

Comorbid substance use disorders and mental health disorders among New Zealand prisoners

Prepared by:

**Devon Indig
Craig Gear
Kay Wilhelm**

Data collection by:

National Research Bureau

June 2016

Published by the New Zealand Department of Corrections

Acknowledgements

The authors would like to acknowledge and thank the following individuals and organisations for their support, input and assistance in the development and implementation of this study:

- Funding agency – New Zealand Department of Corrections, including project oversight by Jill Bowman and Peter Johnston.
- Data collection agency – National Research Bureau who conducted the interviews and collected the data, with particular thanks to Andy Heinemann and Lindsay Walton.
- Operational support - Corrections staff, including officers and health staff who supported the survey being conducted and brought participants for interview.
- Peer review – Associate Professor Kimberlie Dean for reviewing the final report and providing useful suggestions for improvement.
- Participants – Lastly, and most importantly, we wish to acknowledge the participants for contributing their time and for their willingness to share their histories and discuss a range of sensitive issues.

Abbreviations

APA	American Psychiatric Association
CAPI	Computer Assisted Personal Interviewing
CIDI	Composite International Diagnostic Interview
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, 4 th Edition
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, 5 th Edition
ICD-10	International Classification of Diseases, 10 th revision
NRB	National Research Bureau
PDQ4	Personality Diagnostic Questionnaire 4+
RSE	Relative standard error

Suggested Citation: Indig D, Gear C, Wilhelm K. (2016) Comorbid substance use disorders and mental health disorders among New Zealand prisoners. New Zealand Department of Corrections, Wellington.

Foreword

A study of New Zealand prisoners conducted by the Department of Corrections in 1999 showed that up to 70 percent had drug and/or alcohol problems and a significant proportion had various mental health issues. However, that research didn't consider the co-existence of mental health issues and drug/alcohol problems, which overseas studies have identified as significant among prisoners.

Offenders are screened for drug and alcohol issues and mental health problems on reception to prison but, if problems are indicated, further assessments are conducted separately and the conditions are treated in parallel or serially. Understanding the extent of comorbidity is critical to providing the best possible treatment to the prisoner population. It is acknowledged that diagnosis of comorbid drug/alcohol problems and mental health issues can be difficult, as the symptoms related to drug use and those related to mental health disorders can be confused. In addition, the symptoms related to drug taking or mental health disorders may combine and reinforce each other when they appear, making it difficult to distinguish between the two.

In 2014, the Department successfully applied for funds from the Government's Proceeds of Crime allocation under the Methamphetamine Action Plan to conduct a study into the prevalence of co-morbid mental health and substance abuse issues amongst prisoners. National Research Bureau was contracted to interview prisoners about substance use and mental health problems, and CGA Consulting was contracted to analyse the data collected and to produce a report summarising the findings.

Over 1200 prisoners were interviewed across 13 prisons between March and July 2015 and this report presents the findings from those interviews.

The results will enable the Department to work with the Ministry of Health to improve planning for service delivery across the health and corrections domains; they will support improved delivery of forensic mental health services within prisons; and they will assist the Department in assessing prisoners and ensuring that all forms of treatment, both psychiatric and rehabilitative, are delivered in an integrated way.

Table of contents

Acknowledgements	ii
Abbreviations.....	ii
Foreword	iii
Executive summary.....	v
Introduction.....	1
Methods	2
Results	8
1. Mental disorders	8
2. Anxiety disorders.....	13
3. Mood disorders	18
4. Substance use disorders.....	23
5. Eating disorders.....	32
6. Comorbidity.....	38
7. Multiple disorders	44
8. Personality disorders	51
9. Psychosis symptoms	56
10. Psychological distress	62
11. Suicidal behaviours.....	67
12. Mental health treatment.....	73
Summary and conclusions.....	77
References.....	80
Appendix 1: Glossary	81
Appendix 2: Participant Information Sheet.....	83

Executive summary

Introduction

Mental health and substance use disorders are known to be substantially higher among prisoners than in the general population. The purpose of this study was to investigate the prevalence and co-occurrence of mental health and substance use disorders among New Zealand prisoners.

Methods

This study used the Composite International Diagnostic Interview 3.0 (CIDI 3.0) and the Personality Diagnostic Questionnaire 4+ (PDQ-4) to assess the prevalence of mental health and substance use disorders. The study sample included 1209 New Zealand prisoners across 13 prisons. This report presents the prevalence for the 12-month and lifetime diagnosis of mental health and substance use disorders including breakdowns by gender, age and ethnicity. Comparisons have been provided where possible for the general population using the 2006 New Zealand Mental Health Survey (unless noted otherwise) or the 1999 New Zealand Prisoner Mental Health Study.

Results

Mental disorders

- Nearly all (91%) prisoners had a lifetime diagnosis of a mental health or substance use disorder and 62% had this diagnosis in the past 12-months.
- Female prisoners were significantly more likely to have a 12-month diagnosis of any mental disorder than male prisoners (75% compared to 61%).
- General population comparison: Prisoners were three times more likely than the general population to have a 12-month diagnosis of any mental disorder (62% compared to 21%).

Anxiety disorders

- Just over one in five (23%) prisoners had an anxiety disorder diagnosis in the past 12-months, while 30% had a lifetime anxiety diagnosis.
- Female prisoners had a significantly higher prevalence of post-traumatic stress disorder compared to males for both 12-month and lifetime diagnoses, with over half (52%) of women having a lifetime post-traumatic stress disorder diagnosis.
- General population comparison: A lifetime post-traumatic stress disorder diagnosis was four times higher among prisoners (24%) than in the general population (6%).
- Prison population comparison: The lifetime prevalence of generalised anxiety disorder was just over 1% in the 1999 prisoner mental health study which had increased to nearly 9% in 2015, while the lifetime prevalence of panic disorder had also increased from nearly 2% in 1999 to nearly 6% in 2015.

Mood disorders

- Nearly a third (32%) of prisoners had a lifetime diagnosis of any mood disorder, while 24% had a 12-month mood disorder diagnosis.
- When compared to other ethnic groups, Māori prisoners had the lowest prevalence of lifetime diagnosis of major depressive disorder (17%).
- General population comparison: The 12-month prevalence of any mood disorder was three times higher for prisoners (24%) than in the general population (8%).
- Prison population comparison: When compared to the 1999 prisoner mental health study, the lifetime prevalence of major depressive disorder decreased slightly (from 23% to 21%), the lifetime prevalence of bipolar increased from 2% to 11%, and dysthymia increased from 1% to 5%.

Substance use disorders

- A substantial majority of prisoners (87%) had a lifetime diagnosis of a substance use disorder, and just under half (47%) had a 12-month diagnosis of a substance use disorder.
- Marijuana was the most prevalent drug of abuse with 24% of prisoners having a lifetime diagnosis, while stimulants were the most common drug of dependence with 23% having a lifetime diagnosis.
- General population comparison: Prisoners were seven times more likely to have a lifetime prevalence of any substance use disorder compared to the general population.
- Prison population comparison: The prevalence of stimulant abuse and dependence (combined) had increased nearly 10-fold since the 1999 prisoner mental health study, from 4% reported in the 1999 study to 38% (15% for abuse and 23% for dependence) in 2015.

Eating disorders

- The lifetime prevalence of eating disorders among prisoners was 5%, while 3% were found to have a 12-month diagnosis.
- The prevalence of eating disorders was twice as high among female prisoners as among male prisoners, for both 12-month (7% compared to 3%) and lifetime (10% compared to 5%) diagnoses.
- General population comparison: Prisoners were seven times more likely to have a 12-month eating disorder diagnosis than the general population (3% compared to 0.5%).
- Prison population comparison: The lifetime prevalence of eating disorders increased five-fold (from 1% to 5%) from the 1999 prisoner mental health study to the 2015 study.

Comorbidity

- One in five (20%) of prisoners were found to have a 12-month diagnosis of a comorbid mental health and substance use disorder, while 42% were found to have a lifetime comorbidity diagnosis.
- Comorbidity was higher among women than men, for both 12-month and lifetime diagnoses.
- There was little variation by ethnicity for the lifetime and 12-month prevalence of comorbidity, with the highest rates found among prisoners of European descent.
- Prisoners with a lifetime diagnosis of a substance use disorder had almost half (48% compared to 93%) the prevalence of comorbidity compared to people with a lifetime anxiety disorder.

Multiple disorders

- Two-thirds (66%) of prisoners were found to have two or more lifetime diagnoses of a mental or substance use disorder, while 31% were found to have two or more 12-month diagnoses.
- A higher proportion of female prisoners (72%) compared to male prisoners (65%) had a lifetime diagnosis of two or more mental health and substance use disorders.
- A high proportion of prisoners diagnosed with a lifetime anxiety (84%) or mood (81%) disorder were found to have a lifetime diagnosis of three or more disorders, compared to 40% of prisoners with a substance use disorder.
- General population comparison: Prisoners were nearly four times more likely to have two or more 12-month diagnoses of mental health and substance use disorders than the general population (30% compared to 8%).

Personality disorders

- One in three (33%) prisoners was found to have a clinically significant personality disorder, with a slightly higher prevalence among men than women.
- The most common personality disorders detected were paranoid (15%), antisocial (11%), obsessive compulsive (10%) and borderline (9%).
- The highest prevalence (46%) of personality disorders were found among prisoners with a lifetime comorbid mood disorder diagnosis.
- Prison population comparison: The lifetime prevalence of personality disorders was nearly twice as high (60% compared to 33%) among New Zealand prisoners in 1999 compared to the current 2015 study.

Psychosis symptoms

- The lifetime presence of psychosis symptoms (such as seeing visions and hearing voices) was present in 13% of prisoners, and in 7% of prisoners in the past year.
- Prisoners with a lifetime diagnosis of an anxiety (23%) or mood (20%) disorder had the highest prevalence of ever experiencing symptoms of psychosis compared to 13% overall.
- Prison population comparison: The lifetime prevalence of schizophrenia and related disorders was estimated to be 6% in the 1999 prisoner mental health study, while 12% of prisoners were found to report symptoms of psychosis in 2015.

Psychological distress

- Over one in four (28%) of prisoners experienced psychological distress in the past 30 days.
- There were significantly higher rates of psychological distress among female (47%) compared to male (27%) prisoners.
- The prevalence of psychological distress was more than twice as high (60% compared to 28%) for prisoners with a 12-month diagnosis of an anxiety disorder compared to the total.
- General population comparison: Prisoners were nearly five times more likely (28% compared to 6%) to have experienced psychological distress in the past 30 days compared to the general population from the 2013/14 New Zealand Health Survey.

Suicidal behaviours

- Over one-third (35%) of prisoners had ever thought about suicide, 17% had ever made a suicide plan and 19% of prisoners had ever attempted suicide.
- Female prisoners had higher rates of suicidal behaviours than men, including ever thinking about suicide (44% compared to 34%) and ever attempting suicide (29% compared to 18%).
- General population comparison: Prisoners had higher rates of suicidal behaviours than people in the general population, including being twice as likely to have ever thought about suicide (35% compared to 16%) and four times as likely to have ever attempted suicide (19% compared to 5%).

Mental health treatment

- Nearly half (46%) of prisoners diagnosed with a 12-month mental health or substance use disorder had received some form of mental health treatment in the past year.
- Female prisoners had significantly higher rates of mental health treatment than males for nearly all disorders, including 60% of women with a 12-month diagnosis of any mental disorder obtaining mental health treatment compared to 45% of men.
- Pacific peoples were substantially less likely to access health services for their mental health than prisoners of European descent (33% compared to 54%).
- General population comparison: Fewer than half (46%) of prisoners with a 12-month diagnosis of any mental disorder received some form of mental health treatment in the past year, which was slightly higher (39%) than found in the general population.

Conclusions

In summary, prisoners had high rates of mental health and substance use disorders including high rates of comorbidity which were often undetected and under-treated. The findings of this report provide important evidence to assist with identifying areas for improved detection, early intervention, treatment and rehabilitation and diversion away from the criminal justice system. In particular, the findings suggest that improved integration of mental health and substance use disorder treatment would be an important strategy for improving the health and reducing re-offending among prisoners.

Infographic: Comparing 12-month diagnosis of prisoners to the general population

	Prisoner population	General population	Difference
<u>Individual disorders</u>			
Any anxiety disorder	23	15	1.5X
Any mood disorder	24	8	3X
Any substance use disorder	47	4	13X
Any eating disorder	3	<1	7X
Any mental disorder	62	21	3X
<u>Comorbidity/Multiple disorders</u>			
Two or more disorders	31	8	4X
Any comorbidity	20	N/A	

Table i. Comparisons with 2006 general population survey

	12-month diagnosis		Lifetime diagnosis	
	2015 prisoner population (n=1209) %	2006 general population %	2015 prisoner population (n=1209) %	2006 general population %
Anxiety disorders				
Generalised anxiety disorder	5.2	2.0	8.9	6.0
Panic disorder	4.4	1.7	5.7	2.7
Post-traumatic stress disorder	16.0	3.0	23.7	6.0
Any anxiety disorder	22.5	14.8	30.3	24.9
Mood disorders				
Bipolar disorder	9.0	2.2	11.2	3.8
Dysthymia	4.2	1.1	5.1	2.1
Major depressive disorder	14.6	5.7	20.6	16.0
Any mood disorder	23.7	7.9	32.0	20.2
Substance use disorders				
Alcohol abuse	11.9	2.6	42.9	11.4
Alcohol dependence	18.1	1.3	35.8	4.0
Drug abuse	5.1	1.2	22.7	5.3
Drug dependence	21.3	0.7	37.1	2.2
Any substance use disorder	46.8	3.5	87.2	12.3
Summary measures				
Any eating disorder	3.3	0.5	5.1	1.7
Any mental disorder*	62.2	20.7	90.9	39.5
Any comorbidity#	20.4	-	41.8	-
Multiple disorders				
No disorders	37.8	79.3	9.1	60.5
One disorder	31.3	13.0	25.4	20.0
Two disorders	16.7	4.4	30.2	9.9
Three or more disorders	14.1	3.3	35.4	9.7
Other mental health measures				
Any personality disorder	-	-	32.9	-
Psychosis symptoms	6.5	-	12.9	-
Psychological distress in the past 30 days	28.3	-	-	-
Suicidal behaviours				
Suicide ideation	14.2	3.2	34.5	15.7
Suicide plan	6.8	1.0	17.3	5.5
Suicide attempt	5.5	0.4	19.3	4.5
Mental health treatment (past year)				
Any anxiety disorder	58.0	39.4	-	-
Any mood disorder	58.8	55.1	-	-
Any substance use disorder	42.2	29.9	-	-
Any mental disorder	45.7	38.9	-	-

*Includes any mood, anxiety, substance or eating disorder; # Includes any mental disorder and any substance use disorder

Introduction

The prevalence of mental health and substance use disorders is known to be substantially higher among prisoners than in the general population and is associated with their offending behaviours (Chang et al, 2015; Fazel and Seewald, 2012; Young et al, 2011). Among prisoners, women have been found to have a higher prevalence of mental disorders than men (Fazel and Seewald, 2012; Butler et al, 2006).

In 1999, the New Zealand Department of Corrections commissioned an investigation into the prevalence of psychiatric disorders among prisoners (Department of Corrections, 1999). The methodology for that study included administering the Composite International Diagnostic Interview – Automated (CIDI-A) and the Personality Diagnostic Questionnaire 4+ (PDQ-4) to estimate the prevalence of mental disorders among 1248 prisoners. The study found significantly elevated prevalence of most mental health and substance use disorders compared to a 1989 New Zealand population survey.

More recently, the Ministry of Health commissioned the first population level mental health survey (the Te Rau Hingengaro: New Zealand Mental Health Survey) which was published in 2006 (Oakley Browne et al, 2006). The survey reported on the one-month, 12-month and lifetime prevalence rates of major mental disorders among people aged 16 years and over living in private households. The study used the Composite International Diagnostic Interview 3.0 (CIDI 3.0) and over-sampled on Māori and Pacific peoples in order to make accurate comparisons by ethnicity. This study found the 12-month prevalence of two or more mental health or substance use disorders to be 7.7%. This was lower than found in the United States National Comorbidity Survey Replication (which also used the CIDI) which found the prevalence of two or more disorders to be 13.8% (Kessler et al, 2005). Using a different definition of comorbidity in an Australian prisoner study, the 12-month prevalence of a co-occurring mental illness and substance use disorder was found to be 29% (46% for women and 25% for men) (Butler et al, 2011).

The purpose of this study was to investigate the prevalence and co-occurrence of mental health and substance use disorders among New Zealand prisoners.

Methods

The implementation of the survey was split into two parts, with data collection conducted by National Research Bureau (NRB) based in New Zealand, and analysis of the data and preparation of this report completed by a research team based in Australia. Ethics approval for this study was obtained from the Central Health and Disability Ethics Committee of the Ministry of Health in February 2015 (15/CEN/18). This research was commissioned by the Department of Corrections utilising funding from the Government's Proceeds of Crime under the Methamphetamine Action Plan.

Sample frame

The target population for the survey was at least 1200 prisoners (comprising males and females) in one of the 13 prisons selected for participation and who met the following inclusion criteria:

- Aged 18 years and over
- Proficient in English
- Newly sentenced or in custody for less than 3 months

The target sample size of 1200 was determined based on the maximum participation achievable given the available funding, in addition to some background estimates to obtain a representative sample given the New Zealand prison population size (about 8000). Over-sampling of women (and other population groups) was considered but not progressed. More detail on the sample characteristics compared to the overall New Zealand prison population characteristics is included later in this chapter.

The time span for the term 'newly sentenced' was initially defined to include the last 30 days, but then widened to include the last three months to enable the target sample size to be achieved. Remand convicted prisoners were also included. As a result of the movement of prisoners between prisons, it was not possible to accurately determine the proportion of newly sentenced prisoners available in each prison. Prisoners were excluded if the Department of Corrections staff regarded them as unable to safely participate as a result to their physical or mental health or behaviour.

Recruitment

The recruitment procedure for this study is outlined below (Figure i). The first step was for Corrections staff to compile a list of prisoners who met the study eligibility criteria. Prison staff approached each person on the list and told them that:

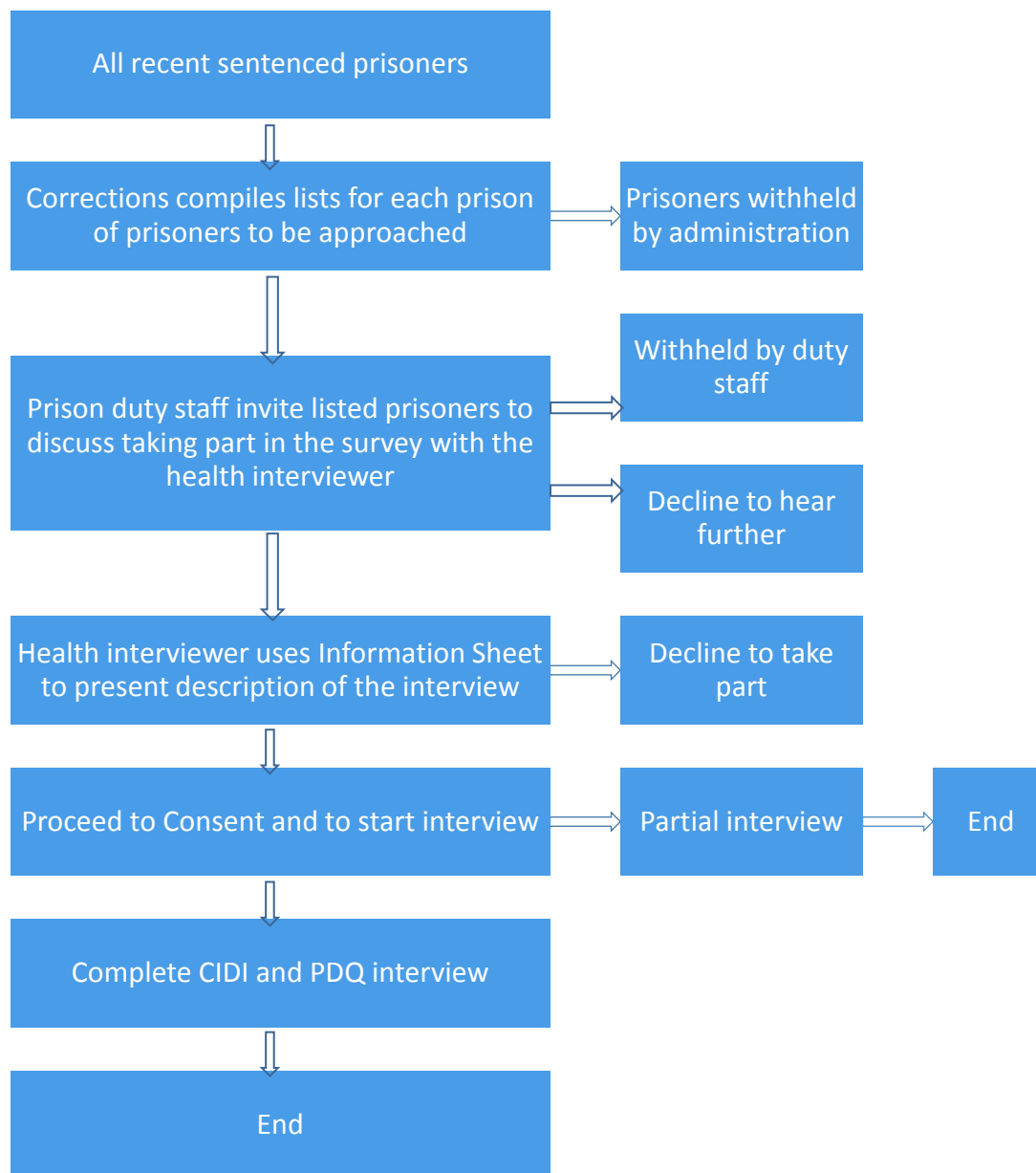
- a health study was in progress and they were invited to take part
- any questions they may have were best answered by the health interviewer
- it was not compulsory to take part but that they might find it interesting to do so.

Prisoners who declined to hear further about the study were excluded from participation. The Department of Corrections was unable to provide estimates of how many prisoners declined before discussing the survey with the interview staff. The prospective participant was then taken to the interview room by Corrections staff, introduced to the interviewer and seated. Corrections staff remained nearby to ensure interviewer safety but out of earshot to ensure participant confidentiality.

The interviewer explained the study verbally and with the printed Information Sheet (see Appendix 1), which described the study procedures and provided answers to frequently asked questions. Those who declined to participate were thanked for their time and returned to their cells by Corrections staff. Interviewers documented these refusals which are captured below (Table i). Participants were not paid for their involvement.

Those who agreed to participate were taken through an informed consent procedure prescribed by the Ministry of Health Ethics Committee to ensure they understood their role in the research and informing them that they could decline to answer any question they wished and withdraw at any time without repercussions. Participants were also invited to ask any questions. If the participant wished to proceed, the consent form was provided for them to sign. As a result of the need for supervision by Corrections staff, it was only practical to have two interviewers working at any prison on a given day, with each attempting one morning and one afternoon interview.

Figure i: Recruitment procedure



Response rates

Table ii reports the proportion of prisoners who agreed to proceed within each prison after having had the survey explained to them by the interviewer, using the Information Sheet. As previously mentioned, these rates do not account for the total number of prisoners approached for participation by Corrections so should be interpreted with caution.

Table ii. Response rates by prison

2015 prisoner population	Approached (n)	Refusals (n)	Incomplete (n)	Participants (n)	Response rate (%)
Auckland Region Women's Corrections Facility	134	47	18	69	51.5
Auckland Prison	46	2	7	37	80.4
Christchurch Men's Prison	191	34	22	135	70.7
Christchurch Women's Prison	56	0	12	44	78.6
Hawke's Bay Regional Prison	134	11	20	103	76.9
Invercargill Prison	49	0	5	44	89.8
Manawatu Prison	34	2	0	32	94.1
Mt Eden Corrections Facility	99	13	13	73	73.7
Otago Corrections Facility	81	4	13	64	79.0
Rimutaka Prison	243	32	7	204	84.0
Spring Hill Corrections Facility	201	9	14	178	88.6
Waikeria Prison	204	25	16	163	79.9
Whanganui Prison	85	10	12	63	74.1
Total	1557	189	159	1209	77.6

Implementation of the survey began on 16 March 2015. Over a four month period (until 15 July 2015), 1557 prisoners agreed to discuss the survey with interviewers. Of these, 189 (12%) refused to participate and a further 159 (10%) consented to participate but did not complete all CIDI modules instruments so were excluded from the final sample. Survey cessation was mostly initiated by the participant citing such reasons as fatigue or boredom due to the survey length and becoming upset or annoyed due to the survey content. Sometimes (for approximately 5 participants) the interviewer ceased the interview because they did not believe the respondent was providing reliable answers due to cognitive impairment or mental illness. On occasion, when an interview may have lasted more than a day, the participant may have been released so was unable to complete the interview. As part of the study risk management procedures, participants who expressed any distress were referred by interviewers back to the normal care team for additional treatment and support.

The final study sample comprised 1209 participants reflecting a 78% response rate among prisoners who spoke directly to the interviewers. The average duration for interview completion was 105 minutes, with a median duration of 93 minutes. The longest duration was 380 minutes over multiple sessions.

Assessment tools

The primary data collection instrument for this study was the World Health Organisation World Mental Health Composite International Diagnostic Instrument version 3.0 (CIDI). More information about the CIDI 3.0 can be found at: <http://hcp.med.harvard.edu/wmhcdi/index.php>. The CIDI was also the instrument used in the 2006 New Zealand Mental Health Survey and 1999 New Zealand Prisoner Mental Health Study, which are the primary surveys used for comparison purposes in this report.

The CIDI is a fully structured and validated diagnostic interview that can be administered by trained lay interviewers. The CIDI is structured in diagnostic modules, each addressing a mental disorder. The CIDI modules selected for inclusion included anxiety disorders (generalised anxiety disorder, panic disorder, post-traumatic stress disorder), mood disorders (depression, mania), substance use disorders (alcohol, drugs), eating disorders, psychosis symptoms, 30 day symptoms, suicidality, services, the screener and demographics. The CIDI 3.0 creates diagnostic codes based on DSM-IV (despite DSM-5 being the most current version) and International Classification of Diseases (ICD-10) classification systems. This report focuses on the DSM-IV diagnoses, as is mostly commonly used in New Zealand.

