New Zealand Mental Health Survey will contribute to advancements in knowledge and to other understandings of Māori health. The study is not an end point in itself.

The principle of Human Dignity: Participants in the New Zealand Mental Health Survey will be valued as individuals and afforded due respect.

The principle of Enhancement: The New Zealand Mental Health Survey will lead to an expansion of Māori research capacities, including workforce development and methodological innovations.

The Kaitiaki principle: The New Zealand Mental Health Survey will promote the protection and guardianship of Māori contributions and Māori knowledge.

The principle of Elucidation: The New Zealand Mental Health Survey will contribute to a clarification of Māori mental health status, disability and patterns of health service use.

These principles follow a discussion of the Kaitiaki Group at Ngā Whetu Mārama (Tiaho Mai complex) at Middlemore Hospital on 20 August 1999.

Appendix D: Survey Participant Consent Form

Note: Te Rau Hinengaro: The New Zealand Mental Health Survey was initially called the New Zealand Survey of Mental Health and Wellbeing.

MINISTRY OF
HEALTH
MANATŪ HAUORA

New Zealand Survey of Mental Health and Wellbeing Consent Form

I agree to help the Ministry of Health on the New Zealand Survey of Mental Health and Wellbeing by carrying out the interview.

The survey has been explained to me by the NRB interviewer and I have been given a copy of the brochure to keep.

The National Research Bureau Interviewer has told me that:

- My answers are used only for statistical research.
- My name is not put in or with the questionnaire.
- Nobody can know or find out what my answers were.
- My answers are protected by the Privacy Act.
- Only the survey supervisor may call me to check the interview was done correctly and politely.
- It is my choice to take part. I can stop if I want to.
- There is no disadvantage to me if I don't take part or stop.
- I have been shown the phone number(s) I can call if I feel upset by the interview.

Signed:____

Print name: ____

Date: _____ /______ /_______

Interviewer's signature:____________________________________ Int. No. ____

Request for interpreters			
English	I wish to have an interpreter	Yes	No
Māori	E hiahia ana ahau ki tetahi kaiwhakamaori/kaiwhaka pakeha	Ae	Kao
Samoan	Ou te mana’o ia i ai se fa’amatala upu	Ioe	Leai
Tongan	Oku ou fiema’u ha fakatonulea	Io	Ikai
Cook Island	Ka inangaro au i tetai tangata uri reo	Ae	Kare
Niuean	Fia manako au ke fakaaoga e taha tagata fakahokohoko kupu	E	Nakai

Appendix E: Mental Health Research and Development Strategy Website Content

Information about Te Rau Hinengaro: The New Zealand Mental Health Survey and the documents listed below are available from the Mental Health Research and Development Strategy website (http://www.mhrds.govt.nz).

Mental Health Research and Development Strategy. 2003. *The Mental Health & Well Being Survey: Te Rau Hinengaro 2003–4*. Brochure. Wellington: Ministry of Health, Health Research Council of New Zealand, Mental Health Research and Development Strategy, Alcohol Advisory Council of New Zealand.

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Te Rau Hinengaro: New Zealand Mental Health Epidemiology Study. 2003. *Guiding Principles for the Kaitiaki Group and Research Team* [reproduced in Appendix C].

Te Rau Hinengaro: New Zealand Mental Health Epidemiology Study, Kaitiaki Group. 2003. *Protocols for Access To and Use of Māori Dataset*.

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