It should be noted that this survey did not include the CIDI modules for obsessive compulsive disorder, phobias (specific and social phobia) or separation anxiety disorder due to the anticipated survey length. This limits direct comparisons with the 2006 general population study for 'Any Anxiety disorder' which

included assessment of these CIDI modules. To enable better comparison of the results from this study with the 2006 survey, the findings from these excluded modules have been included in the report.

The study also used the Personality Diagnostic Questionnaire 4+ (PDQ-4). More information about the PDQ-4 can be found at: <http://www.pdq4.com/index.html>. The PDQ-4 was scored for clinical significance by analysis of the additional questions administered as part of the clinical significance scale. This included answering yes to 'is this really true for you?' the condition affecting them for most of their life, not being related to any other mental or physical health condition, and having caused them problems in their life. Both tools were administered using Computer Assisted Personal Interviewing (CAPI).

Psychological distress is captured as part of the 30-day symptoms module of the CIDI which follows the K10 questionnaire (Kessler et al, 2002). In this study, the 2013/14 New Zealand Health Survey is used as the general population comparison group for psychological distress so the cut-off of 12 or more was used for consistency purposes.

Interviewer training and support

Training to administer the CIDI-3.0 consisted of a two day intensive session delivered by authorised trainers from The Australasian CIDI Training and Resource Centre, which is hosted at the University of Tasmania. Training was followed by a certification trial. Interviewers progressed to fieldwork, or to remedial training as required. Only CIDI certified interviewers were progressed to interviewing for the study. Interviewers were also provided with a formal orientation to the correctional environment before they began interviewing.

NRB's Field Manager kept regular contact with each interviewer to monitor their stress, if any, resulting from hearing the often traumatic histories of the prisoners they interviewed. These interactions proved to be necessary and effective in maintaining the morale of the interviewing team. Interviewers who observed prisoners being distressed by the survey questions advised custodial staff, who could arrange appropriate support for participants.

Data collection procedures

The interviews were administered face-to-face by 24 trained interviewers across New Zealand. The questionnaires were hosted on laptops with all the sequences and branching pre-determined within the CIDI and PDQ software CAPI versions of those two instruments. Interviewers entered the responses given on keyboards. Care was taken at each step of the interviewing and data handling to protect the anonymity and confidentiality of the respondent's answers to the survey including:

- At the recruitment into the interview, the respondent's name was entered onto the Consent Form, which they also signed. The Consent Forms and Record of Participation were then stored centrally at NRB premises physically separate from the electronic data.
- The laptops, into which the answers had been recorded, were password protected to prevent any casual access to the individual data they held.
- Since the individual records were identifiable with a Person Record Number, the laptops were cleared of the survey interviews once it had been assured that uncorrupted and intelligible data had been provided to the researchers.
- The Person Record Number was retained with each interview to enable Corrections to link each record with other relevant health or criminological information.

NRB provided the authors of this report copies of the electronic data collected through secure file transfer at three time periods in the data collection process (at the start, the middle and at the conclusion). At the conclusion of data collection, NRB ran the SAS macros as part of the CAPI software provided for the CIDI administration to calculate the diagnostic prevalence of the included conditions.

Data cleaning, weighting and analysis

Once the authors of this report obtained the final dataset from NRB, detailed data dictionaries were prepared for the PDQ4 and CIDI modules included. Corrections provided an administrative dataset from its official operational database (the Integrated Offender Management System) for survey participants including some additional demographic and offending data items. The data from the PDQ4, CIDI and Corrections data were read into SAS version 9.4 and linked using the unique Person Record Number. The final data was then extensively checked for data quality and consistency errors. This included: identifying duplicate interviews, excluding incomplete interviews and preparing summary diagnostic variables which included skip pattern responses.

Diagnoses which may be caused by physical or organic causes (including depression, mania, panic disorder, generalised anxiety disorder and psychosis) were checked by a psychiatrist. They were excluded if the diagnosis was found to be always the result of a physical or organic cause. The final sample was then weighted to reflect the prison population (by age, gender and ethnicity) as at 17 May 2015, which was provided by Corrections. As a result of this weighting, tables only include the summary sample size (n) within a variable rather than within each table cell. A comparison between these two populations is described in the sample characteristics section below.

In order to ensure comparability with the New Zealand general population, the disorder definitions used in the 2006 population survey were applied for this survey. This included using the DSM-IV diagnostic categories from the CIDI and the following summary variables (see Appendix 1 for full glossary):

- Bipolar disorder – included any BipolarI, BipolarII, Mania or Hypomania disorders
- Any mental disorder – included any anxiety, mood, substance or eating disorders
- Multiple disorders – defined by the presence of two or more disorders
- Mental health treatment in the past year – visit for a mental health problem to a mental health professional including psychiatrists, psychologists, counsellors, social workers, general medical or nursing professionals, or other mental health workers

In this report, comorbidity is defined by the presence of a DSM-IV CIDI diagnosis for a substance use disorder (alcohol and/or drugs) with a mental health disorder (mood and/or anxiety). It should be noted that this is an underestimate of comorbidity as it excludes participants who were found to have a personality disorder, psychological distress, and symptoms of psychosis. However, this definition was applied to enable comparability with other published comorbidity research (Butler et al, 2011).

Data analysis was conducted in SAS version 9.4 and included procedures which accounted for the sample weighting and complex survey design. This included basic frequencies and statistical tests (chi-squares) to determine significant differences by gender among the main survey findings. The sample was reported by age groups (17-24 years, 25-44 years, 45-64 years, 65 years and older) that matched the 2006 New Zealand Mental Health Survey. For each estimate, the relative standard error was calculated to assess the reliability of the estimates. Prevalence estimates with a relative standard error of 25% or greater have been flagged in the tables to indicate that they are subject to high sampling error and should be used with caution.

The diagnostic codes were analysed using CIDI hierarchy rules so, for example, participants with a diagnosis of alcohol dependence could not be diagnosed with alcohol abuse. The other diagnostic codes where hierarchy rules apply include: generalised anxiety disorder, dysthymia, major depressive disorder, alcohol abuse, drug abuse, bulimia and binge eating.

Sample characteristics

A comparison between the demographic characteristics of the study population with the prison population as at 17 May 2015 is included in Table iii below. The study sample included a higher prevalence of women

(9.3% compared to 6.1%) and younger people (average age 32.8 years compared to 36.1 years) than found in the overall prison population. Ethnicity in the sample was derived from Corrections operational database which was self-disclosed by prisoners and linked to the survey sample.

Table iii. Study population characteristics compared to total prison population

Variable		Total prison population (n=8797) %	Study population (n=1209) %
Gender	Men	93.9	90.7
	Women	6.1	9.3
Age group	17-24 years	19.0	26.0
	25-44 years	56.0	56.7
	45-64 years	22.2	15.8
	65+ years	2.8	1.5
	Average age (years)	36.1	32.8
	Median age (years)	34.0	30.0
Ethnicity	European	32.8	35.0
	Māori	50.5	51.5
	Pacific peoples	11.6	9.8
	Other/Not recorded	5.1	3.7

Additional characteristics of the sample are included in Table iv below, including country of birth, marital status, highest secondary school qualification, other qualification and smoking status.

Table iv. Other study population characteristics

Variable		Study population (n=1209) %
Country of birth	New Zealand	90.9
	Other	9.1
Marital status	Married	7.8
	Separated	11.1
	Divorced	4.5
	Widowed	0.7
	Never married	75.9
Current defacto (excludes married)	Yes	46.7
	No	53.3
Highest secondary school qualification	None	65.3
	School cert 1+ subjects/National Cert level 1	16.6
	Sixth form cert 1+ subjects/National Cert level 2	9.8
	University or other	8.3
Other qualification	No qualifications beyond secondary school	54.7
	Trade or technical cert 3+ months study	30.4
	Other	14.9
Smoking status	Current smoker (prior to prison)	42.9
	Ex-smoker	44.5
	Never smoked	11.6
	Only smoked a few times	1.0

This report presents the main findings including 12-month and lifetime diagnosis of mental health and substance use disorders including breakdowns by gender, age and ethnicity. In this report, findings for 12-month diagnoses are presented in shades of blue in graphs, while lifetime diagnoses are presented in shades of black. Comparisons were provided for the New Zealand general population using the 2006 survey throughout this report where available. The 2013/14 New Zealand Health Survey is used as the comparison population for psychological distress. Comparisons have also been provided with the 1999 New Zealand Prisoner Mental Health Study for individual diagnoses throughout most sections of the report (excluding comorbidity, psychological distress, suicidal behaviours and mental health treatment), based on information available in the published report. These general population findings have been shaded grey in the tables for easy identification.

Results

1. Mental disorders

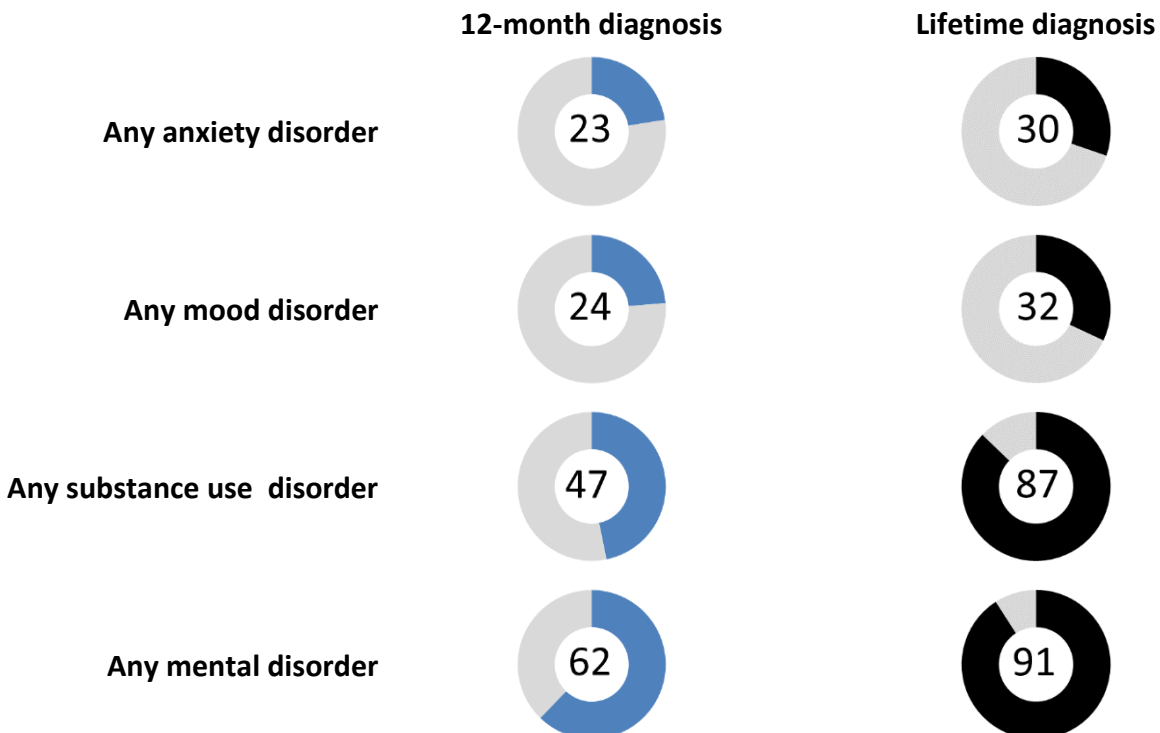
This chapter presents the overall findings for this study (with comparisons with the general population where available) for the main categories of mental disorders and substance use disorders, which are discussed in more detail in later chapters.

Expected key findings

- All mental disorders were higher among prisoners than the general population, with the greatest difference found with lifetime and 12-month substance use disorders.
- The proportion of men and women with substance use disorders was similar among prisoners but significantly higher among men than women in the general population.

Unexpected key findings

- In the general population, men were twice as likely as women to have a 12-month diagnosis of a substance use disorder; while in prison, women were more likely to have a 12-month diagnosis of a substance use disorder than men.
- Among prisoners, the highest prevalence of any mental disorder was found among Pacific peoples, whilst this population had the lowest prevalence of any mental disorder in the general population.



1.1 Mental disorders summary

Prisoners had a higher rate of all mental disorders than the general population, with particularly high rates of 12-month and lifetime prevalence of substance use disorders (Table 1.1). The study found nearly all (91%) prisoners had a lifetime diagnosis of a mental health or substance use disorder, compared to 40% in the general population.

Figure 1.1 Mental disorders summary, 2015 prisoner population

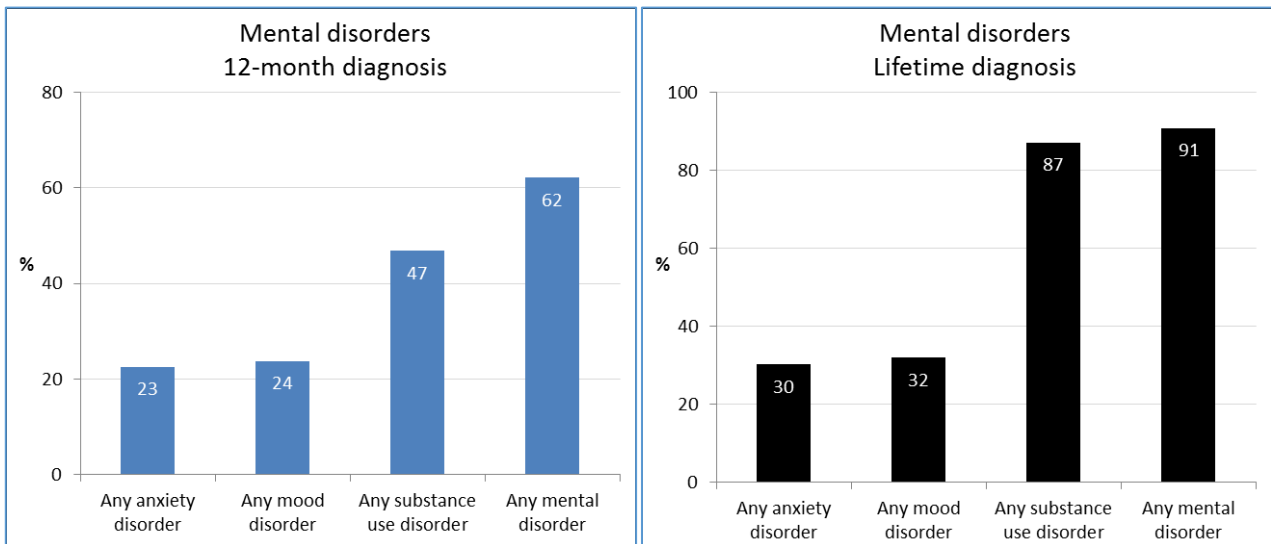


Table 1.1 Mental disorders summary by study population

	2015 prisoner population		2006 general population	
	12-month (n=1209) %	Lifetime (n=1209) %	12-month %	Lifetime %
Any anxiety disorder	22.5	30.3	14.8	24.9
Any mood disorder	23.7	32.0	7.9	20.2
Any substance use disorder	46.8	87.2	3.5	12.3
Any mental disorder	62.2	90.9	20.7	39.5

1.2 Mental disorders by gender

In both the general population and in prison, women had a higher lifetime and 12-month prevalence of anxiety and mood disorders and men had a higher lifetime prevalence of substance use disorders (Table 1.2). In the general population, men had a higher prevalence of substance use disorders in the past 12 months than women. However, among prisoners, women had higher 12-month prevalence than men.

Figure 1.2 Mental disorders by gender, 2015 prisoner population

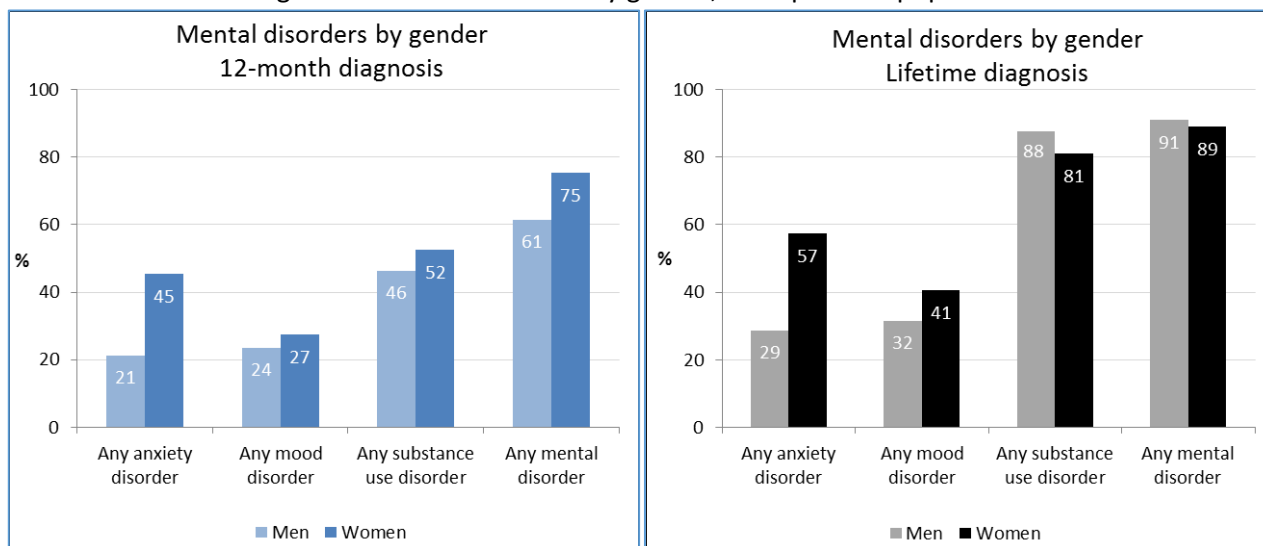


Table 1.2 Mental disorders by gender by study population

		2015 prisoner population		2006 general population	
		Men (n=1096) %	Women (n=113) %	Men %	Women %
Any anxiety disorder	12-month	21.2	45.3†	10.7	18.6
	Lifetime	28.7	57.3†	19.9	29.4
Any mood disorder	12-month	23.5	27.4	6.3	9.5
	Lifetime	31.5	40.6	15.6	24.3
Any substance use disorder	12-month	46.4	52.4	5.0	2.2
	Lifetime	87.6	81.0†	17.3	7.7
Any mental disorder	12-month	61.4	75.3†	17.1	24.0
	Lifetime	91.0	88.9	36.5	42.3

†Statistically significant (P<0.05)

1.3 Mental disorders by age group

The prevalence of a 12-month diagnosis of any mental or substance use disorder decreased with age for both prison and general population samples (Table 1.3). The lifetime diagnosis of any mental or substance use disorder peaked in the 25 to 44 year age group for both prison and general population samples.

Figure 1.3 Mental disorders by age group, 2015 prisoner population

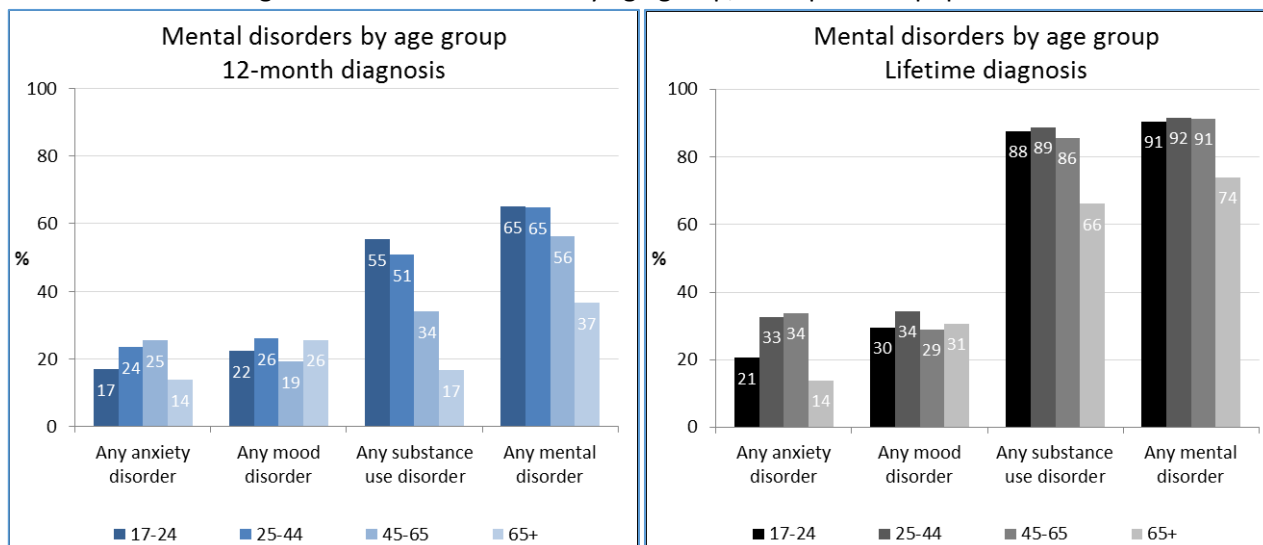


Table 1.3 Mental disorders by age group by study population

		2015 prisoner population				2006 general population			
		17-24 (n=314) %	25-44 (n=686) %	45-64 (n=191) %	65+ (n=18) %	16-24 %	25-44 %	45-64 %	65+ %
Any anxiety disorder	12-month	16.9	23.5	25.4	13.8 [^]	17.7	18.2	13.2	6.0
	Lifetime	20.5	32.7	33.7	13.8 [^]	23.9	28.9	25.4	14.2
Any mood disorder	12-month	22.3	26.1	19.1	25.6 [^]	12.7	9.2	6.8	2.0
	Lifetime	29.5	34.3	28.9	30.6 [^]	20.7	22.2	22.0	10.6
Any substance use disorder	12-month	55.3	50.7	34.0	16.7 [^]	9.6	4.2	1.2	<0.1
	Lifetime	87.6	88.8	85.5	66.1	18.8	14.6	10.0	4.0
Any mental disorder	12-month	65.1	64.8	56.3	36.5 [^]	28.6	25.1	17.4	7.1
	Lifetime	90.5	91.7	91.2	74.0	11.3	12.3	8.9	2.4

[^]ARSE >25% - interpret with caution

1.4 Mental disorders by ethnicity

The highest prevalence of any mental disorder among prisoners was found among Pacific peoples, while this population had the lowest prevalence of any mental disorder in the general population.

Figure 1.4 Mental disorders by ethnicity, 2015 prisoner population

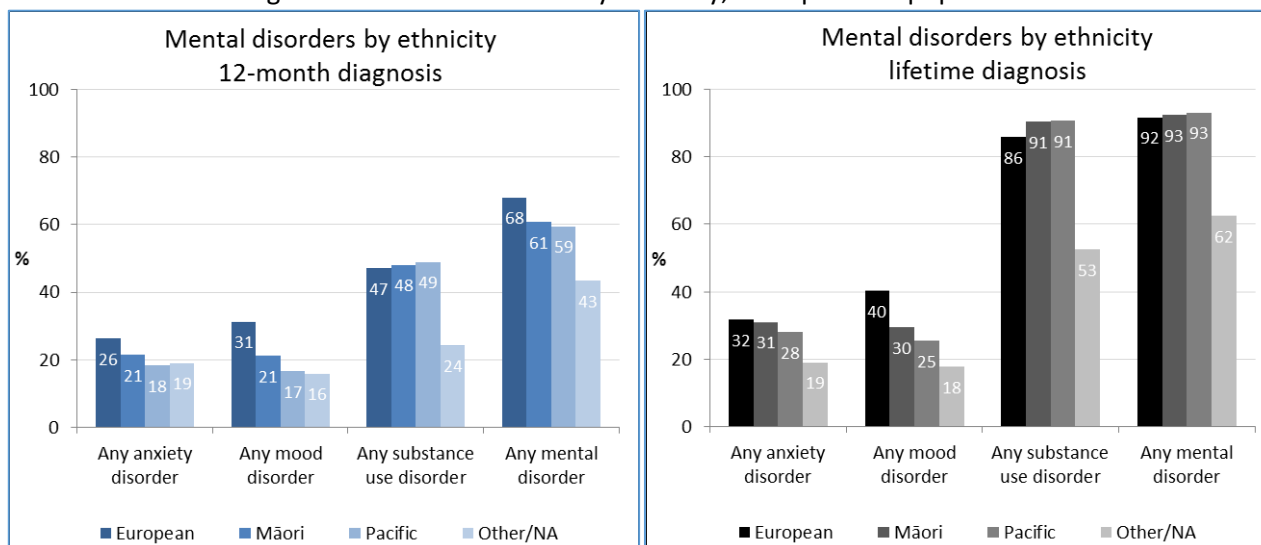


Table 1.4 Mental disorders by ethnicity by study population

		2015 prisoner population				2006 general population		
		European (n=423) %	Māori (n=622) %	Pacific peoples (n=119) %	Other/not available (n=45) %	Total %	Māori %	Pacific peoples %
Any anxiety disorder	12-month	26.2	21.4	18.3	19.0 [^]	14.8	16.2	14.8
	Lifetime	31.6	31.0	27.9	19.0 [^]	24.9	27.7	24.9
Any mood disorder	12-month	31.3	21.2	16.6	15.8 [^]	7.9	8.6	8.0
	Lifetime	40.2	29.5	25.4	17.8 [^]	20.2	19.0	20.2
Any substance use disorder	12-month	47.1	48.0	48.9	24.2 [^]	3.5	5.3	3.5
	Lifetime	85.8	90.5	90.8	52.6	12.3	17.7	12.3
Any mental disorder	12-month	68.0	60.7	59.4	43.4	20.7	25.0	20.7
	Lifetime	91.7	92.5	93.1	62.4	39.5	46.5	39.5

[^]RSE >25% - interpret with caution

1.5 Mental disorders conclusion

Nearly all prisoners had a history of a mental health disorder or substance use disorder at some point in their lives. This included a prevalence which was substantially higher than found in the general population. There were few differences in lifetime prevalence of any mental disorder by gender, age or ethnicity among prisoners.

2. Anxiety disorders

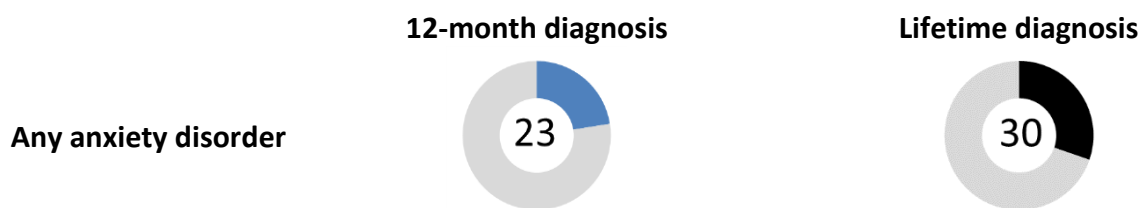
Anxiety disorders are mental disorders characterised by anxiety as a central or core symptom, with the DSM-IV major classifications including panic disorders, post-traumatic stress disorder, generalised anxiety disorder, phobias, separation anxiety disorder and obsessive compulsive disorder, (APA, 2000). Panic disorder (with or without agoraphobia) is characterised by sudden attacks of intense fear or panic that triggers severe physical reactions when there is no real danger or apparent cause. Post-traumatic stress disorder is a condition of persistent mental and emotional stress as a result of traumatic events in life, typically involving sleep disturbance and dulled responses to others and the outside world. Generalised anxiety disorder is characterised by excessive or disproportionate anxiety about multiple aspects of life such as extreme worrying almost every day for six months or more.

Expected key findings

- Post-traumatic stress disorder was significantly higher among prisoners than the general population.
- Anxiety disorders peaked in mid-life for both prisoners and the general population.

Unexpected key findings

- Panic disorder was more prevalent in men than women prisoners while the reverse was found in the general population.



Any anxiety disorder

2.1 Anxiety disorders summary

Nearly one in four (24%) prisoners had a lifetime diagnosis of post-traumatic stress disorder reflecting a prevalence four times higher than the general population rate (6%) (Table 2.1). Panic disorder was twice as common among prisoners as in the general population for a lifetime and 12-month diagnosis.

When compared to findings from the 1999 New Zealand Prisoner Mental Health Study, the lifetime prevalence of generalised anxiety disorder was just over 1% in 1999 had increased to nearly 9% in 2015, while the lifetime prevalence of panic disorder had also increased from nearly 2% in 1999 to nearly 6% in 2015. There was little change in the lifetime prevalence of post-traumatic stress disorder, which was 23% in 1999 and 24% in 2015. The 1999 study also included some of the anxiety disorders not included in 2015, including a lifetime prevalence of phobic disorder (including social and specific phobia) at 17.2%, obsessive compulsive disorder at 6.8% and agoraphobia without panic disorder at 0.9%.

Figure 2.1 Anxiety disorders summary, 2015 prisoner population

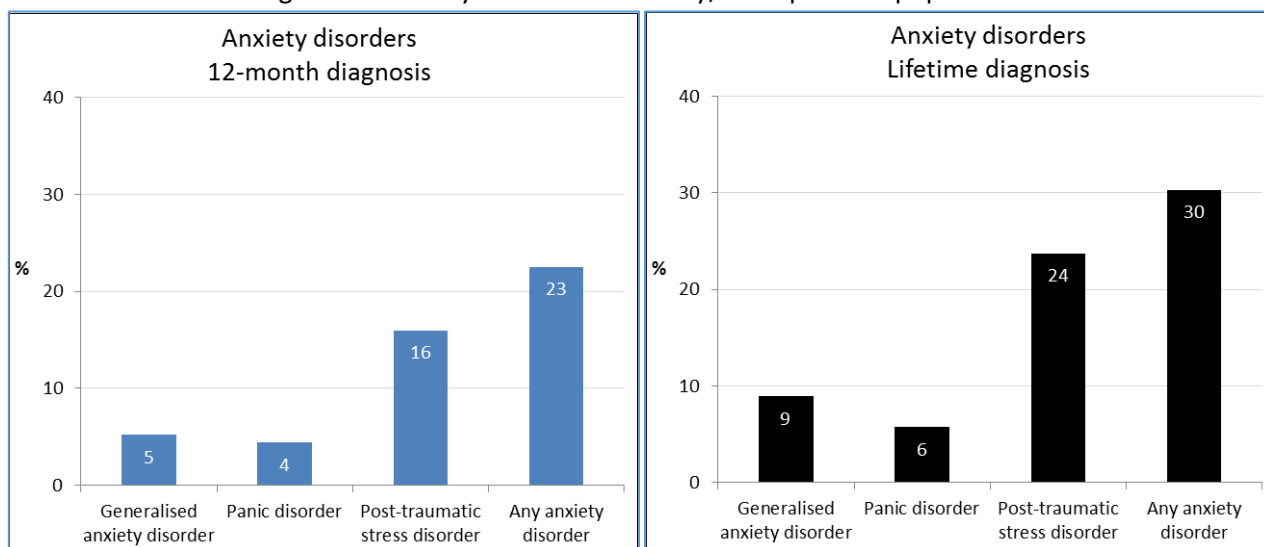


Table 2.1 Anxiety disorders summary by study population

	2015 prisoner population		2006 general population		1999 prisoner population
	12-month (n=1209) %	Lifetime (n=1209) %	12-month %	Lifetime %	Lifetime (n=1248) %
Generalised anxiety disorder	5.2	8.9	2.0	6.0	1.2
Panic disorder	4.4	5.7	1.7	2.7	1.6
Post-traumatic stress disorder	16.0	23.7	3.0	6.0	22.8
Agoraphobia without panic disorder	*	*	0.6	1.2	0.9
Specific phobia~	*	*	7.3	10.8	17.2
Social phobia~	*	*	5.1	9.4	
Obsessive compulsive	*	*	0.6	1.2	6.8
Any anxiety disorder	22.5	30.3	14.8	24.9	⌘

~Combined into phobic disorder; *Not collected; ⌘Not reported

2.2 Anxiety disorders by gender

Overall, anxiety disorders were significantly higher among women than men in both prison and the general population (Table 2.2). However, among prisoners, men were more likely to have a lifetime or 12-month diagnosis of panic disorder compared to women. The prevalence of post-traumatic stress disorder among women in prison was very high with 40% found with a 12-month diagnosis and 52% having a lifetime diagnosis.

Figure 2.2 Anxiety disorders by gender, 2015 prisoner population

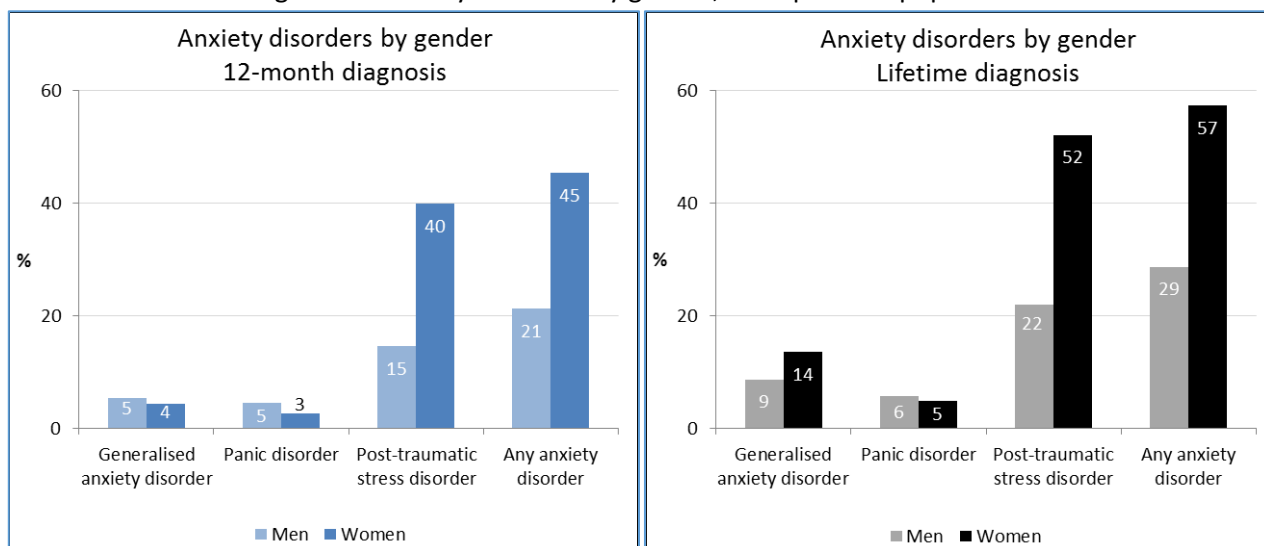


Table 2.2 Anxiety disorders by gender by study population

		2015 prisoner population		2006 general population	
		Men (n=1096) %	Women (n=113) %	Men %	Women %
Generalised anxiety disorder	12-month	5.3	4.4 [^]	1.4	2.6
	Lifetime	8.6	13.5	4.4	7.5
Panic disorder	12-month	4.5	2.6 [^]	1.3	2.0
	Lifetime	5.7	4.9 [^]	2.1	3.3
Post-traumatic stress disorder	12-month	14.6 [†]	39.9	1.6	4.2
	Lifetime	22.0 [†]	52.1	3.7	8.1
Agoraphobia without panic disorder	12-month	*	*	0.4	0.8
	Lifetime	*	*	0.9	1.5
Specific phobia	12-month	*	*	4.3	10.1
	Lifetime	*	*	7.3	14.1
Social phobia	12-month	*	*	4.5	5.6
	Lifetime	*	*	8.7	10.1
Obsessive compulsive	12-month	*	*	0.7	0.5
	Lifetime	*	*	1.1	1.4
Any anxiety disorder	12-month	21.2 [†]	45.3	10.7	18.6
	Lifetime	28.7 [†]	57.3	19.9	29.4

[†]Statistically significant (P<0.05); [^]RSE >25% - interpret with caution; *Not collected

2.3 Anxiety disorders by age group

In the general population, anxiety disorders mostly peaked in the 25 to 44 year age group, while among prisoners they mostly peaked in the 45 to 64 year age group (Table 2.3). Generalised anxiety disorder peaked among prisoners in the 25 to 44 year age group where nearly 10% of prisoners had a lifetime diagnosis.

Figure 2.3 Anxiety disorders by age group, 2015 prisoner population

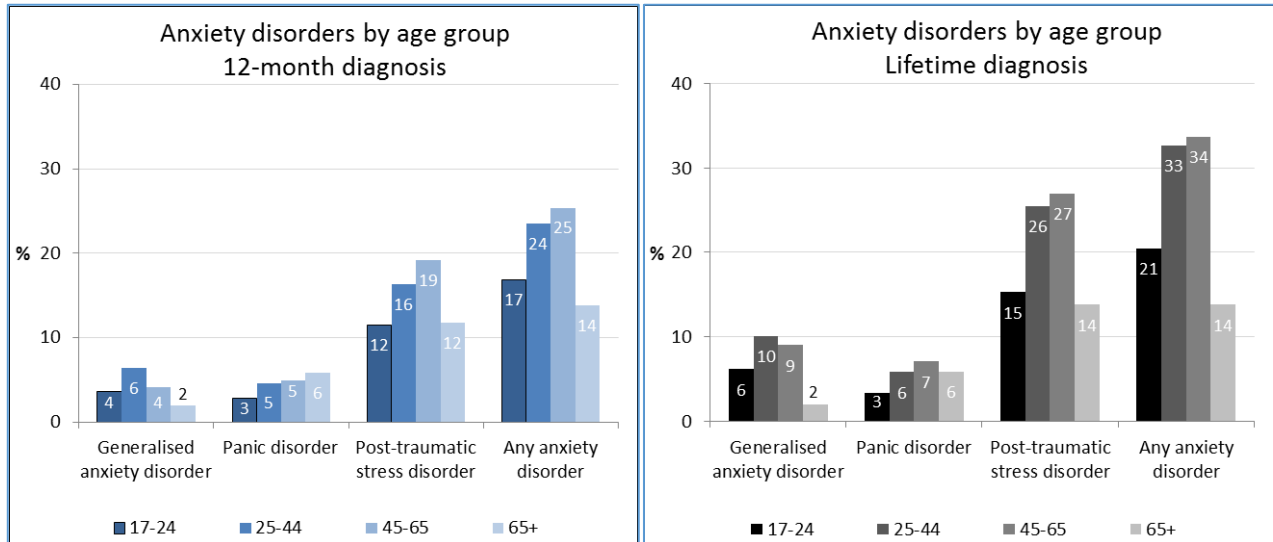


Table 2.3 Anxiety disorders by age group by study population

		2015 prisoner population				2006 general population			
		17-24 (n=314) %	25-44 (n=686) %	45-64 (n=191) %	65+ (n=18) %	16-24 %	25-44 %	45-64 %	65+ %
Generalised anxiety disorder	12-month	3.6	6.4	4.2 [^]	2.0 [^]	1.6	2.8	1.8	1.0
	Lifetime	6.2	10.1	9.0	2.0 [^]	3.5	6.8	7.0	4.6
Panic disorder	12-month	2.8	4.6	5.0 [^]	5.9 [^]	2.4	2.1	1.2	0.6
	Lifetime	3.4	5.8	7.1 [^]	5.9 [^]	2.9	3.5	2.4	1.4
Post-traumatic stress disorder	12-month	11.5	16.3	19.2	11.8 [^]	2.4	3.5	3.2	1.7
	Lifetime	15.3	25.5	27.0	13.8 [^]	4.4	6.6	7.0	4.1
Agoraphobia without panic disorder	12-month	*	*	*	*	0.7	0.8	0.6	0.2
	Lifetime	*	*	*	*	1.2	1.5	1.1	0.5
Specific phobia	12-month	*	*	*	*	9.3	8.3	6.9	3.2
	Lifetime	*	*	*	*	11.8	12.5	10.9	5.3
Social phobia	12-month	*	*	*	*	7.0	6.3	4.2	1.4
	Lifetime	*	*	*	*	9.6	11.3	9.7	3.8
Obsessive compulsive	12-month	*	*	*	*	1.5	0.8	0.2	0.1
	Lifetime	*	*	*	*	2.3	1.8	0.5	0.2
Any anxiety disorder	12-month	16.9	23.5	25.4	13.8 [^]	17.7	18.2	13.2	6.0
	Lifetime	20.5	32.7	33.7	13.8 [^]	23.9	28.9	25.4	14.2

[^]RSE >25% - interpret with caution; *Not collected

2.4 Anxiety disorders by ethnicity

The prevalence of anxiety disorders was highest among both prisoners and general population members of European descent (Table 2.4). However, people of Māori descent had a slightly higher 12-month prevalence of generalised anxiety disorder.

Figure 2.4 Anxiety disorders by ethnicity, 2015 prisoner population

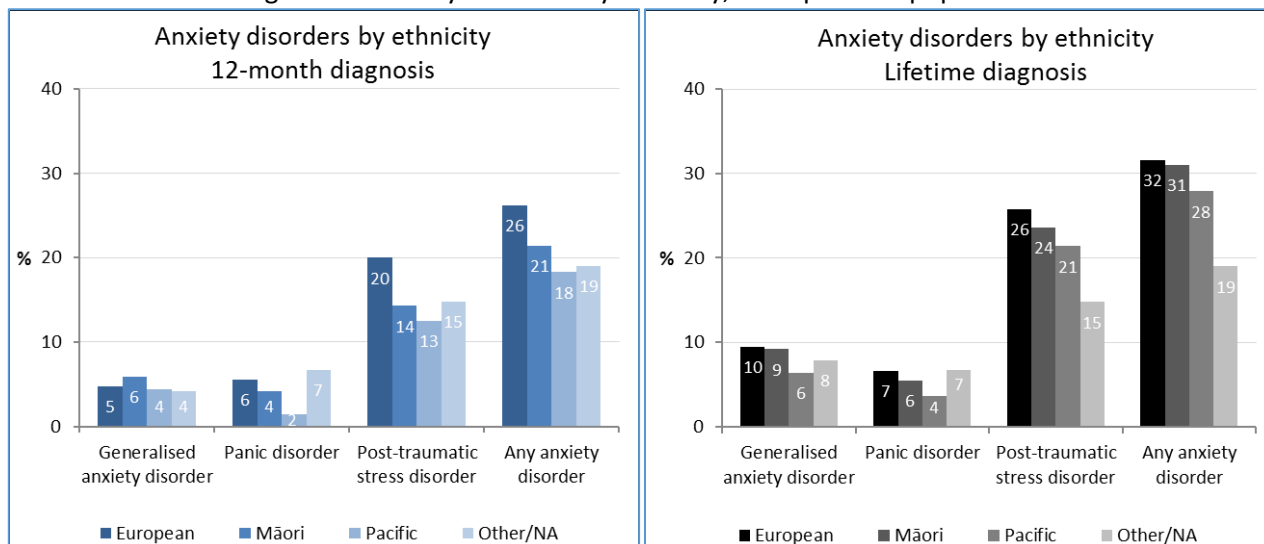


Table 2.4 Anxiety disorders by ethnicity by study population

		2015 prisoner population				2006 general population		
		European (n=423) %	Māori (n=622) %	Pacific peoples (n=119) %	Other/ not available (n=45) %	Total %	Māori %	Pacific peoples %
Generalised anxiety disorder	12-month	4.7	5.9	4.4 [^]	4.2 [^]	2.2	2.0	1.4
	Lifetime	9.5	9.2	6.4 [^]	7.9 [^]	5.9	6.0	3.6
Panic disorder	12-month	5.6	4.2	1.5 [^]	6.7 [^]	2.6	1.7	1.7
	Lifetime	6.6	5.5	3.6 [^]	6.7 [^]	3.9	2.7	3.0
Post-traumatic stress disorder	12-month	20.0	14.3	12.5	14.8 [^]	4.5	3.0	2.4
	Lifetime	25.8	23.6	21.4	14.8 [^]	9.7	6.0	6.6
Agoraphobia without panic disorder	12-month	*	*	*	*	0.6	1.0	1.2
	Lifetime	*	*	*	*	1.2	1.8	2.0
Specific phobia	12-month	*	*	*	*	7.3	11.0	8.2
	Lifetime	*	*	*	*	10.8	15.3	12.8
Social phobia	12-month	*	*	*	*	5.1	6.2	5.8
	Lifetime	*	*	*	*	9.4	11.4	10.0
Obsessive compulsive	12-month	*	*	*	*	2.0	1.0	0.7
	Lifetime	*	*	*	*	1.2	2.6	1.1
Any anxiety disorder	12-month	26.2	21.4	18.3	19.0 [^]	19.4	14.8	16.2
	Lifetime	31.6	31.0	27.9	19.0 [^]	31.3	24.9	27.7

[^]RSE >25% - interpret with caution; *Not collected

2.5 Anxiety disorders conclusions

Prisoners had a higher prevalence of most anxiety disorders than the general population, including very high rates of post-traumatic stress disorder and panic disorder. Overall, women had a higher prevalence of most anxiety disorders, including over twice the prevalence of post-traumatic stress disorder than found in male prisoners.

3. Mood disorders

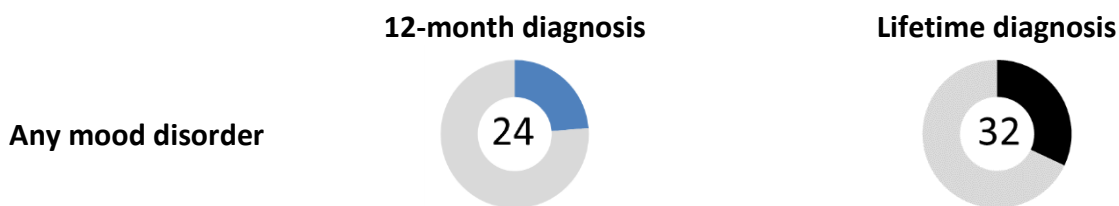
Mood disorders are mental disorders characterised by periods of depression, sometimes alternating with periods of elevated mood, with the DSM-IV major classifications including major depressive disorder, dysthymia and bipolar disorder (APA, 2000). Major depressive disorder refers to a single period of depression marked by negative or hopeless thoughts and physical symptoms like fatigue. Dysthymia is similar to major depressive disorder but is a chronic and persistent condition that may last a lifetime. Bipolar disorder (sometimes referred to as manic depression) refers to a condition where people experience mood extremes from low (depression) to high (mania).

Expected key findings

- Prisoners had a higher prevalence of mood disorders than the general population.

Unexpected key findings

- Female prisoners had a higher prevalence than male prisoners of most mood disorders except bipolar disorder which was significantly higher among men.
- In the general population, Māori had the highest rate of lifetime diagnosis of major depressive disorder, while Māori prisoners had the lowest rate of lifetime diagnosis of major depressive disorder.



3.1 Mood disorders summary

Prisoners had a high prevalence of all mood disorders, with nearly one in three prisoners (32%) experiencing a mood disorder in their lifetime and nearly one in four (24%) having one in the past 12 months (Table 3.1). The prevalence of mood disorders was consistently higher among prisoners than found in the general population, with a 12-month prevalence of any mood disorder nearly three times higher than found in the general population.

When compared to the 1999 New Zealand Prisoner Mental Health Study, the lifetime prevalence of major depressive disorder decreased slightly (from 23% to 21%), while the lifetime prevalence of bipolar increased from 2% to 11%, and dysthymia increased from 1% to 5%.

Figure 3.1 Mood disorders summary, 2015 prisoner population

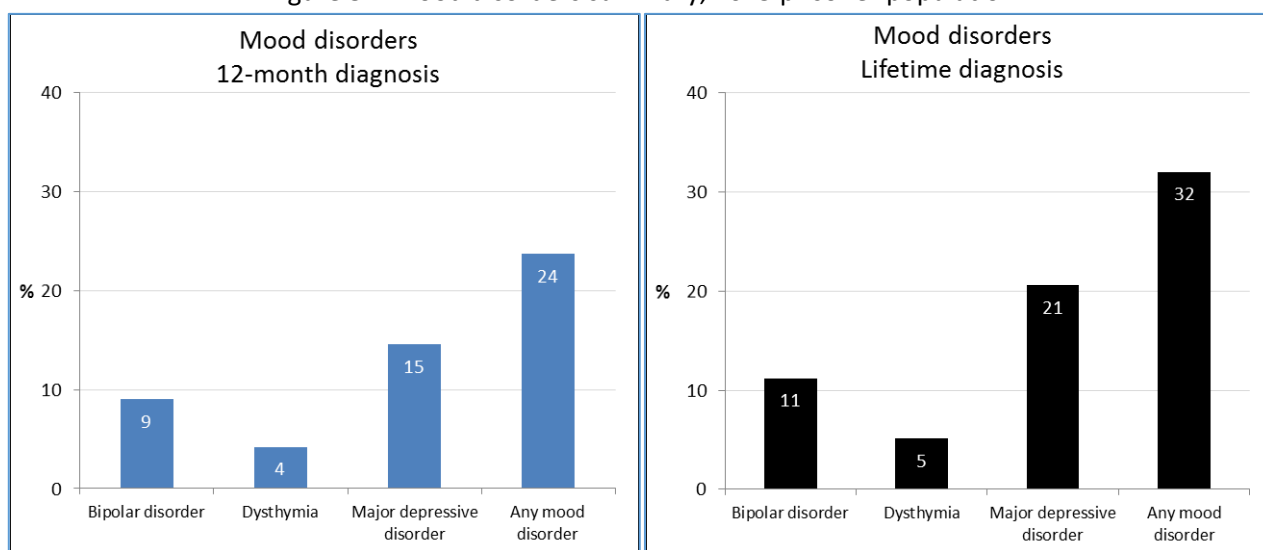


Table 3.1 Mood disorders summary by study population

	2015 prisoner population		2006 general population		1999 prisoner population
	12-month (n=1209) %	Lifetime (n=1209) %	12-month %	Lifetime %	Lifetime (n=1248) %
Bipolar disorder	9.0	11.2	2.2	3.8	2.1
Dysthymia	4.2	5.1	1.1	2.1	1.1
Major depressive disorder	14.6	20.6	5.7	16.0	22.8
Any mood disorder	23.7	32.0	8.0	20.2	α

α Not reported

3.2 Mood disorders by gender

The prevalence of mood disorders was generally higher among women than among men in both the prison and general population samples, with female prisoners having a statistically significant higher prevalence of lifetime and 12-month major depressive disorder than in male prisoners (Table 3.2). The exception to this was with bipolar disorder where men had higher lifetime prevalence than women in both prison and general population samples.

Figure 3.2 Mood disorders by gender, 2015 prisoner population

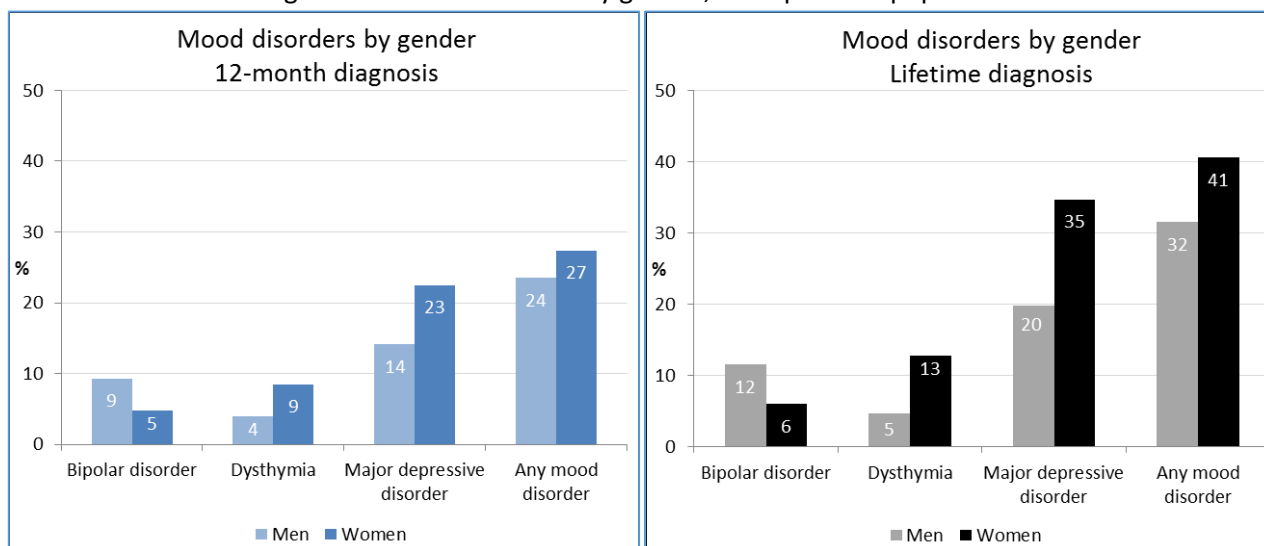


Table 3.2 Mood disorders by gender by study population

		2015 prisoner population		2006 general population	
		Men (n=1096) %	Women (n=113) %	Men %	Women %
Bipolar disorder	12-month	9.3	4.8 [^]	2.1	2.3
	Lifetime	11.5	5.9 [^]	4.1	3.6
Dysthymia	12-month	3.9 [†]	8.5 [^]	1.0	1.3
	Lifetime	4.6 [†]	12.7 [^]	1.6	2.6
Major depressive disorder	12-month	14.1 [†]	22.5	4.2	7.1
	Lifetime	19.8 [†]	34.7	11.4	20.3
Any mood disorder	12-month	23.5	27.4	6.3	9.5
	Lifetime	31.5	40.6	15.6	24.3

[†]Statistically significant (P<0.05); [^]RSE >25% - interpret with caution

3.3 Mood disorders by age group

In the general population, the prevalence of mood disorders generally decreases with age, with the exception of dysthymia and major depressive disorder which were highest in the 45 to 64 year age group. Among prisoners, most mood disorders peak in the 25 to 44 year age group with the exception of lifetime dysthymia and major depressive disorder.

Figure 3.3 Mood disorders by age group, 2015 prisoner population

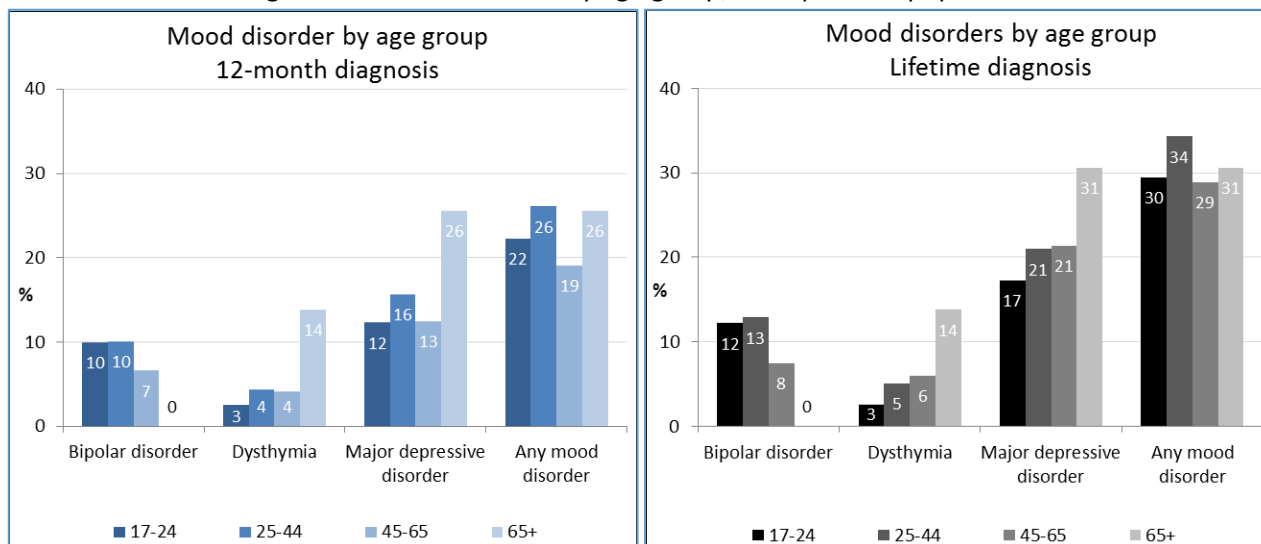


Table 3.3 Mood disorders by age group by study population

		2015 prisoner population				2006 general population			
		17-24 (n=314) %	25-44 (n=686) %	45-64 (n=191) %	65+ (n=18) %	16-24 %	25-44 %	45-64 %	65+ %
Bipolar disorder	12-month	10.0	10.1	6.6 [^]	0.0 [^]	3.9	2.8	1.4	0.2
	Lifetime	12.2	12.9	7.5 [^]	0.0 [^]	5.6	4.9	3.2	0.6
Dysthymia	12-month	2.6 [^]	4.4	4.1 [^]	13.8 [^]	1.5	1.2	1.2	0.4
	Lifetime	2.6 [^]	5.1	6.0 [^]	13.8 [^]	2.0	2.2	2.5	1.3
Major depressive disorder	12-month	12.3	15.7	12.5	25.6 [^]	8.7	6.3	5.2	1.7
	Lifetime	17.3	21.0	21.4	30.6 [^]	15.1	17.0	18.4	9.8
Any mood disorder	12-month	22.3	26.1	19.1	25.6 [^]	12.7	9.2	6.8	2.0
	Lifetime	29.5	34.3	28.9	30.6 [^]	20.7	22.2	22.0	10.6

[^]RSE >25% - interpret with caution

3.4 Mood disorders by ethnicity

Overall, mood disorders were most prevalent in prisoners and general population members of European descent, impacting on 40% of prisoners and 24% of the general population in their lifetime (Table 3.4). In the general population, Māori had the highest rate of lifetime diagnosis of major depressive disorder (16%), while Māori prisoners had the lowest rate of lifetime diagnosis of major depressive disorder (17%).

Figure 3.4 Mood disorders by ethnicity, 2015 prisoner population

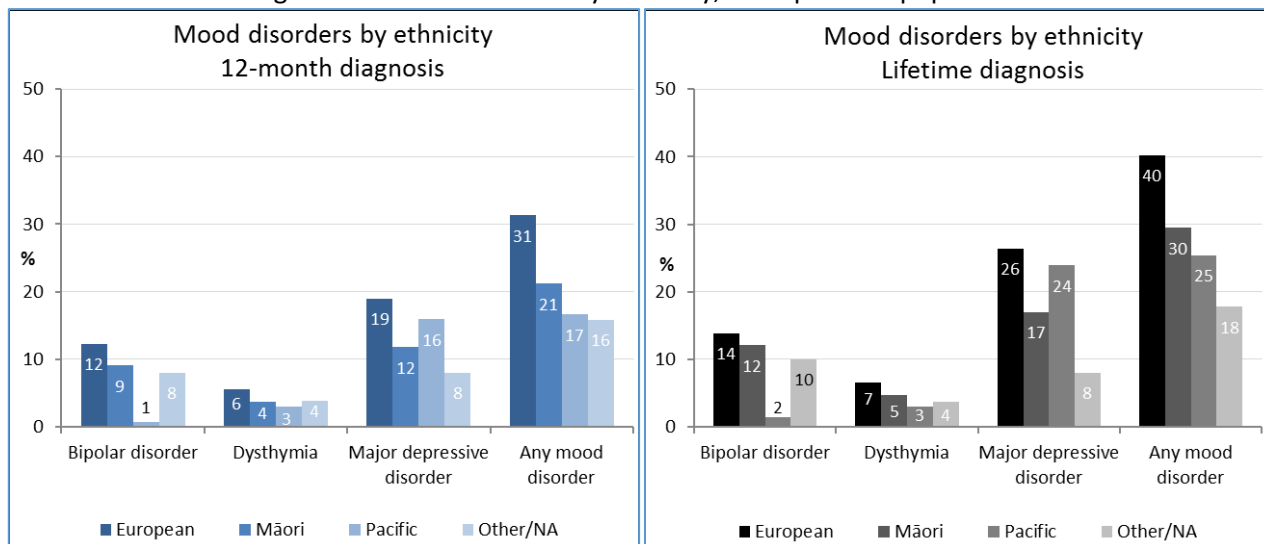


Table 3.4 Mood disorders by ethnicity by study population

		2015 prisoner population				2006 general population		
		European (n=423) %	Māori (n=622) %	Pacific peoples (n=119) %	Other/not available (n=45) %	Total %	Māori %	Pacific peoples %
Bipolar disorder	12-month	12.3	9.1	0.7 [^]	8.0 [^]	4.6	2.2	3.7
	Lifetime	13.9	12.1	1.5 [^]	10.0 [^]	8.3	3.8	8.3
Dysthymia	12-month	5.5	3.7	3.0 [^]	3.8 [^]	1.2	1.1	0.5
	Lifetime	6.6	4.7	3.0 [^]	3.8 [^]	2.1	2.1	1.1
Major depressive disorder	12-month	19.0	11.8	15.9	8.0 [^]	6.9	5.7	4.9
	Lifetime	26.4	17.0	23.9	8.0 [^]	15.7	16.0	10.5
Any mood disorder	12-month	31.3	21.2	16.6	15.8 [^]	11.4	8.0	8.6
	Lifetime	40.2	29.5	25.4	17.8 [^]	24.3	20.2	19.0

[^]RSE >25% - interpret with caution

3.5 Mood disorders conclusions

There was a high prevalence of mood disorders among prisoners, including a 12-month prevalence of any mood disorder nearly three times higher among prisoners than found in the general population. In particular, prisoners had a much higher rate of bipolar disorder and dysthymia than seen in the general population. In both prison and the general population, women had a higher prevalence of mood disorders than men, with the exception of bipolar disorder.

4. Substance use disorders

There is a strong relationship between offending behaviours and substance use disorders (Young et al, 2011). Assessment of the prevalence of substance use disorders among prisoners has varied widely as a result of different diagnostic criteria, timeframes, sampling techniques and country-specific consumption patterns (Fazel et al, 2006).

The DSM-IV definition of substance (alcohol or drug) abuse includes at least one of the following symptoms in a 12-month period:

- Repeated use in situations where it would be considered hazardous;
- Interference with the individual's ability to fulfil their work, school or home obligations;
- Continued use of these substances even though it is causing interpersonal difficulties; or
- Any legal problems that occurred as a result of substance abuse.

The DSM-IV definition of substance (alcohol or drug) dependence includes at least three or more of the following symptoms in a 12-month period:

- Developing a tolerance for the substance, where they have to use more in order to get the same effect.
- Continues to abuse the substance despite obvious evidence that it is causing them harm.
- Experiences withdrawal symptoms when they stop taking the substance
- Difficulty cutting down on the amount they are using
- Lack of control over the amount they consume.
- Loss of interest in other activities that they once enjoyed.
- Devoting increasing amounts of time to the substance abuse (obtaining it, using it, recovering from it).

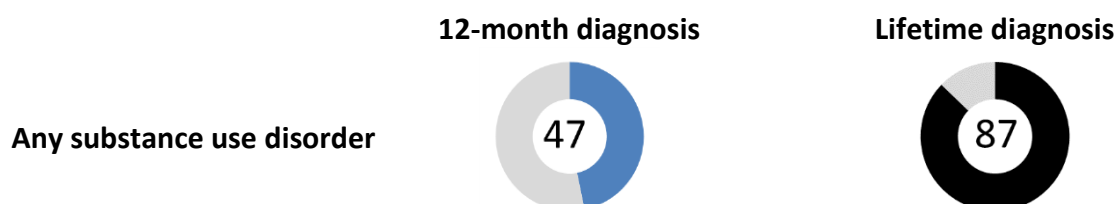
The CIDI is an effective screening tool for substance use disorders as it is not likely to over-estimate the prevalence. It also makes the distinction between substance abuse (without dependence) and substance dependence and uses hierarchy rules to make the categories mutually exclusive.

Expected key findings

- All substance use disorders were higher among prisoners than the general population.
- The prevalence of abuse and dependence (combined) of stimulants had increased nearly 10-fold, from 4% reported in the 1999 prisoner mental health study to 38% (15% for abuse and 23% for dependence) in 2015.

Unexpected key findings

- Alcohol abuse and dependence disorders did not decrease consistently with age among prisoners as in the general population.
- Female prisoners had a higher 12-month prevalence of alcohol dependence and drug dependence than male prisoners for all drug types except marijuana.
- Lifetime abuse of stimulants was significantly higher in men, while lifetime dependence of stimulants was significantly higher in women.



4.1 Substance use disorders summary

As expected, the prevalence of all substance use disorders was higher among prisoners, with the 12-month prevalence 13 times higher and the lifetime prevalence 7 times higher than found in the general population (Table 4.1). The highest difference was found for drug dependence, where prisoners were 30 times more likely (21% compared to 0.7%) to have a 12-month drug dependence diagnosis than found in the general population.

These findings were consistent with the 1999 New Zealand Prisoner Mental Health Study which found a 39% lifetime alcohol abuse (compared to 43% in 2015), 36% lifetime alcohol dependence (also 36% in 2015), and any substance use disorder of 83% (compared to 87% in 2015). The results of the 1999 study were presented for cannabis abuse or dependence, as well as a combined variable of 'abuse or dependence of agents other than alcohol or cannabis' which limits direct comparison with drug abuse or dependence in the current survey.

Figure 4.1 Substance use disorders summary, 2015 prisoner population

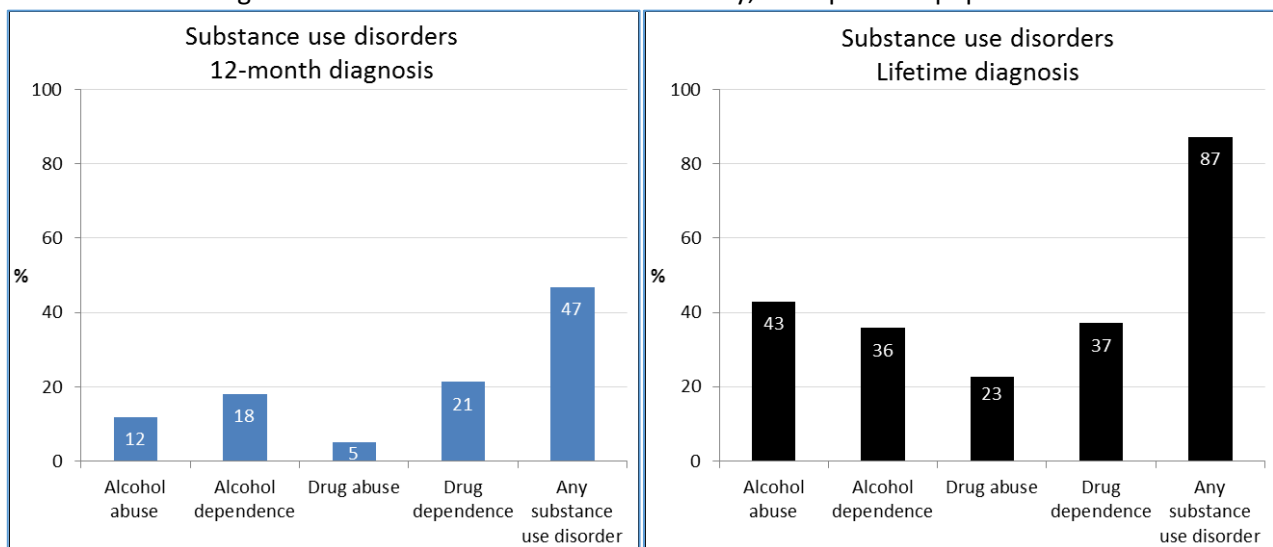


Table 4.1 Substance use disorders summary by study population

	2015 prisoner population		2006 general population		1999 prisoner population
	12-month (n=1209) %	Lifetime (n=1209) %	12-month %	Lifetime %	Lifetime (n=1248) %
Alcohol abuse	11.9	42.9	2.6	11.4	39.1
Alcohol dependence	18.1	35.8	1.3	4.0	35.5
Drug abuse	5.1	22.7	1.2	5.3	⌘
Drug dependence	21.3	37.1	0.7	2.2	⌘
Any substance use disorder	46.8	87.2	3.5	12.3	83.4

⌘Not reported

4.2 Substance use disorders by gender

In the general population, men had a higher prevalence of all alcohol and drug disorders across 12-month and lifetime prevalence categories. However, among prisoners, women had a higher 12-month and lifetime prevalence for both alcohol and drug dependence, while men had a higher prevalence of alcohol and drug abuse (Table 4.2).

When comparing gender specific differences in lifetime alcohol abuse and dependence in the 1999 New Zealand Prisoner Mental Health Study, the prevalence for men had not changed, but for women the prevalence of alcohol abuse decreased from 33% to 20%, but the lifetime prevalence of alcohol dependence increased from 36% to 46%. This suggests that more female prisoners had shifted from abuse to dependence of alcohol.

Figure 4.2 Substance use disorders by gender, 2015 prisoner population

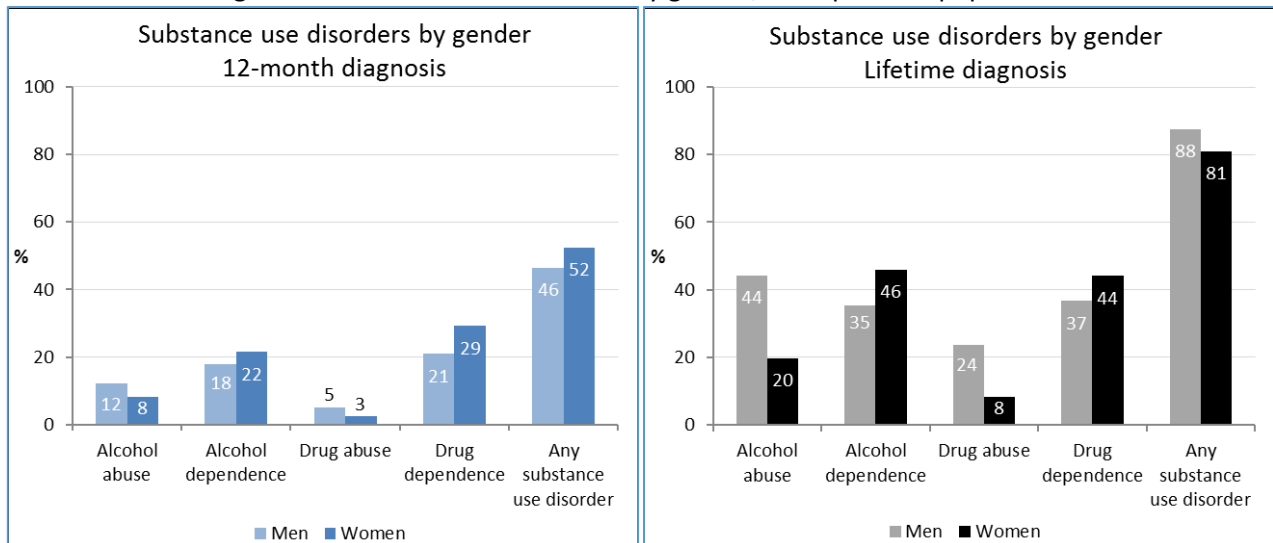


Table 4.2 Substance use disorders by gender by study population

		2015 prisoner population		2006 general population	
		Men (n=1096) %	Women (n=113) %	Men %	Women %
Alcohol abuse	12-month	12.1	8.3 [^]	3.7	1.6
	Lifetime	44.2 [†]	19.7	16.3	6.9
Alcohol dependence	12-month	17.9	21.5	1.7	0.9
	Lifetime	35.2 [†]	45.9	5.6	2.6
Drug abuse	12-month	5.2	2.6 [^]	1.6	0.8
	Lifetime	23.6 [†]	8.3 [^]	7.3	3.5
Drug dependence	12-month	20.9 [†]	29.2	1.1	0.4
	Lifetime	36.7	44.1	2.9	1.5
Any substance use disorder	12-month	46.4	52.4	5.0	2.2
	Lifetime	87.6 [†]	81.0	17.3	7.7

[†]Statistically significant (P<0.05); [^]RSE >25% - interpret with caution

4.3 Substance use disorders by age group

In the general population, substance use disorders (both 12-month and lifetime) consistently decreased with age. This trend was generally found among prisoners but had greater variability with some peaks for both 12-month and lifetime in different age groups (Table 4.3).

The highest prevalence of a 12-month diagnosis of any substance use disorder was in the 17-24 year age group (55%), while the lifetime prevalence of any substance use disorder was highest in the 25-44 year age group (89%).

Figure 4.3 Substance use disorders by age group, 2015 prisoner population

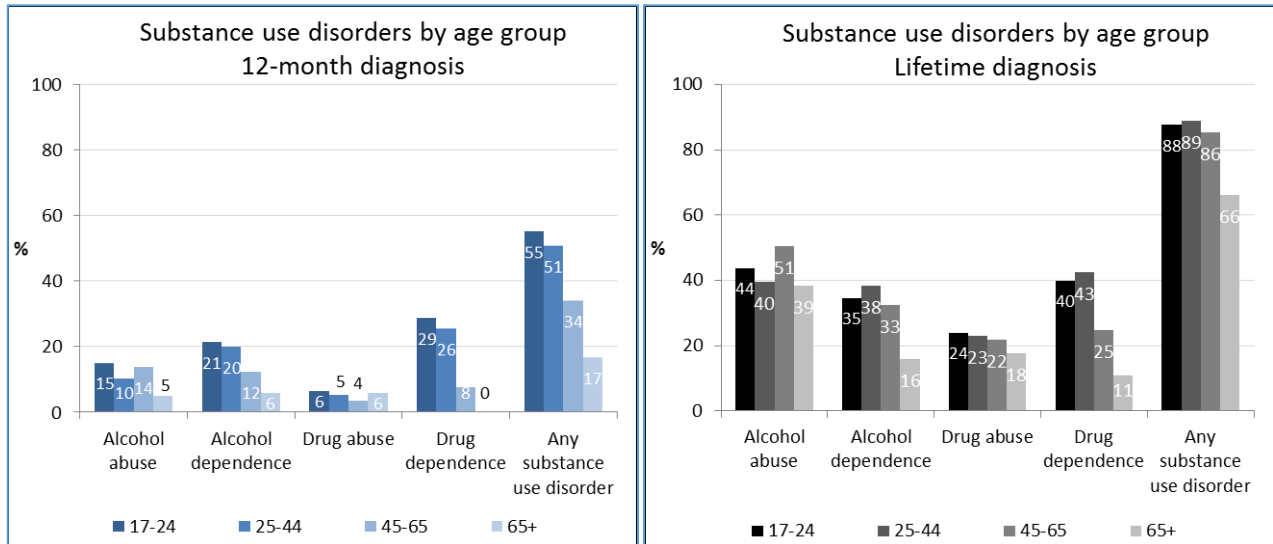


Table 4.3 Substance use disorders by age group by study population

		2015 prisoner population				2006 general population			
		17-24 (n=314) %	25-44 (n=686) %	45-64 (n=191) %	65+ (n=18) %	16-24 %	25-44 %	45-64 %	65+ %
Alcohol abuse	12-month	15.1	10.3	13.8	5.0 [^]	7.1	3.2	0.8	<0.1
	Lifetime	43.6	39.5	50.6	38.5 [^]	16.7	13.4	9.7	4.0
Alcohol dependence	12-month	21.4	19.9	12.4	5.9 [^]	3.0	1.7	0.4	<0.1
	Lifetime	34.5	38.4	32.6	15.8 [^]	6.5	5.0	3.1	0.7
Drug abuse	12-month	6.3	5.3	3.6 [^]	5.9 [^]	3.8	1.2	0.2	<0.1
	Lifetime	23.8	23.0	21.9	17.7 [^]	11.3	7.2	2.2	0.0
Drug dependence	12-month	28.7	25.6	7.7	0.0 [^]	2.1	0.9	0.1	<0.1
	Lifetime	39.9	42.6	24.8	10.9 [^]	4.1	3.3	0.7	0.0
Any substance use disorder	12-month	55.3	50.7	34.0	16.7 [^]	9.6	4.2	1.2	<0.1
	Lifetime	87.6	88.8	85.5	66.1	18.8	14.6	10.0	4.0

[^]RSE >25% - interpret with caution

4.4 Substance use disorders by ethnicity

The 2006 New Zealand Mental Health Survey did not explicitly report on ethnicities other than Māori or Pacific peoples. However, using the total population prevalence, it can be deduced that the highest prevalence of all substance use disorders was for people of other ethnicities (presumably of European descent since it was the most common). Among prisoners, Pacific peoples had the highest prevalence of alcohol disorders (both 12-month and lifetime), but the lowest prevalence of drug disorders.

Figure 4.4 Substance use disorders by ethnicity, 2015 prisoner population

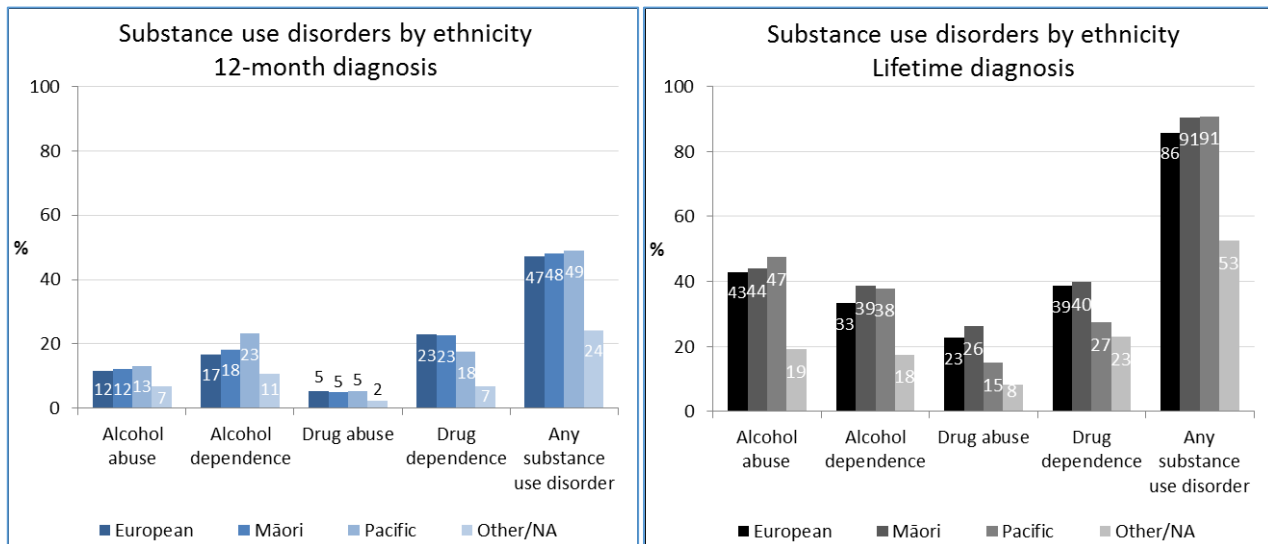


Table 4.4 Substance use disorders by ethnicity by study population

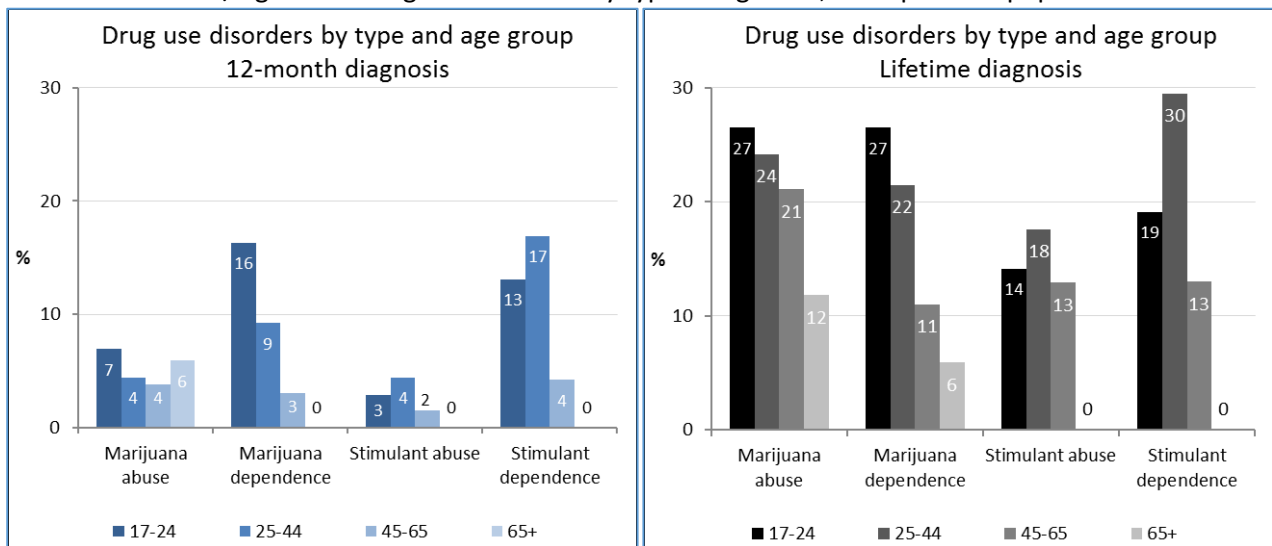
		2015 prisoner population				2006 general population		
		European (n=423) %	Māori (n=622) %	Pacific peoples (n=119) %	Other/not available (n=45) %	Total %	Māori %	Pacific peoples %
Alcohol abuse	12-month	11.7	12.2	13.2 [^]	6.7 [^]	6.7	2.6	3.7
	Lifetime	42.9	43.9	47.4	19.2 [^]	24.4	11.4	17.0
Alcohol dependence	12-month	16.8	18.3	23.1	10.8 [^]	3.9	1.3	3.4
	Lifetime	33.4	38.6	37.9	17.5 [^]	10.1	4.0	7.6
Drug abuse	12-month	5.3	5.1	5.3 [^]	2.2 [^]	3.7	1.2	1.1
	Lifetime	22.6	26.3	15.1	8.1 [^]	14.3	5.3	6.1
Drug dependence	12-month	22.9	22.6	17.5	6.7 [^]	1.9	0.7	0.7
	Lifetime	38.7	39.9	27.4	23.0 [^]	6.3	2.2	1.9
Any substance use disorder	12-month	47.1	48.0	48.9	24.2 [^]	8.6	3.5	5.3
	Lifetime	85.8	90.5	90.8	52.6	26.5	12.3	17.7

[^]RSE >25% - interpret with caution

4.5 Drug use disorders by gender

Table 4.5 includes drug use disorders by specific drug types by gender. Each drug type is defined in the glossary. The highest prevalence lifetime drug of abuse was marijuana (24%), while the highest prevalence lifetime drug of dependence was stimulants (23%). Women had higher rates than men for dependence of nearly all drug types, except marijuana and lifetime hallucinogens, and diagnostic timeframes (12-month and lifetime). Lifetime abuse of stimulants was significantly higher in men, while lifetime dependence of stimulants was significantly higher in women. The 1999 New Zealand Prisoner Mental Health Study identified the lifetime prevalence of marijuana abuse at 36%, which decreased to 24% in the current survey. Similarly the prevalence of marijuana dependence decreased from 25% in 1999 to 20% in 2015. The lifetime prevalence of stimulant (amphetamine) abuse or dependence (combined) was reported as 4% in 1999, compared to 15% found for stimulant abuse and 23% stimulant dependence in 2015.

Table/Figure 4.5 Drug use disorders by type and gender, 2015 prisoner population



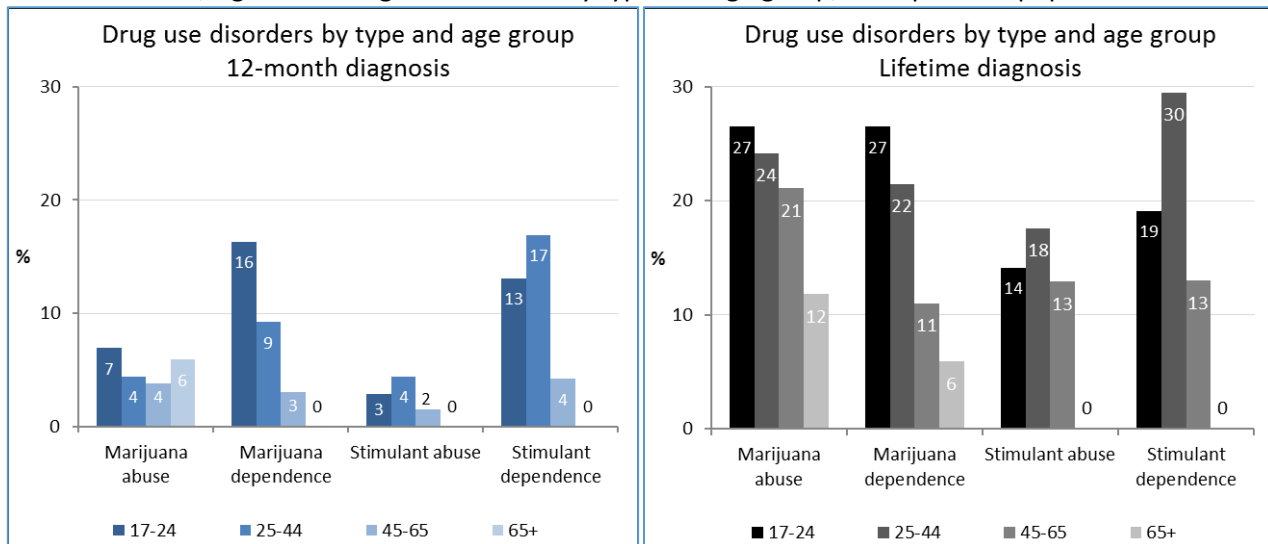
2015 prisoner population		Drug abuse disorders			Drug dependence disorders		
		Men (n=1096) %	Women (n=113) %	Total (n=1209) %	Men (n=1096) %	Women (n=113) %	Total (n=1209) %
Club drugs	12-month	1.4	0.6 [^]	1.3	1.2 ^{†^}	4.6 [^]	1.4
	Lifetime	9.4	15.3	9.7	4.1	5.2 [^]	4.2
Cocaine	12-month	0.5 [^]	0.0 [^]	0.5 [^]	0.8 [^]	1.6 [^]	0.8 [^]
	Lifetime	4.3	2.0 [^]	4.1	2.7	4.9 [^]	2.8
Hallucinogens	12-month	1.6	0.7 [^]	1.5	1.2 [^]	2.3 [^]	1.3
	Lifetime	12.3	12.6 [^]	12.3	3.6	2.9 [^]	3.6
Inhalants	12-month	0.2 [^]	0.0 [^]	0.1 [^]	0.5 [^]	1.6 [^]	0.6 [^]
	Lifetime	6.2	2.3 [^]	6.0	2.5	3.8 [^]	2.6
Marijuana	12-month	4.9	2.1 [^]	4.8	8.9	8.1 [^]	8.8
	Lifetime	24.3 [†]	10.6 [^]	23.6	19.9	12.9	19.5
Opioids	12-month	0.6 [^]	0.0 [^]	0.5 [^]	1.3 [^]	1.6 [^]	1.4 [^]
	Lifetime	3.8	1.5 [^]	3.7	4.1	5.0 [^]	4.1
Other drugs	12-month	0.5 [^]	0.0 [^]	0.4 [^]	2.1 [†]	7.0 [^]	2.3
	Lifetime	3.3	3.5 [^]	3.3	3.7 [†]	8.9 [^]	4.0
Painkillers	12-month	1.0 [^]	0.0 [^]	1.0 [^]	2.0 [†]	5.9 [^]	2.2
	Lifetime	5.2	7.4 [^]	5.3	4.6	8.4 [^]	4.8
Sedatives	12-month	1.0 [^]	1.3 [^]	1.0 [^]	2.4	3.7 [^]	2.5
	Lifetime	7.4	7.8 [^]	7.4	5.4	9.4 [^]	5.6
Stimulants	12-month	3.4	2.0 [^]	3.4	12.4 [†]	19.2	12.8
	Lifetime	16.0 [†]	5.6 [^]	15.4	22.5 [†]	31.8	23.0
Any drug	12-month	5.2	2.6 [^]	5.1	20.9 [†]	29.2	21.3
	Lifetime	23.6 [†]	8.3 [^]	22.7	36.7	44.1	37.1

[†]Statistically significant (P<0.05); [^]RSE >25% - interpret with caution

4.6 Drug use disorders by age group

Overall, rates of drug abuse disorders (both lifetime and 12-month diagnosis) and drug dependence in the past 12 months decreased with age (Table 4.6). Lifetime drug dependence disorders peaked in the 25 to 44 year age group, with prevalence highest in this age group for stimulants, sedatives, painkillers and opioids. The highest prevalence (30%) of drug dependence was found in the 25 to 44 year age group for lifetime stimulant dependence. This was higher than the 27% lifetime prevalence of marijuana dependence among prisoners aged 17 to 24 years.

Table/Figure 4.6 Drug use disorders by type and age group, 2015 prisoner population



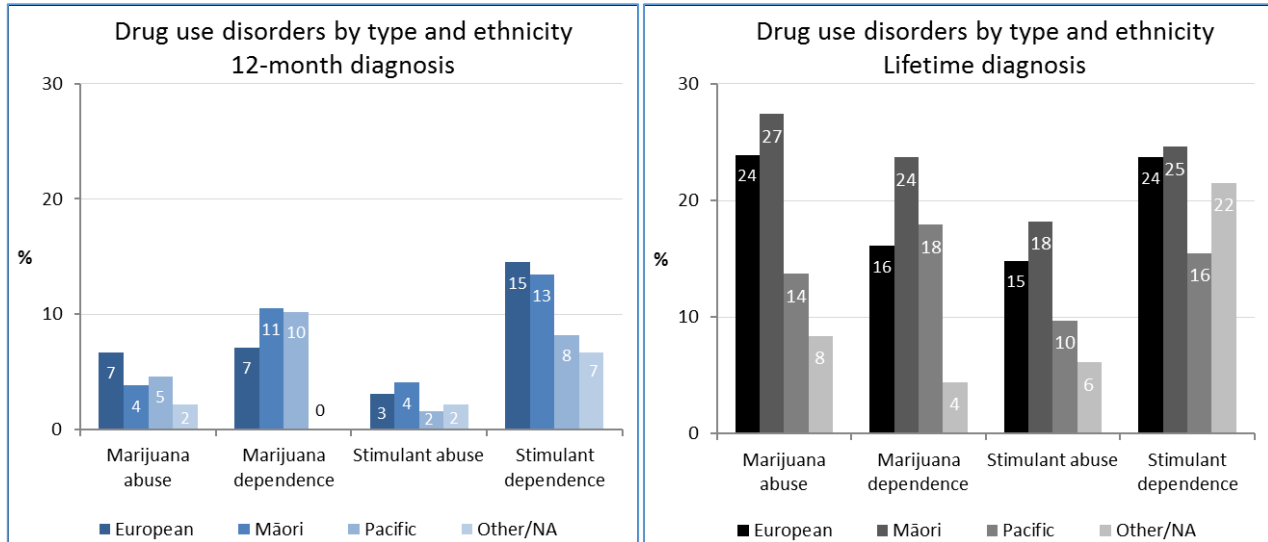
2015 prisoner population		Drug abuse disorders				Drug dependence disorders			
		17-24 (n=314) %	25-44 (n=686) %	45-64 (n=191) %	65+ (n=18) %	17-24 (n=314) %	25-44 (n=686) %	45-64 (n=191) %	65+ (n=18) %
Club drugs	12-month	1.9 [^]	1.8 [^]	0.0 [^]	0.0 [^]	2.6 [^]	1.7 [^]	0.0 [^]	0.0 [^]
	Lifetime	10.3	11.2	6.6 [^]	0.0 [^]	6.2	4.4	2.5 [^]	0.0 [^]
Cocaine	12-month	0.9 [^]	0.6 [^]	0.0 [^]	0.0 [^]	1.7 [^]	0.9 [^]	0.0 [^]	0.0 [^]
	Lifetime	3.0 [^]	3.2	6.9 [^]	5.9 [^]	2.7 [^]	3.1	2.4 [^]	0.0 [^]
Hallucinogens	12-month	2.2 [^]	1.8 [^]	0.5 [^]	0.0 [^]	2.5 [^]	1.5 [^]	0.0 [^]	0.0 [^]
	Lifetime	11.0	13.9	9.7	11.8 [^]	4.0 [^]	3.6	3.5 [^]	0.0 [^]
Inhalants	12-month	0.2 [^]	0.2 [^]	0.0 [^]	0.0 [^]	1.2 [^]	0.4 [^]	0.5 [^]	0.0 [^]
	Lifetime	6.6	6.9	3.5 [^]	5.9 [^]	3.4 [^]	2.9	1.2 [^]	0.0 [^]
Marijuana	12-month	6.9	4.4	3.8 [^]	5.9 [^]	16.3	9.2	3.0 [^]	0.0 [^]
	Lifetime	26.5	24.2	21.1	11.8 [^]	26.5	21.5	11.0	5.9 [^]
Opioids	12-month	0.9 [^]	0.6 [^]	0.0 [^]	0.0 [^]	0.7 [^]	2.0 [^]	0.6 [^]	0.0 [^]
	Lifetime	2.9 [^]	3.4	5.2	0.0 [^]	1.8 [^]	4.4	5.6 [^]	0.0 [^]
Other drugs	12-month	0.9 [^]	0.5 [^]	0.0 [^]	0.0 [^]	5.3	2.3	0.3 [^]	0.0 [^]
	Lifetime	5.1	3.1	2.2 [^]	5.9 [^]	9.6	3.5	1.2 [^]	0.0 [^]
Painkillers	12-month	1.2 [^]	1.2 [^]	0.5 [^]	0.0 [^]	1.8 [^]	2.9	1.2 [^]	0.0 [^]
	Lifetime	5.0	4.9	7.1	0.0 [^]	2.7 [^]	5.2	5.4 [^]	5.9 [^]
Sedatives	12-month	1.4 [^]	1.4 [^]	0.0 [^]	0.0 [^]	0.8 [^]	3.3	2.2 [^]	0.0 [^]
	Lifetime	5.2	8.0	7.7	5.9 [^]	1.5 [^]	6.0	8.4	0.0 [^]
Stimulants	12-month	2.9 [^]	4.4	1.5 [^]	0.0 [^]	13.1	16.9	4.2 [^]	0.0 [^]
	Lifetime	14.1	17.6	12.9	0.0 [^]	19.1	29.5	13.0	0.0 [^]
Any drug	12-month	6.3	5.3	3.6 [^]	5.9 [^]	28.7	25.6	7.7	0.0 [^]
	Lifetime	23.8	23.0	21.9	17.7 [^]	39.9	42.6	24.8	10.9 [^]

[^]RSE >25% - interpret with caution

4.7 Drug use disorders by ethnicity

Māori prisoners had the highest prevalence of lifetime drug abuse and drug dependence disorders, with particularly high rates of lifetime stimulant dependence (25%) and marijuana dependence (24%) (Table 4.7). Pacific peoples had the highest rates of lifetime drug dependence disorder for club drugs and cocaine.

Table/Figure 4.7 Drug use disorders by type and ethnicity, 2015 prisoner population



2015 prisoner population		Drug abuse disorders				Drug dependence disorders			
		European (n=423) %	Māori (n=622) %	Pacific peoples (n=119) %	Other/not available (n=45) %	European (n=423) %	Māori (n=622) %	Pacific peoples (n=119) %	Other/not available (n=45) %
Club drugs	12-month	2.4 [^]	1.1 [^]	0.0 [^]	0.0 [^]	0.9 [^]	1.9 [^]	1.4 [^]	0.0 [^]
	Lifetime	12.4	10.0	4.4 [^]	2.2 [^]	3.4 [^]	4.4	5.1 [^]	4.4 [^]
Cocaine	12-month	0.8 [^]	0.5 [^]	0.0 [^]	0.0 [^]	0.7 [^]	0.7 [^]	1.4 [^]	2.2 [^]
	Lifetime	4.1 [^]	4.5	3.8 [^]	2.2 [^]	2.3 [^]	2.2 [^]	4.2 [^]	8.9 [^]
Hallucinogens	12-month	1.6 [^]	1.8 [^]	0.8 [^]	0.0 [^]	1.2 [^]	1.3 [^]	2.2 [^]	0.0 [^]
	Lifetime	14.6	13.6	4.6 [^]	4.4 [^]	2.8 [^]	4.2	3.7 [^]	2.2 [^]
Inhalants	12-month	0.1 [^]	0.0 [^]	0.8 [^]	0.0 [^]	0.1 [^]	0.9 [^]	0.7 [^]	0.0 [^]
	Lifetime	5.2	7.7	3.8 [^]	0.0 [^]	1.5 [^]	3.3	3.0 [^]	1.5 [^]
Marijuana	12-month	6.7	3.8	4.6 [^]	2.2 [^]	7.1	10.5	10.2	0.0 [^]
	Lifetime	23.9	27.4	13.7 [^]	8.4 [^]	16.1	23.7	17.9	4.4 [^]
Opioids	12-month	0.8 [^]	0.3 [^]	0.8 [^]	0.0 [^]	2.3 [^]	0.6 [^]	0.7 [^]	4.4 [^]
	Lifetime	4.6	3.7	2.4 [^]	0.0 [^]	6.7	2.9 [^]	2.2 [^]	4.4 [^]
Other drugs	12-month	0.1 [^]	0.6 [^]	0.8 [^]	0.0 [^]	2.2 [^]	2.7	2.1 [^]	0.0 [^]
	Lifetime	3.0 [^]	4.3	0.8 [^]	2.2 [^]	5.0	3.8	2.8 [^]	2.2 [^]
Painkillers	12-month	1.1 [^]	1.1 [^]	0.7 [^]	0.0 [^]	3.5 [^]	1.9 [^]	0.7 [^]	0.0 [^]
	Lifetime	5.0	6.8	1.9 [^]	2.2 [^]	7.3	3.8	2.3 [^]	4.4 [^]
Sedatives	12-month	1.8 [^]	0.8 [^]	0.0 [^]	0.0 [^]	3.9 [^]	2.2 [^]	0.8 [^]	0.0 [^]
	Lifetime	9.0	8.0	2.8 [^]	2.2 [^]	7.5	5.6	3.1 [^]	0.0 [^]
Stimulants	12-month	3.1 [^]	4.1	1.6 [^]	2.2 [^]	14.5	13.4	8.2 [^]	6.7 [^]
	Lifetime	14.8	18.2	9.7 [^]	6.1 [^]	23.7	24.6	15.5	21.5 [^]
Any drug	12-month	5.3	5.1	5.3 [^]	2.2 [^]	22.9	22.6	17.5	6.7 [^]
	Lifetime	22.6	26.3	15.1	8.1 [^]	38.7	39.9	27.4	23.0 [^]

[^]RSE >25% - interpret with caution

4.9 Substance use disorders conclusions

Prisoners had a higher prevalence of 12-month and lifetime substance abuse and dependence compared to the general population. Though not directly comparable with the 1999 New Zealand Prisoner Mental Health Study, the prevalence of abuse and dependence of stimulant disorders increased markedly. The lifetime and 12-month prevalence of alcohol abuse and dependence among male prisoners has not changed substantially since the 1999 study, but the lifetime prevalence of alcohol dependence increased for females over this time.

5. Eating disorders

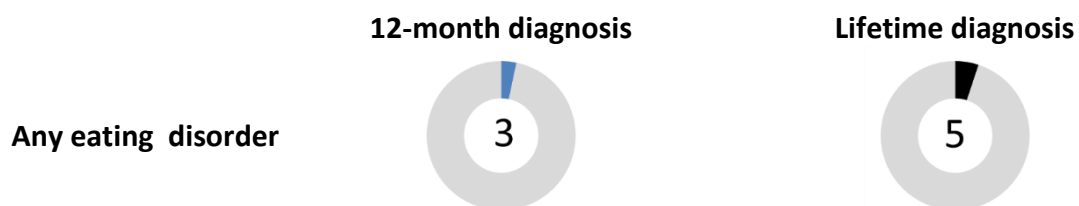
Though relatively uncommon, eating disorders are an important public health issue and are frequently under-treated (Hudson et al, 2007). The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) recognises anorexia nervosa and bulimia nervosa as mental health diagnoses, while the latest version (DSM-5) also recognises binge eating as an eating disorder (APA, 2000; APA, 2013). Eating disorders have been found to have substantial comorbidity with other mental health and substance use disorders (Hudson et al, 2007; Rosenbaum and White, 2015).

Expected key findings

- Prisoners had a higher proportion of eating disorders than found in the general population.
- Women had a higher proportion of eating disorders than men in both prisoners and the general population.

Unexpected key findings

- Though the overall lifetime prevalence of eating disorders was higher among prisoners, the lifetime prevalence of anorexia was three times higher in the general population than in prisoners.
- Among prisoners, there was no difference by ethnicity for lifetime prevalence of eating disorders, but higher prevalence was found for Māori or Pacific peoples for the 12-month prevalence of eating disorders.



5.1 Eating disorders summary

The overall lifetime prevalence of eating disorders among New Zealand prisoners was found to be three times higher than found in the general population and five times higher than reported in 1999 prisoner population (Table 5.1). When specifically considering the prevalence of anorexia, this trend was reversed with the rate in the New Zealand general population three times higher than found in the prisoner population. It should be noted that binge eating was not explicitly measured in the 2006 New Zealand Mental Health Survey which may limit comparability.

Figure 5.1 Eating disorders summary, 2015 prisoner population

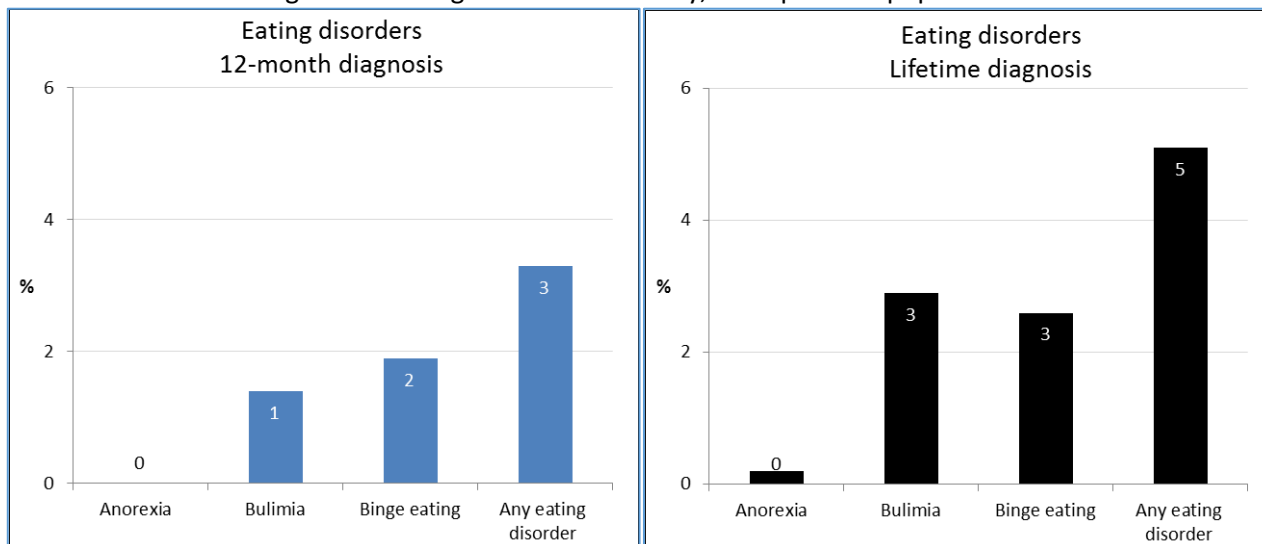


Table 5.1 Eating disorders summary by study population

	2015 prisoner population		2006 general population		1999 prisoner population
	12-month (n=1209) %	Lifetime (n=1209) %	12-month %	Lifetime %	Lifetime (n=1248) %
Anorexia	0.0 [^]	0.2 [^]	<0.1	0.6	⌘
Bulimia	1.4 [^]	2.9	0.4	1.3	⌘
Binge eating	1.9	2.6	⌘	⌘	⌘
Any eating disorder	3.3	5.1	0.5	1.7	1.0

⌘Not reported; [^]RSE >25% - interpret with caution

5.2 Eating disorders by gender

The prevalence of eating disorders was consistently higher for women than for men, across both prisoner and general population samples (Table 5.2). The prevalence gap between men and women was substantially higher in the general population, where women were nearly six times more likely to have a lifetime diagnosis of an eating disorder, compared to twice as likely among prisoners.

Figure 5.2 Eating disorders by gender, 2015 prisoner population

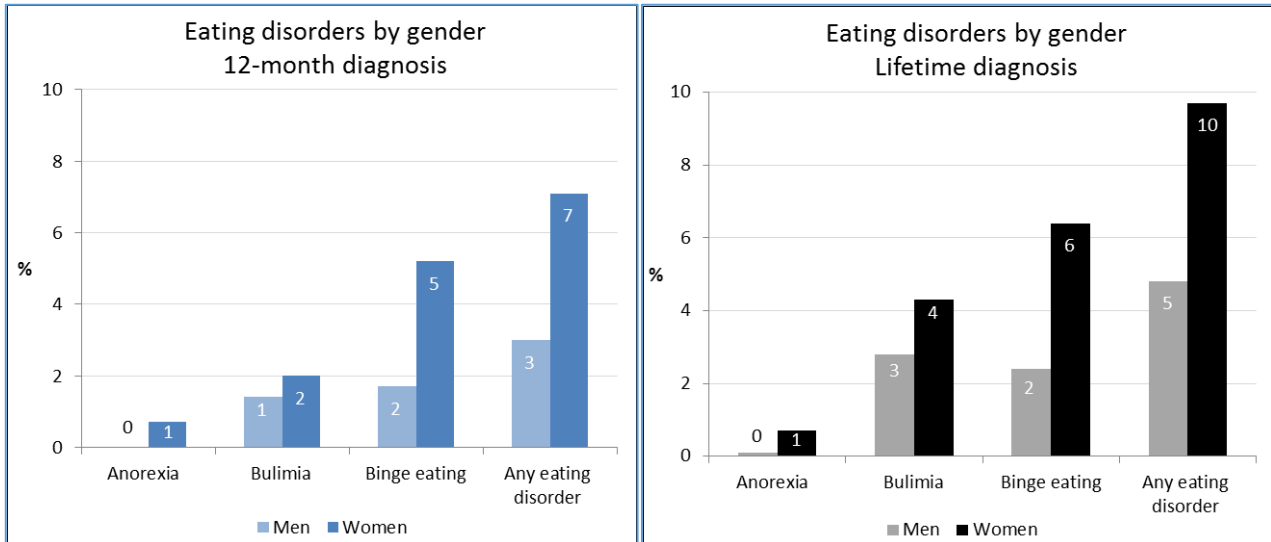


Table 5.2 Eating disorders by gender by study population

		2015 prisoner population		2006 general population	
		Men (n=1096) %	Women (n=113) %	Men %	Women %
Anorexia	12-month	0.0 [^]	0.7 [^]	<0.1	<0.1
	Lifetime	0.1 [^]	0.7 [^]	0.1	1.0
Bulimia	12-month	1.4 [^]	2.0 [^]	0.3	0.6
	Lifetime	2.8	4.3 [^]	0.5	2.0
Binge eating	12-month	1.7 [†]	5.2 [^]	¤	¤
	Lifetime	2.4 [†]	6.4 [^]	¤	¤
Any eating disorder	12-month	3.0 [†]	7.1 [^]	0.3	0.6
	Lifetime	4.8 [†]	9.7 [^]	0.5	2.9

†Statistically significant (P<0.05); [^]RSE >25% - interpret with caution; ¤Not reported

5.3 Eating disorders by age group

The prevalence of eating disorders peaked in the 25 to 44 year age group among both prisoners and the general population (Table 5.3). In the general population, the prevalence of eating disorders decreased by a factor of two to three times in the 45 to 64 year age group compared to the 25 to 44 year age group, while among prisoners, the prevalence only decreased slightly in the older age group.

Figure 5.3 Eating disorders by age group, 2015 prisoner population

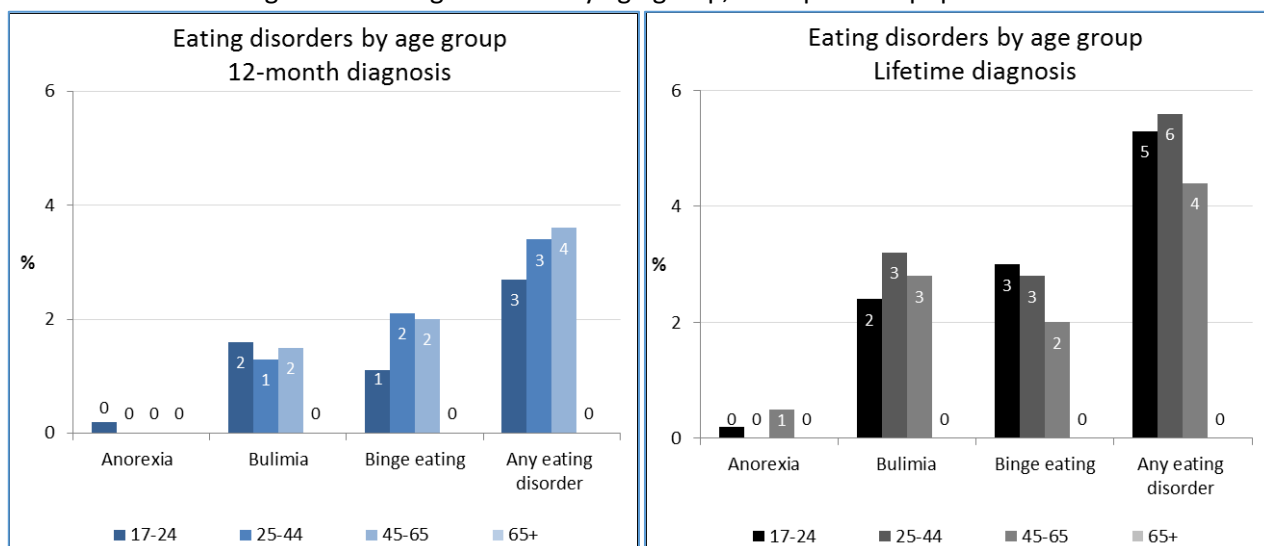


Table 5.3 Eating disorders by age group by study population

		2015 prisoner population				2006 general population			
		17-24 (n=314) %	25-44 (n=686) %	45-64 (n=191) %	65+ (n=18) %	16-24 %	25-44 %	45-64 %	65+ %
Anorexia	12-month	0.2 [^]	0.0 [^]	0.0 [^]	0.0 [^]	<0.1	<0.1	<0.1	<0.1
	Lifetime	0.2 [^]	0.0 [^]	0.5 [^]	0.0 [^]	0.7	1.0	0.2	0.0
Bulimia	12-month	1.6 [^]	1.3 [^]	1.5 [^]	0.0 [^]	0.6	0.7	0.3	0.1
	Lifetime	2.4 [^]	3.2	2.8 [^]	0.0 [^]	1.3	2.0	0.9	0.1
Binge eating	12-month	1.1 [^]	2.1 [^]	2.0 [^]	0.0 [^]	¤	¤	¤	¤
	Lifetime	3.0 [^]	2.8	2.0 [^]	0.0 [^]	¤	¤	¤	¤
Any eating disorder	12-month	2.7 [^]	3.4	3.6 [^]	0.0 [^]	0.6	0.7	0.3	0.1
	Lifetime	5.3	5.6	4.4 [^]	0.0 [^]	2.0	2.9	1.0	0.1

[^]ARSE >25% - interpret with caution; ¤Not reported

5.4 Eating disorders by ethnicity

Among prisoners, there was no difference by ethnicity for lifetime prevalence of eating disorders but for the 12-month prevalence, Māori and Pacific peoples had higher rates than people of European descent (Table 5.4). In the general population, rates of eating disorders were highest among Pacific peoples with the bulimia identified as the highest prevalence eating disorder.

Figure 5.4 Eating disorders by ethnicity, 2015 prisoner population

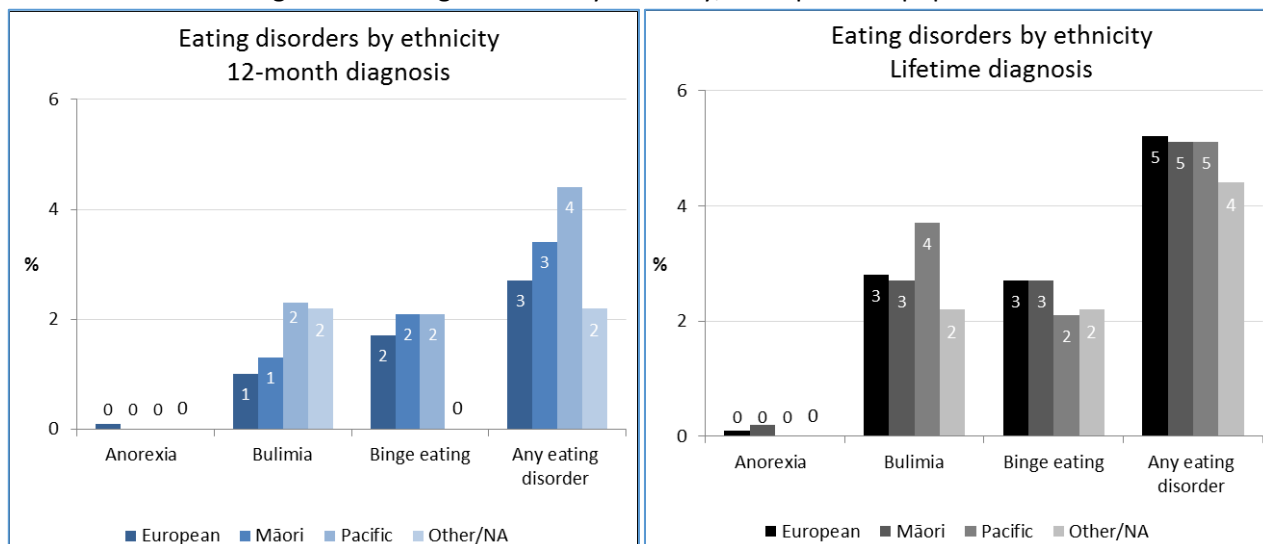


Table 5.4 Eating disorders by ethnicity by study population

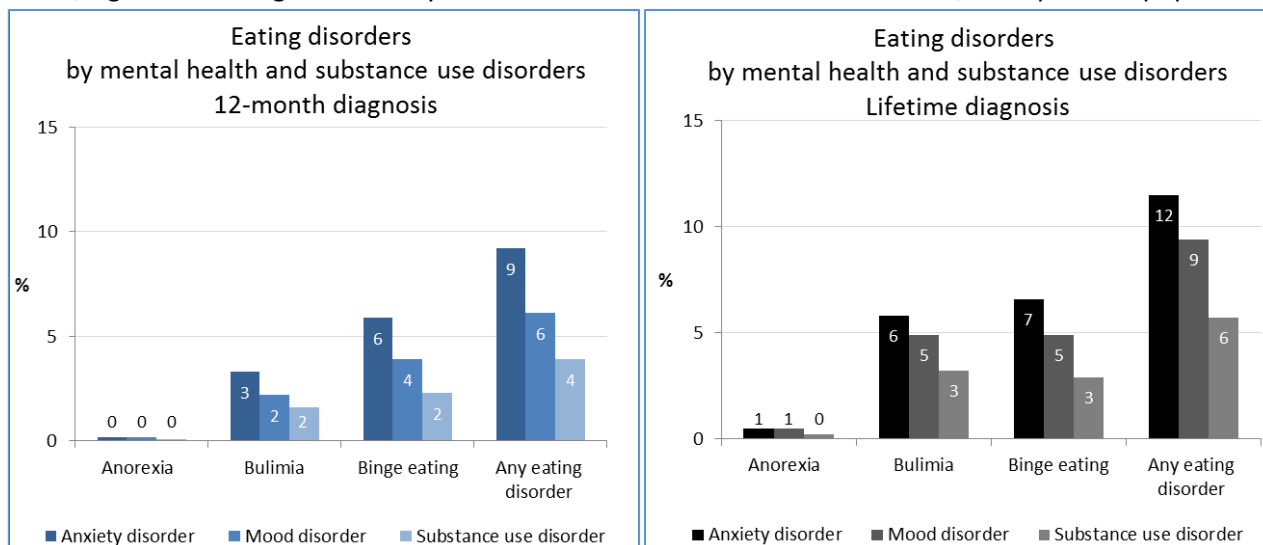
		2015 prisoner population				2006 general population		
		European (n=423) %	Māori (n=622) %	Pacific peoples (n=119) %	Other/not available (n=45) %	Total %	Māori %	Pacific peoples %
Anorexia	12-month	0.1 [^]	0.0 [^]	0.0 [^]	0.0 [^]	0.0	<0.1	0.0
	Lifetime	0.1 [^]	0.2 [^]	0.0 [^]	0.0 [^]	0.7	0.6	0.0
Bulimia	12-month	1.0 [^]	1.3 [^]	2.3 [^]	2.2 [^]	1.0	0.4	1.5
	Lifetime	2.8 [^]	2.7 [^]	3.7 [^]	2.2 [^]	2.4	1.3	3.9
Binge eating	12-month	1.7 [^]	2.1 [^]	2.1 [^]	0.0 [^]	ꜛ	ꜛ	ꜛ
	Lifetime	2.7 [^]	2.7	2.1 [^]	2.2 [^]	ꜛ	ꜛ	ꜛ
Any eating disorder	12-month	2.7 [^]	3.4	4.4 [^]	2.2 [^]	1.0	0.5	1.5
	Lifetime	5.2	5.1	5.1 [^]	4.4 [^]	3.1	1.7	4.4

[^]RSE >25% - interpret with caution; ꜛNot reported

5.5 Eating disorders by mental health and substance use disorders

The prevalence of eating disorders was two to three times higher for prisoners with an anxiety or mood disorder, while there was little difference by people who had a substance use disorder (Table 5.5). The highest 12-month prevalence (9%) of eating disorders was found for people with anxiety disorders.

Table/Figure 5.5 Eating disorders by mental health and substance use disorders, 2015 prisoner population



2015 prisoner population	12-month diagnosis			Lifetime diagnosis		
	Any anxiety disorder % (n=284)	Any mood disorder % (n=301)	Any substance use disorder % (n=601)	Any anxiety disorder % (n=377)	Any mood disorder % (n=402)	Any substance use disorder % (n=1063)
Anorexia	0.2 [^]	0.2 [^]	0.1 [^]	0.5 [^]	0.5 [^]	0.2 [^]
Bulimia	3.3 [^]	2.2 [^]	1.6 [^]	5.8	4.9	3.2
Binge eating	5.9 [^]	3.9 [^]	2.3 [^]	6.6	4.9	2.9
Any eating disorder	9.2	6.1	3.9	11.5	9.4	5.7

[^]RSE >25% - interpret with caution

5.6 Eating disorders conclusions

Prisoners generally were found to have a higher prevalence of eating disorders than the general population, with the exception of anorexia. Prisoners who had an anxiety or mood disorder diagnosis were two to three times more likely to have an eating disorder than found among prisoners without other comorbid diagnoses.

6. Comorbidity

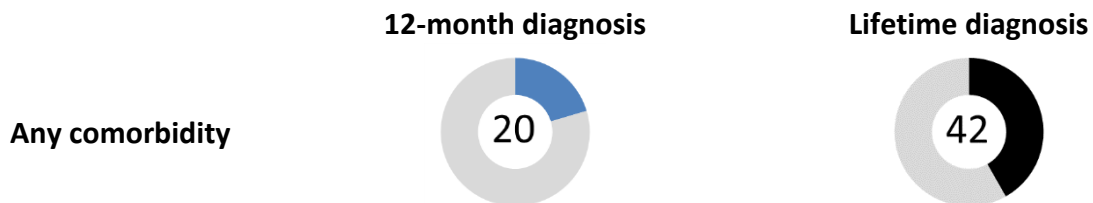
This chapter reports co-occurrence of a mental health disorder (anxiety or mood) with a substance use disorder (alcohol or drug) over a 12-month period or a lifetime. Understanding comorbidity is important because people with more than one disorder are at increased risk of poor general health, more severe symptoms, suicidality and delayed treatment seeking (Butler et al, 2011; RachBeisel et al, 1999).

Expected key findings

- Comorbidity was higher among women than men, for both 12-month and lifetime diagnoses.

Unexpected key findings

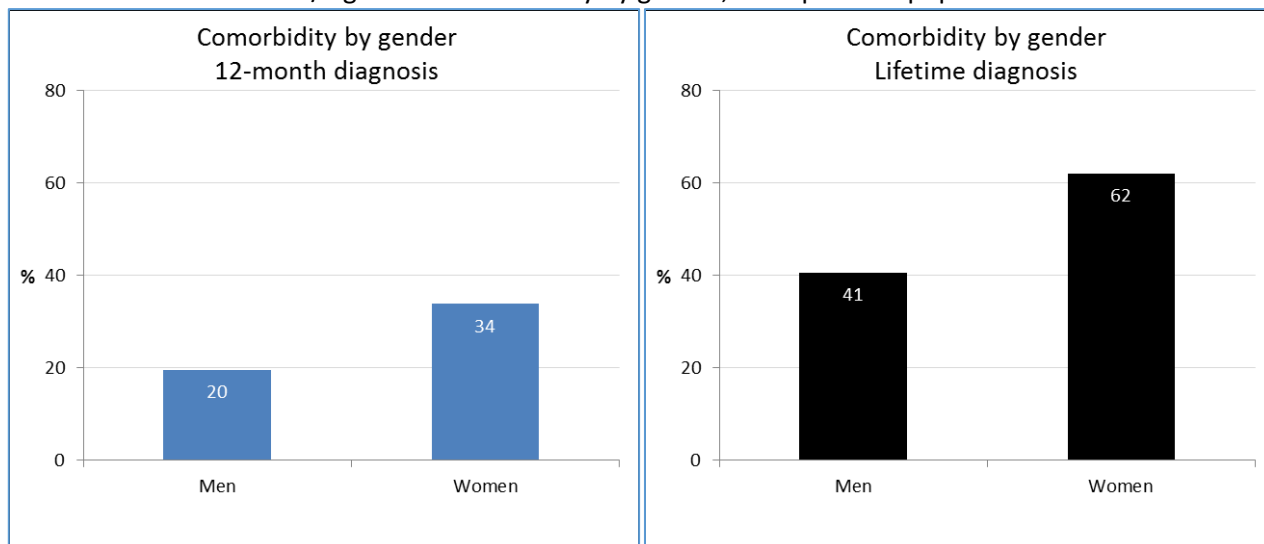
- There was little variation by ethnicity for the lifetime and 12-month prevalence of comorbidity, with the highest rates found among prisoners of European descent.
- Prisoners with a lifetime diagnosis of a substance use disorder had almost half (48% compared to 93%) the prevalence of comorbidity compared to people with a lifetime anxiety disorder.



6.1 Comorbidity by gender

The overall lifetime prevalence of comorbidity among prisoners was found to be 42%, with significantly higher comorbidity found in women (62%) than in men (41%) (Table 6.1). This was higher than found in a 2001 New South Wales prisoner mental health survey where the overall lifetime prevalence of comorbidity was 29% (46% for women and 25% for men) (Butler et al, 2011).

Table/Figure 6.1 Comorbidity by gender, 2015 prisoner population



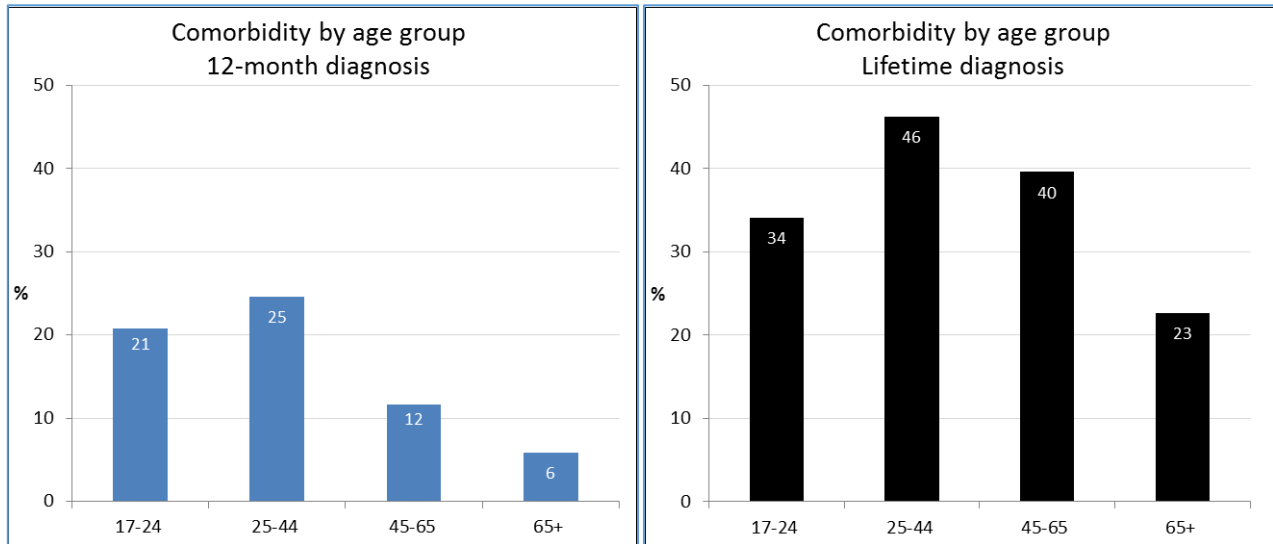
2015 prisoner population		Men (n=1096) %	Women (n=113) %	Total (n=1209) %
Any comorbidity	12-month	19.6†	33.8	20.4
	Lifetime	40.6†	62.1	41.8

†Statistically significant (P<0.05)

6.2 Comorbidity by age group

The prevalence of comorbidity peaked in the 25 to 44 year age group, where nearly half (46%) had a lifetime diagnosis of a mental health and substance use disorder (Table 6.2). The youngest age group (17 to 24 years) had a 12-month comorbidity diagnosis higher than the overall rate (21% compared to 20% overall).

Table/Figure 6.2 Comorbidity by age group, 2015 prisoner population



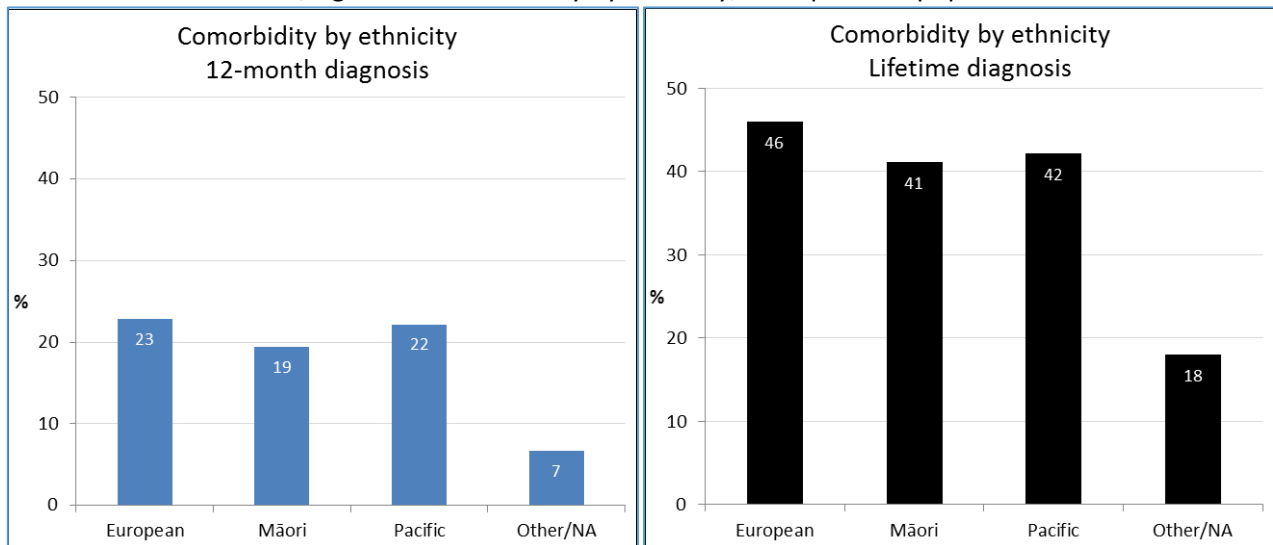
2015 prisoner population		17-24 (n=314) %	25-44 (n=686) %	45-64 (n=191) %	65+ (n=18) %
Any comorbidity	12-month	20.8	24.6	11.6	5.9 [^]
	Lifetime	34.1	46.2	39.6	22.6 [^]

[^]RSE >25% - interpret with caution

6.3 Comorbidity by ethnicity

There was little variation by ethnicity for the lifetime and 12-month prevalence of comorbidity, with the highest prevalence found among prisoners of European descent for both timeframes (Table 6.3).

Table/Figure 6.3 Comorbidity by ethnicity, 2015 prisoner population



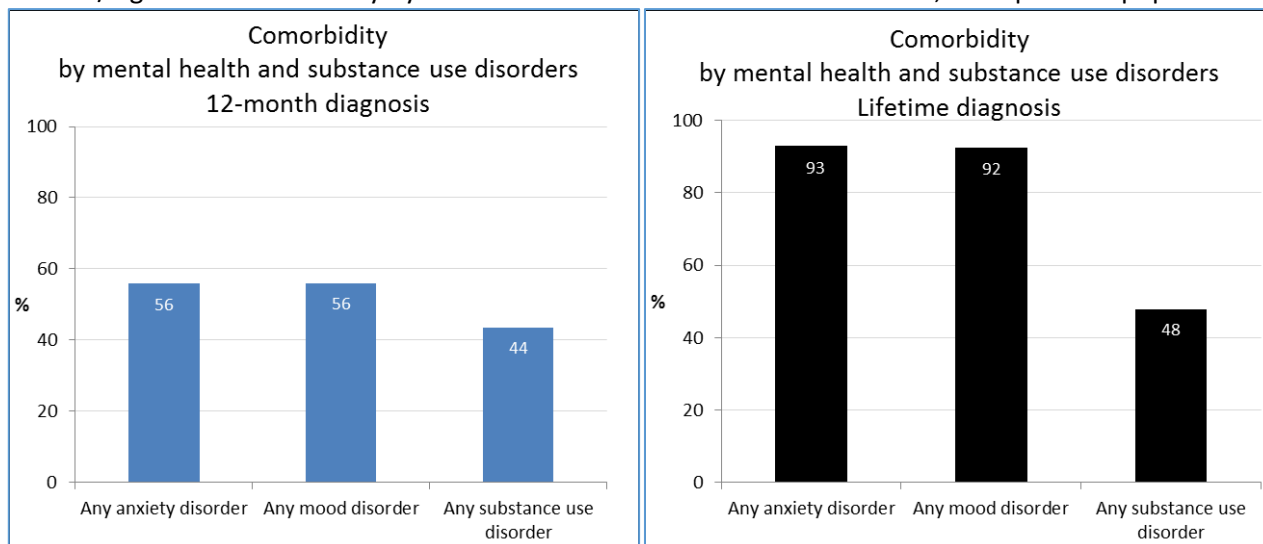
2015 prisoner population		European (n=423) %	Māori (n=622) %	Pacific peoples (n=119) %	Other/not available (n=45) %
Any comorbidity	12-month	22.9	19.4	22.2	6.7^
	Lifetime	46.0	41.1	42.2	18.0^

^RSE >25% - interpret with caution

6.4 Comorbidity by mental health and substance use disorders

Among prisoners with a 12-month diagnosis of an anxiety or mood disorder, over half (56% for each) had another comorbid disorder (Table 6.4). Prisoners with a lifetime diagnosis of a substance use disorder had almost half (48% compared to 93%) the prevalence of comorbidity compared to people with a lifetime anxiety disorder.

Table/Figure 6.4 Comorbidity by mental health and substance use disorders, 2015 prisoner population

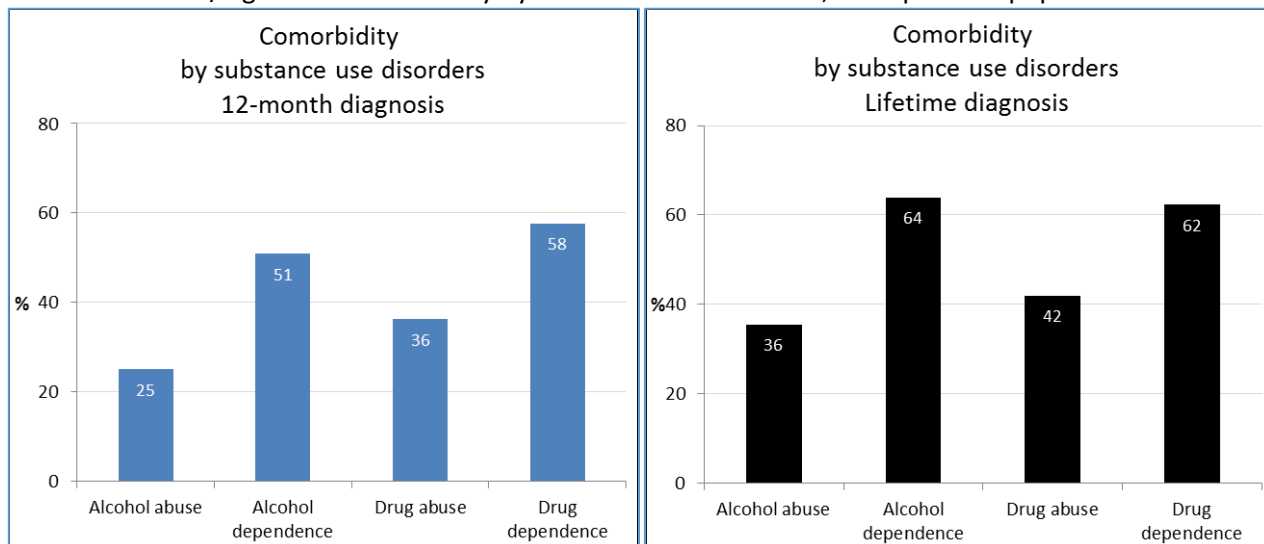


2015 prisoner population	12-month diagnosis			Lifetime diagnosis		
	Any anxiety disorder % (n=284)	Any mood disorder % (n=301)	Any substance use disorder % (n=601)	Any anxiety disorder % (n=377)	Any mood disorder % (n=402)	Any substance use disorder % (n=1063)
Any comorbidity	55.8	55.9	43.5	93.0	92.4	47.9

6.5 Comorbidity by substance use disorders

The 12-month and lifetime diagnosis of substance use disorders is presented in Table 6.5 in its four primary categories: alcohol abuse, alcohol dependence, drug abuse and drug dependence. These categories include the hierarchy rules previously explained (e.g., diagnosis of dependence excluded for those with diagnosis of drug abuse). The findings show that prisoners with a 12-month drug dependence diagnosis were the most likely (58%) to have a comorbidity diagnosis. When considering lifetime diagnoses, alcohol dependence had the highest association with comorbidity (64%).

Table/Figure 6.5 Comorbidity by substance use disorders, 2015 prisoner population



2015 prisoner population	12-month diagnosis				Lifetime diagnosis			
	Alcohol abuse % (n=146)	Alcohol dependence % (n=229)	Drug abuse % (n=64)	Drug dependence % (n=293)	Alcohol abuse % (n=503)	Alcohol dependence % (n=446)	Drug abuse % (n=276)	Drug dependence % (n=483)
Any comorbidity	25.1	51.0	36.2	57.7	35.5	63.9	42.0	62.3

6.6 Comorbidity conclusions

The prevalence of comorbidity (defined as a mental health disorder and a substance use disorder) was high among prisoners, with 20% found to have a 12-month diagnosis and 42% with a lifetime diagnosis. Comorbidity was significantly higher among women than men across both timeframes. The highest lifetime prevalence of comorbidity was found for prisoners with anxiety disorders (93%) or mood disorders (92%) compared to only 48% for prisoners with substance use disorders.

7. Multiple disorders

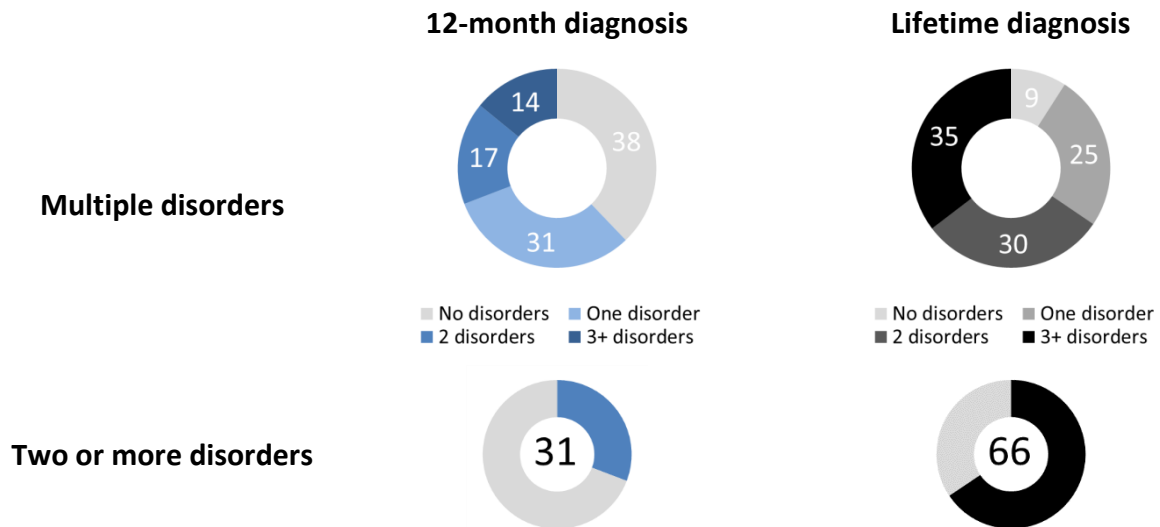
The previous chapter on comorbidity focused on the presence of a mental health disorder and a substance use disorder. In this chapter, multiple disorders are defined as the presence of more than one mental health or substance use disorder diagnosis (either a 12-month or lifetime diagnosis). This may include someone with more than one mental disorder, more than one substance use disorder or the presence of multiple mental health and substance use disorders.

Expected key findings

- Prisoners were nearly four times more likely to have two or more 12-month diagnoses of mental health and substance use disorders than the general population (30% compared to 8%).
- The presence of multiple disorders was higher among women than men, in both prisoner and general population samples.

Unexpected key findings

- A high proportion of prisoners diagnosed with a lifetime anxiety (84%) or mood (81%) disorder were found to have a lifetime diagnosis of three or more disorders, compared to 40% of prisoners with a substance use disorder.



7.1 Multiple disorders summary

The lifetime prevalence of two or more disorders among New Zealand prisoners was found to be three times higher (66% compared to 20%) than found in the general population (Table 7.1). Nearly all prisoners (91%) had a lifetime diagnosis of at least one mental health or substance use disorder, compared to 39% of the general population.

Figure 7.1 Multiple disorders summary, 2015 prisoner population

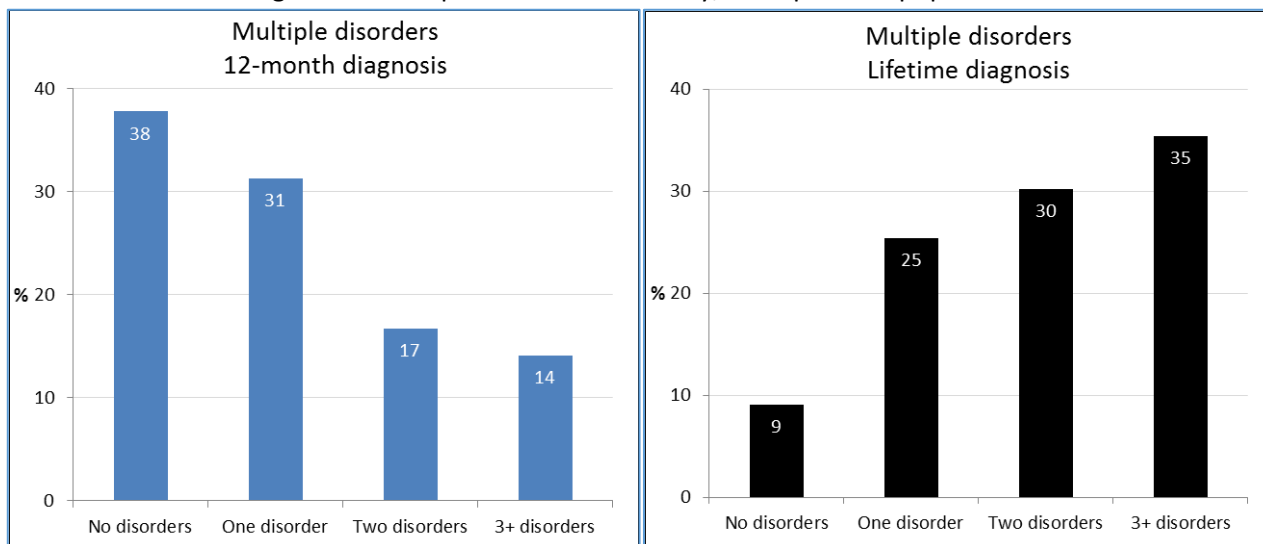


Table 7.1 Multiple disorders summary by study population

	2015 prisoner population		2006 general population	
	12-month (n=1209) %	Lifetime (n=1209) %	12-month %	Lifetime %
No disorders	37.8	9.1	79.3	60.5
One disorder	31.3	25.4	13.0	20.0
Two disorders	16.7	30.2	4.4	9.9
Three or more disorders	14.1	35.4	3.3	9.7

7.2 Multiple disorders by gender

Nearly half (52%) of female prisoners had a lifetime diagnosis of three or more disorders, which was significantly higher than found for male prisoners (34%) (Table 7.2). This was also nearly five times higher (11%) than found in the general population of females identified with three or more disorders.

Figure 7.2 Multiple disorders by gender, 2015 prisoner population

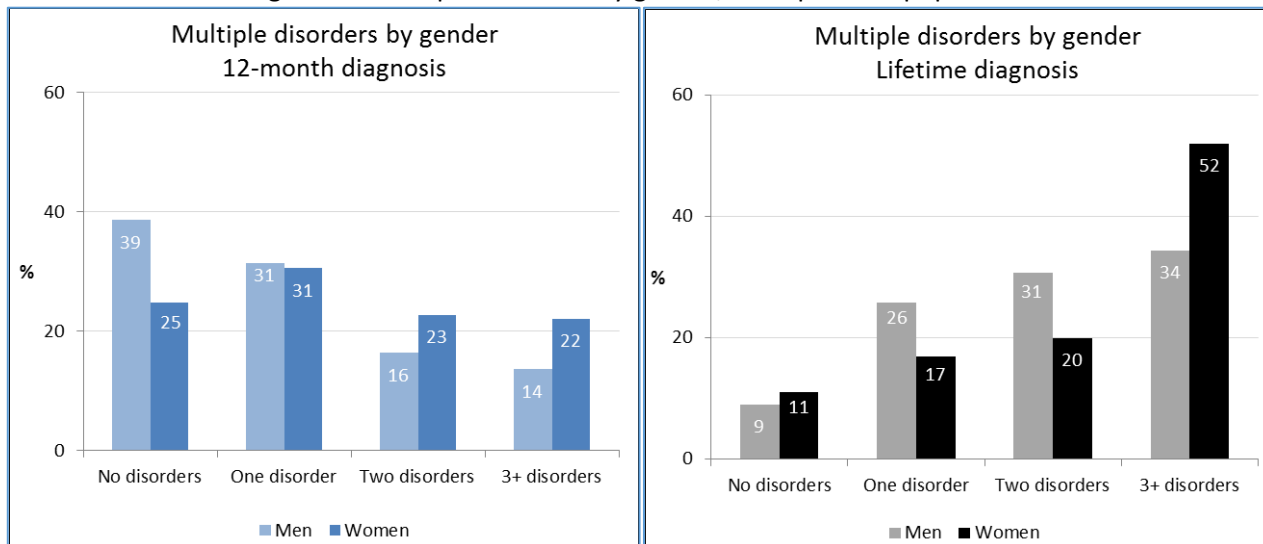


Table 7.2 Multiple disorders by gender by study population

		2015 prisoner population		2006 general population	
		Men (n=1096) %	Women (n=113) %	Men %	Women %
No disorders	12-month	38.6†	24.7	¤	¤
	Lifetime	9.0	11.1	63.5	57.7
One disorder	12-month	31.4	30.5	¤	¤
	Lifetime	25.9†	17.0	19.4	20.6
Two disorders	12-month	16.4	22.7	¤	¤
	Lifetime	30.8†	19.9	8.7	10.9
Three or more disorders	12-month	13.6†	22.1	¤	¤
	Lifetime	34.4†	52.0	8.4	10.8

†Statistically significant (P<0.05); ¤Not reported

7.3 Multiple disorders by age group

The highest lifetime prevalence (39%) of three or more disorders among prisoners was found in the 25 to 44 year age group (Table 7.3). There was a general decrease in the presence of multiple disorders as both prisoner and general community populations were aged 45 years and older.

Figure 7.3 Multiple disorders by age group, 2015 prisoner population

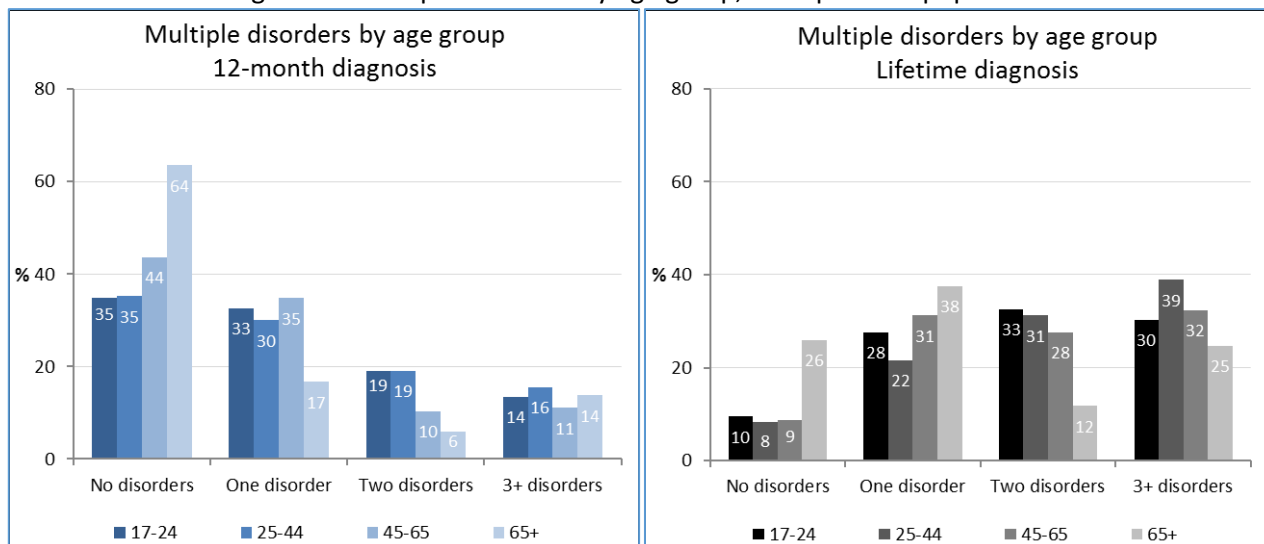


Table 7.3 Multiple disorders by age group by study population

		2015 prisoner population				2006 general population			
		17-24 (n=314) %	25-44 (n=686) %	45-64 (n=191) %	65+ (n=18) %	16-24 %	25-44 %	45-64 %	65+ %
No disorders	12-month	34.9	35.2	43.7	63.5	¤	¤	¤	¤
	Lifetime	9.5	8.3	8.8	26.0^	58.4	54.9	60.3	77.6
One disorder	12-month	32.6	30.0	34.8	16.7^	¤	¤	¤	¤
	Lifetime	27.6	21.6	31.2	37.5^	19.0	22.0	20.3	15.4
Two disorders	12-month	19.0	19.1	10.4	5.9^	¤	¤	¤	¤
	Lifetime	32.6	31.2	27.6	11.8^	11.3	10.8	10.6	4.6
Three or more disorders	12-month	13.5	15.6	11.1	13.8^	¤	¤	¤	¤
	Lifetime	30.3	38.9	32.4	24.7^	11.3	12.3	8.9	2.4

^RSE >25% - interpret with caution; ¤Not reported

7.4 Multiple disorders by ethnicity

Among the general population, Māori had the highest prevalence of two or more disorders. This trend was not found among prisoners, which showed similar prevalence among Māori prisoners and prisoners of European descent (Table 7.4). Pacific peoples had the lowest 12-month prevalence (9%) of three or more disorders, compared to 17% of prisoners of European descent.

Figure 7.4 Multiple disorders by ethnicity, 2015 prisoner population

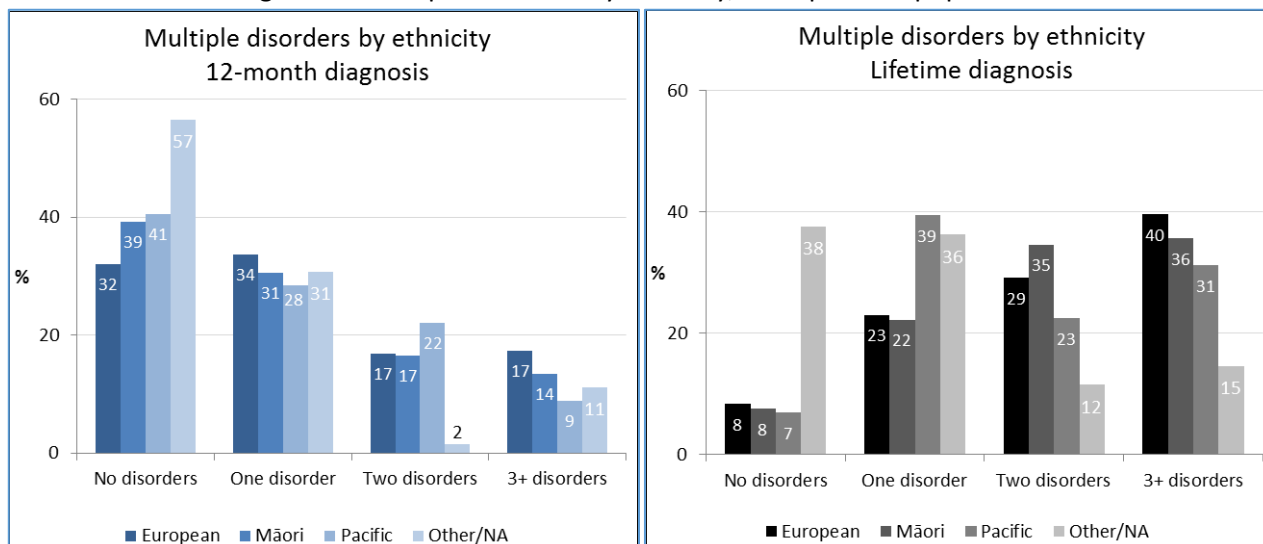


Table 7.4 Multiple disorders by ethnicity by study population

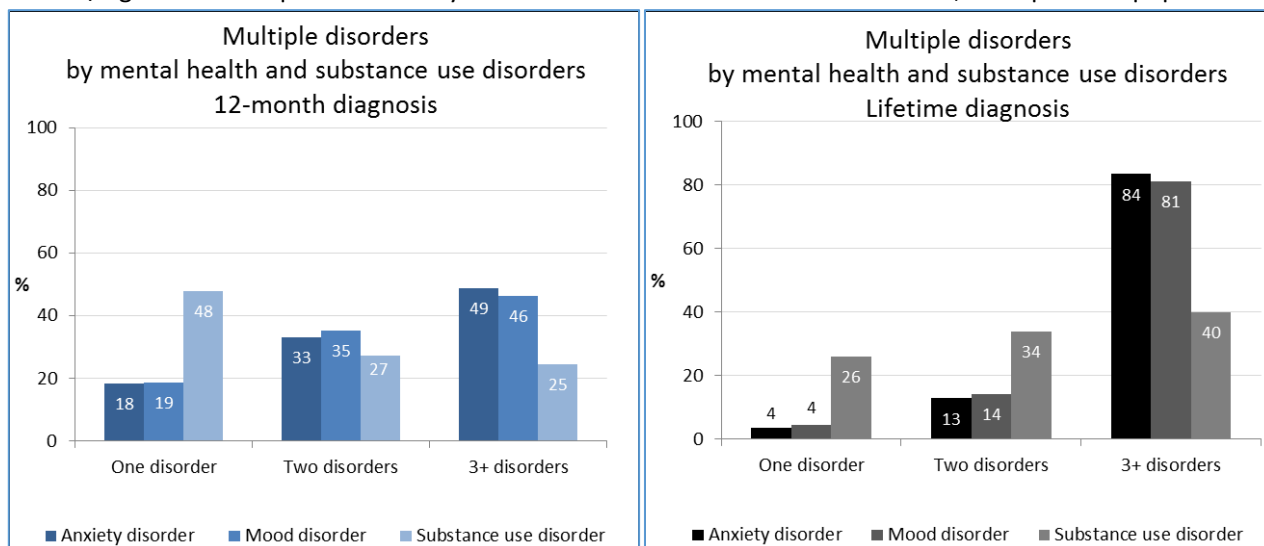
		2015 prisoner population				2006 general population		
		European (n=423) %	Māori (n=622) %	Pacific peoples (n=119) %	Other/not available (n=45) %	Total %	Māori %	Pacific peoples %
No disorders	12-month	32.0	39.3	40.6	56.6	79.3	70.5	75.0
	Lifetime	8.3	7.5	6.9 [^]	37.6	60.5	49.3	53.5
One disorder	12-month	33.7	30.6	28.4	30.8	13.0	16.4	16.6
	Lifetime	23.0	22.2	39.4	36.2	20.0	19.7	23.4
Two disorders	12-month	16.9	16.6	22.1	1.6 [^]	4.4	7.6	5.1
	Lifetime	29.1	34.6	22.5	11.5 [^]	9.9	13.8	12.4
Three or more disorders	12-month	17.4	13.5	8.9 [^]	11.1 [^]	3.3	5.5	3.3
	Lifetime	39.6	35.6	31.2	14.6 [^]	9.7	17.1	10.7

[^]RSE >25% - interpret with caution

7.5 Multiple disorders by mental health and substance use disorders

Among prisoners with a 12-month diagnosis of an anxiety or mood disorder, nearly half (49% for anxiety and 46% for mood) had three or more disorders (Table 7.5). People with a lifetime diagnosis of a substance use disorder had more than half (40% compared to 84%) the prevalence of three or more disorders compared to people with a lifetime anxiety disorder.

Table/Figure 7.5 Multiple disorders by mental health and substance use disorders, 2015 prisoner population

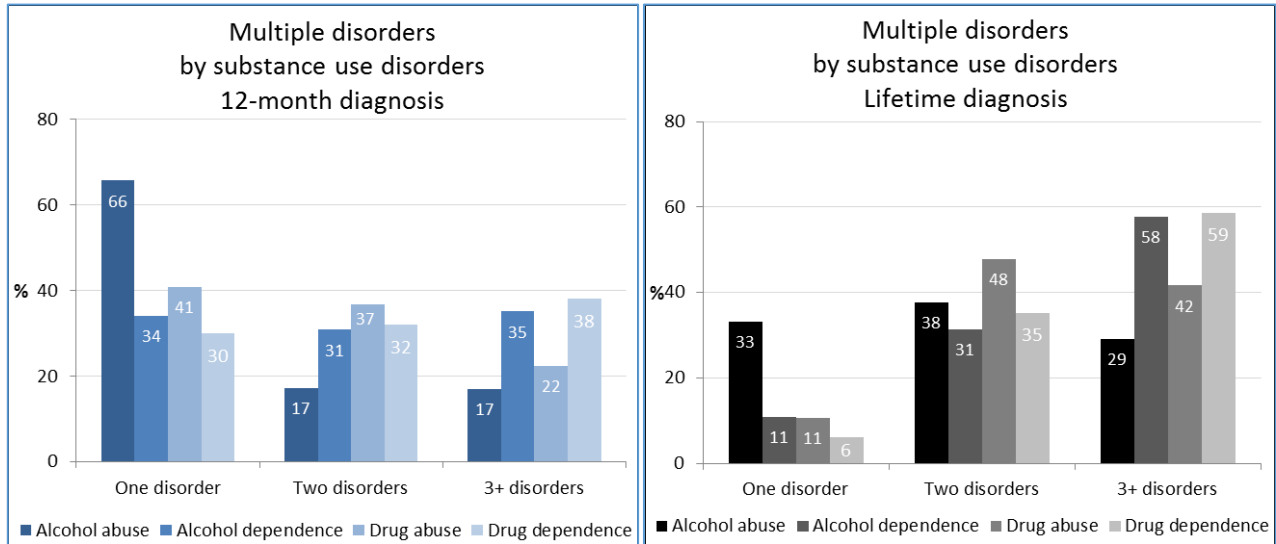


2015 prisoner population	12-month diagnosis			Lifetime diagnosis		
	Any anxiety disorder % (n=284)	Any mood disorder % (n=301)	Any substance use disorder % (n=601)	Any anxiety disorder % (n=377)	Any mood disorder % (n=402)	Any substance use disorder % (n=1063)
One disorder	18.3	18.6	48.0	3.6	4.4	26.1
Two disorders	33.0	35.2	27.4	12.9	14.3	34.0
Three or more disorders	48.7	46.3	24.6	83.5	81.3	39.9

7.6 Multiple disorders by substance use disorders

The 12-month and lifetime diagnosis of substance use disorders is presented in Table 7.6 in its four primary categories: alcohol abuse, alcohol dependence, drug abuse and drug dependence. These categories include the hierarchy rules previously explained (e.g., diagnosis of dependence excluded for those with diagnosis of drug abuse). The findings show that prisoners with drug dependence were the most likely to be found with three or more disorders, for both 12-month diagnosis (38%) and lifetime diagnosis (59%).

Table/Figure 7.6 Multiple disorders by substance use disorders, 2015 prisoner population



2015 prisoner population	12-month diagnosis				Lifetime diagnosis			
	Alcohol abuse % (n=146)	Alcohol dependence % (n=229)	Drug abuse % (n=64)	Drug dependence % (n=293)	Alcohol abuse % (n=503)	Alcohol dependence % (n=446)	Drug abuse % (n=276)	Drug dependence % (n=483)
One disorder	65.8	34.1	40.9	30.0	33.2	10.8	10.6	6.1
Two disorders	17.2	30.8	36.7	31.9	37.7	31.4	47.8	35.2
Three or more disorders	17.0	35.1	22.4	38.1	29.1	57.8	41.6	58.7

7.7 Multiple disorders conclusions

A lifetime presence of two or more disorders was found to be more than three times more prevalent among prisoners (66%) than in the general population (20%). The presence of multiple disorders was higher among women than men, in both prisoner and general population samples. Prisoners with anxiety or mood disorders were twice as likely to have two or more disorders compared to prisoners with substance use disorders.

8. Personality disorders

The official psychiatric manual (the DSM-IV) defines a personality disorder as an enduring pattern of inner experience and behaviour that differs markedly from the expectations of the individual's culture, is pervasive and inflexible, has an onset in adolescence or early adulthood, is stable over time and leads to distress or impairment (APA, 2000).

The Personality Diagnostic Questionnaire 4+ (PDQ-4) has been found to be a reliable screening instrument for personality disorders among prisoners with recommendations to use the clinical significance scale to reduce over-counting (Davison et al, 2001; Calvo et al, 2013). Determining clinical significance was previously described in the methods section.

Expected key findings

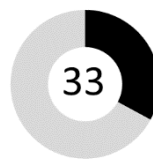
- Male prisoners had a higher prevalence of most personality disorders than women, with the exception of schizoid personality disorders.

Unexpected key findings

- Personality disorders were about half as prevalent (60% vs 33%) in the current survey as found in the 1999 New Zealand Prisoner Mental Health Survey.
- Personality disorders were highest among prisoners of European descent.

Lifetime diagnosis

Any personality disorder

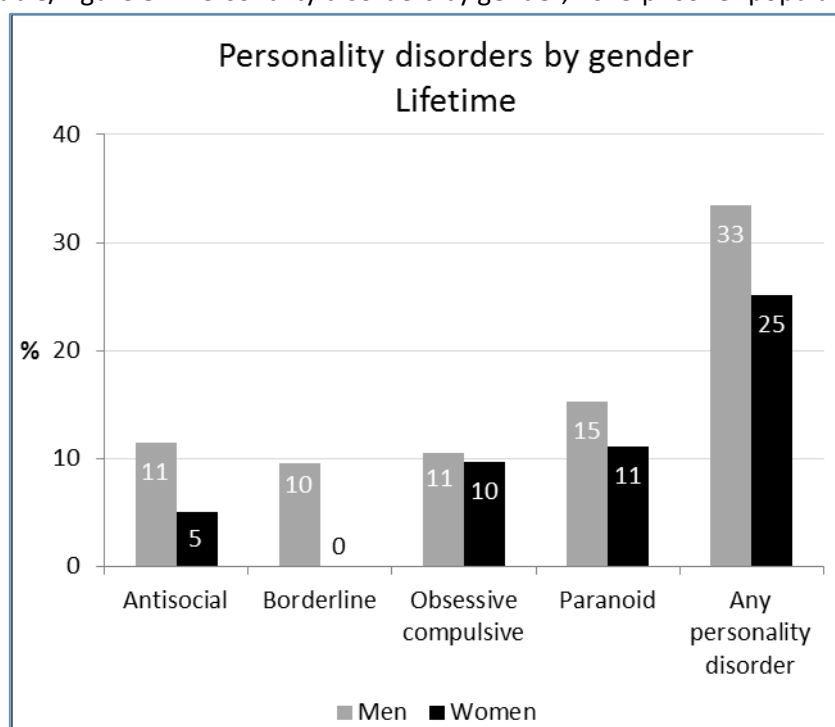


8.1 Personality disorders by gender

Approximately one in three prisoners was found to have a clinically significant personality disorder (Table 8.1). This finding was nearly half as high as found in the 1999 New Zealand Prisoner Mental Health Study which found about 60% prevalence of personality disorder among prisoners.

Men had a higher prevalence of all personality disorders than women, with the exception of schizoid personality disorders (5% in women, 4% in men). The most common personality disorders found included paranoid (15%), antisocial (11%), obsessive compulsive (11%) and borderline (10%). It is difficult to make sense of the paranoid personality disorder, as it is likely that at least some of the impact was due to drug use.

Table/Figure 8.1 Personality disorders by gender, 2015 prisoner population



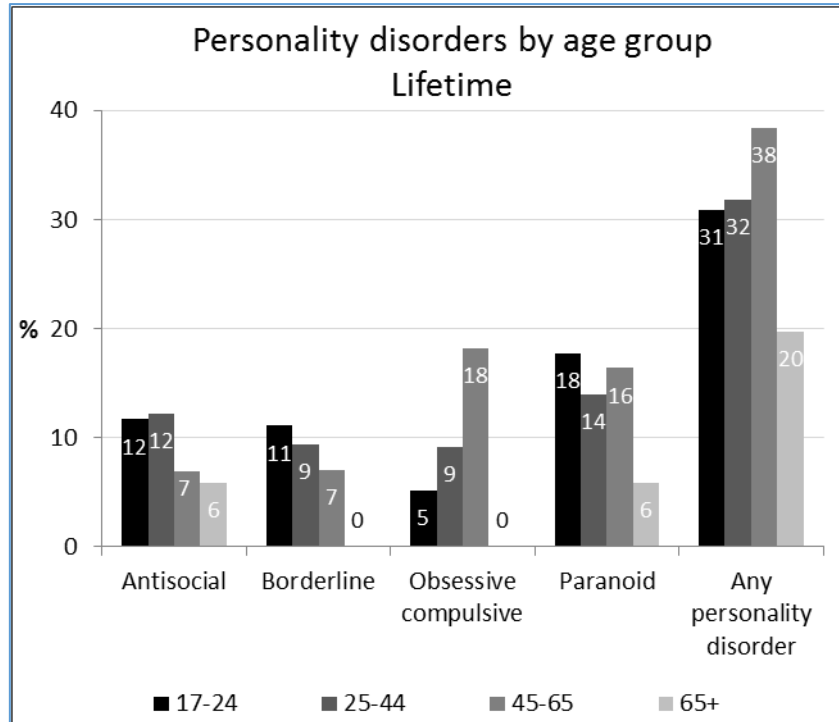
	2015 prisoner population			1999 prisoner population
	Men (n=1073) %	Women (n=110) %	Total (n=1183) %	Total (n=1159) %
Antisocial	11.0†	5.0^	10.7	41.4
Avoidant	7.9	5.9^	7.8	⌘
Borderline	9.5	0.0^	8.9	20.9
Dependent	0.8^	0.0^	0.8	⌘
Depressive	4.8	3.9^	4.8	⌘
Histrionic	1.6	1.7^	1.6	9.2
Narcissistic	4.0	1.5^	3.9	18.3
Negativity	6.8†	1.7^	6.5	⌘
Obsessive Compulsive	10.5	9.7^	10.4	⌘
Paranoid	15.3	11.1^	15.0	43.2
Schizoid	4.1	4.9^	4.2	⌘
Schizotypal	5.0†	0.6^	4.8	⌘
Any personality disorder	33.4	25.1	32.9	59.6

†Statistically significant (P<0.05); ^RSE >25% - interpret with caution; ⌘Not reported

8.2 Personality disorders by age group

Table 8.2 reports on the lifetime rates of personality disorders by age groups. The prevalence of any personality disorder generally increased with age, but some (such as anti-social and borderline) personality disorders decreased as participants aged. Due to the small sample size of participants aged 65 years or more, the estimates for this age group must be interpreted with caution.

Table/Figure 8.2 Personality disorders by age group, 2015 prisoner population



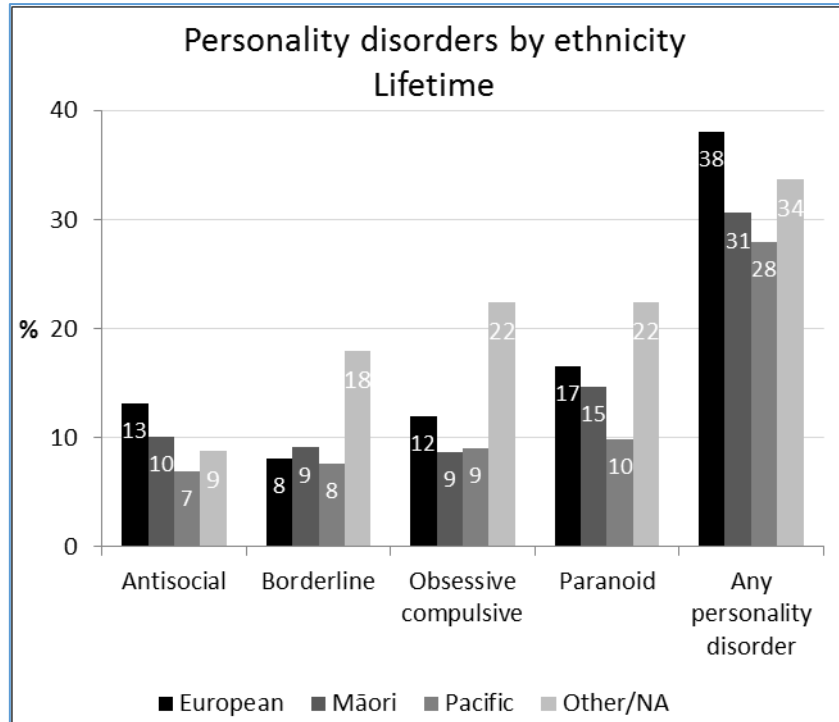
2015 prisoner population	17-24 (n=302) %	25-44 (n=673) %	45-64 (n=190) %	65+ (n=18) %
Antisocial	11.7	12.2	6.9 [^]	5.9 [^]
Avoidant	5.1	8.3	9.0	5.9 [^]
Borderline	11.1	9.4	7.1 [^]	0.0 [^]
Dependent	0.6 [^]	1.0 [^]	0.5 [^]	0.0 [^]
Depressive	3.6 [^]	5.1	4.9 [^]	5.9 [^]
Histrionic	1.4 [^]	1.6 [^]	1.9 [^]	0.0 [^]
Narcissistic	3.5 [^]	4.2	3.8 [^]	0.0 [^]
Negativity	7.3	6.7	4.8 [^]	11.8 [^]
Obsessive Compulsive	5.2 [^]	9.2	18.2	0.0 [^]
Paranoid	17.7	14.0	16.4	5.9 [^]
Schizoid	3.5 [^]	5.0	3.0 [^]	2.0 [^]
Schizotypal	4.1 [^]	4.1	6.7 [^]	5.9 [^]
Any personality disorder	30.9	31.8	38.4	19.7[^]

[^]RSE >25% - interpret with caution

8.3 Personality disorders by ethnicity

Overall, prisoners of European descent had the highest prevalence of personality disorders (38%), followed by Māori (31%) and Pacific peoples (28%). The lowest rates of prevalence of personality disorders was generally found for Pacific peoples, but most of these estimates are based on small sample sizes and high potential for random sampling error so must be interpreted with caution.

Table/Figure 8.3 Personality disorders by ethnicity, 2015 prisoner population



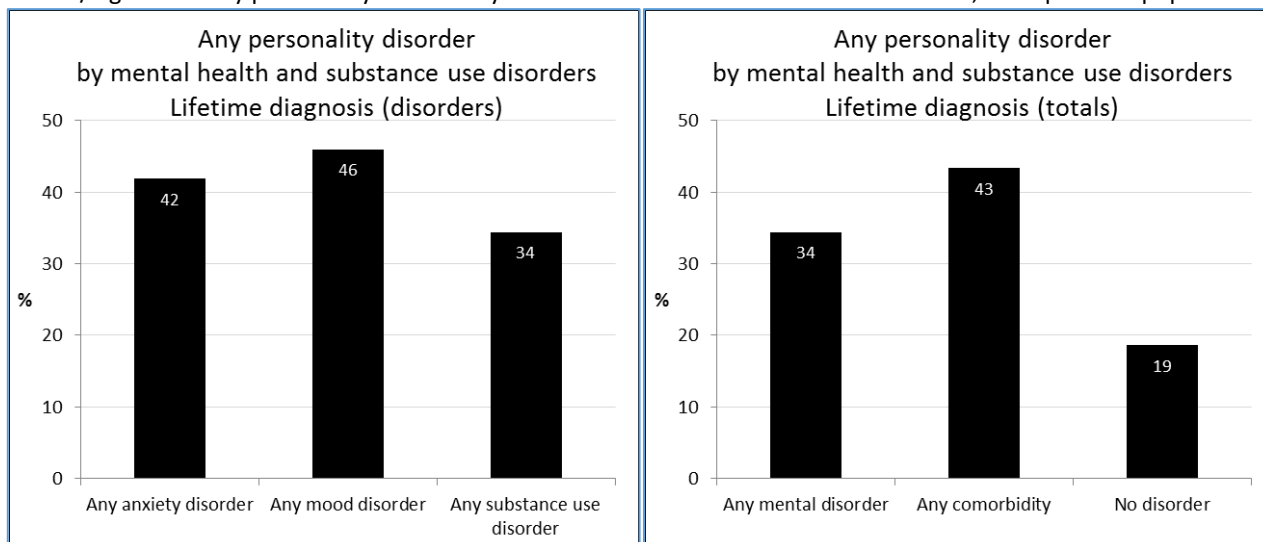
2015 prisoner population	European (n=414) %	Māori (n=608) %	Pacific peoples (n=118) %	Other/not available (n=43) %
Antisocial	13.2	10.1	6.9 [^]	8.8 [^]
Avoidant	8.5	7.0	5.4 [^]	18.1 [^]
Borderline	8.1	9.1	7.6 [^]	18.0 [^]
Dependent	0.8 [^]	0.4 [^]	1.6 [^]	2.3 [^]
Depressive	6.5	3.9	2.9 [^]	6.7 [^]
Histrionic	1.1 [^]	2.1 [^]	1.6 [^]	0.0 [^]
Narcissistic	4.0 [^]	3.9	3.1 [^]	4.6 [^]
Negativity	6.6	6.5	3.9 [^]	13.1 [^]
Obsessive Compulsive	12.0	8.7	9.0 [^]	22.4 [^]
Paranoid	16.6	14.7	9.9 [^]	22.4 [^]
Schizoid	4.1	4.1	4.6 [^]	4.6 [^]
Schizotypal	6.2	4.3	3.8 [^]	2.3 [^]
Any personality disorder	38.1	30.6	28.0	33.7

[^]RSE >25% - interpret with caution

8.4 Personality disorders by lifetime mental health and substance use disorders

The prevalence of personality disorders was higher among prisoners with a lifetime diagnosis of an anxiety disorder (42%) or mood (46%) disorder, compared to 33% for the total sample (Table 8.4). There was little difference for the prevalence of antisocial personality disorder across most other mental health diagnoses or the total sample (all ranging from 11% to 15%).

Table/Figure 8.4 Any personality disorder by mental health and substance use disorders, 2015 prisoner population



2015 prisoner population	Lifetime diagnosis					
	Any anxiety disorder % (n=377)	Any mood disorder % (n=402)	Any substance use disorder % (n=1063)	Any mental disorder % (n=1107)	Any comorbidity % (n=523)	No disorder % (n=102)
Antisocial	11.6	14.5	11.5	11.1	14.4	6.9 [^]
Avoidant	14.8	13.9	8.2	8.2	13.6	4.2 [^]
Borderline	11.6	12.4	9.7	9.6	12.0	2.3 [^]
Dependent	2.6 [^]	1.5 [^]	0.9 [^]	0.9 [^]	1.9 [^]	0.0 [^]
Depressive	8.1	9.0	5.2	5.1	9.0	1.5 [^]
Histrionic	3.3 [^]	2.7 [^]	1.8	1.8	3.0 [^]	0.0 [^]
Narcissistic	5.5	6.3	4.1	4.2	6.1	0.9 [^]
Negativity	10.6	10.6	6.9	6.7	10.4	4.0 [^]
Obsessive Compulsive	14.3	16.5	10.5	10.8	14.5	6.4 [^]
Paranoid	22.5	22.7	16.0	15.8	22.6	7.3 [^]
Schizoid	8.5	7.7	4.5	4.5	7.7	0.9 [^]
Schizotypal	10.4	10.4	5.0	5.0	9.3	2.5 [^]
Any personality disorder	41.9	46.0	34.4	34.4	43.4	18.6

[^]RSE >25% - interpret with caution

8.5 Personality disorders conclusions

One in three prisoners were found to have a clinically significant personality disorder, with a higher prevalence found among prisoners diagnosed with a lifetime mood disorder (46%) or anxiety disorder (42%). The presence of a personality disorder may make obtaining appropriate treatment for mental health and other disorders more challenging so detection is important.

9. Psychosis symptoms

Prisoners have been found to have a prevalence of psychosis about ten times higher than found in the general population (Brugha et al, 2005; Butler et al, 2006). However, the complexity of defining the spectrum of psychotic disorders and optimal methods for its assessment make the use of screening tools problematic (Andreasen, 1995).

The psychosis section of the CIDI was developed to be used for screening rather than diagnostic purpose and has been shown to overestimate the prevalence of psychosis so the results should be interpreted with caution (Kendler et al, 1996). The presence of psychosis symptoms was determined by the self-reported presence of any of the following (ever or in the past year): seeing visions; hearing voices; mind control experiences; mind taken over by strange forces; communication from strange forces; and plot to harm self or loved ones.

Expected key findings

- Prevalence of psychosis symptoms was high among prisoners, both in the past year and over the lifetime.

Unexpected key findings

- Psychosis symptoms were higher for Māori prisoners, in contrast with nearly all other mental disorders in this report where prisoners of European descent had a higher prevalence.

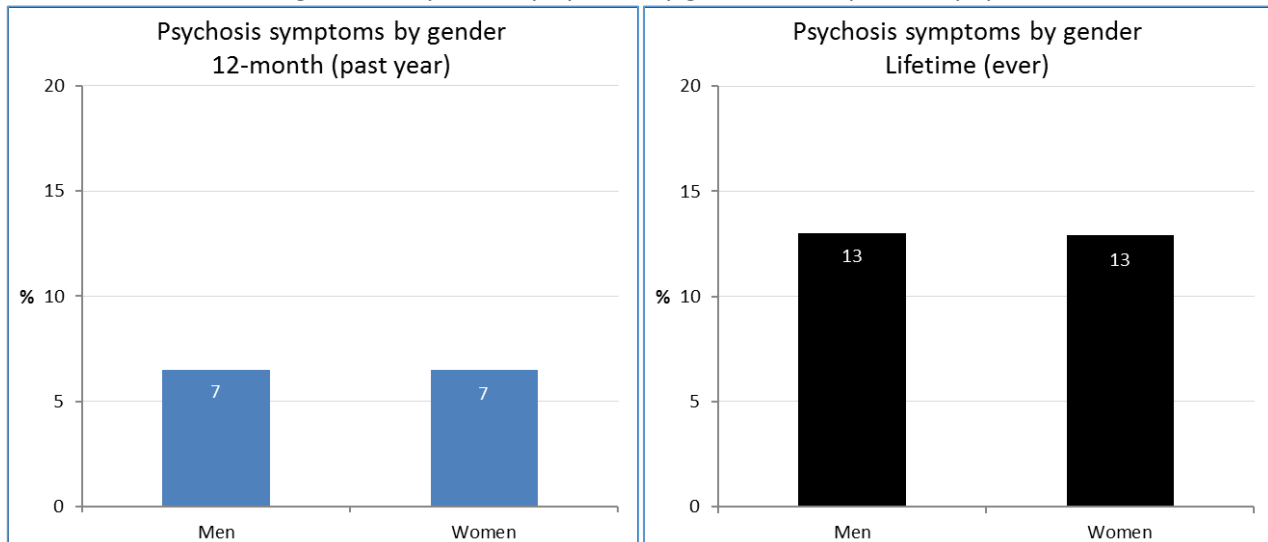


9.1 Psychosis symptoms by gender

Approximately one in eight (13%) prisoners reported at least one symptom of psychosis over their lifetime (Table 9.1). About half as many (7%) reported a psychosis symptom in the past year. There was little difference by gender for lifetime or 12-month prevalence of psychosis symptoms.

The 1999 prisoner mental health study estimated the lifetime prevalence of schizophrenia and related disorders using the CIDI to be 6%. This was lower than found in the 2001 New South Wales Prisoner Mental Health Study which found a crude 12-month psychosis prevalence of 7% (Butler et al, 2006).

Table/Figure 9.1 Psychosis symptoms by gender, 2015 prisoner population



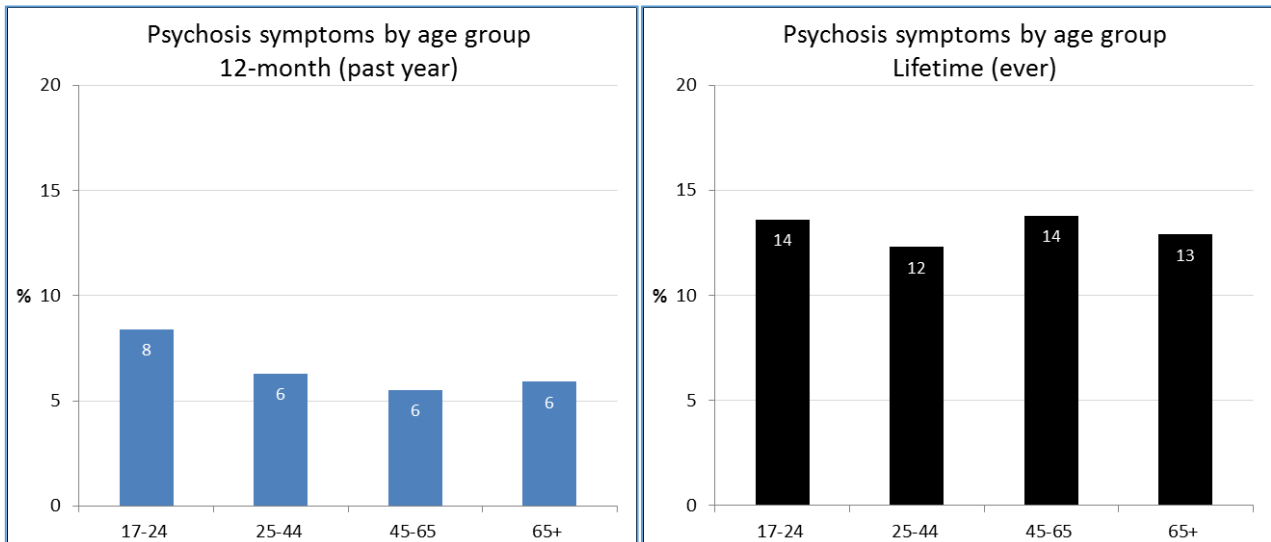
		2015 prisoner population			1999 prisoner population*
		Men (n=1096) %	Women (n=113) %	Total (n=1209) %	Total (n=1248) %
Psychosis symptoms	Past year	6.5	6.5	7.3 [^]	⌘
	Ever	13.0	12.9	12.1	6.4

[^]RSE >25% - interpret with caution; ⌘Not reported; * Includes schizophrenia and related disorders

9.2 Psychosis symptoms by age group

There was little variation in lifetime psychosis symptoms by age group, with a range of 12% to 14% across all age groups (Table 9.2). There was a slightly decreasing prevalence of psychosis symptoms in the past year by age group with the highest prevalence of symptoms found in the youngest group aged 17 to 24 years (8%) compared to 6% for all other age groups.

Table/Figure 9.2 Psychosis symptoms by age group, 2015 prisoner population



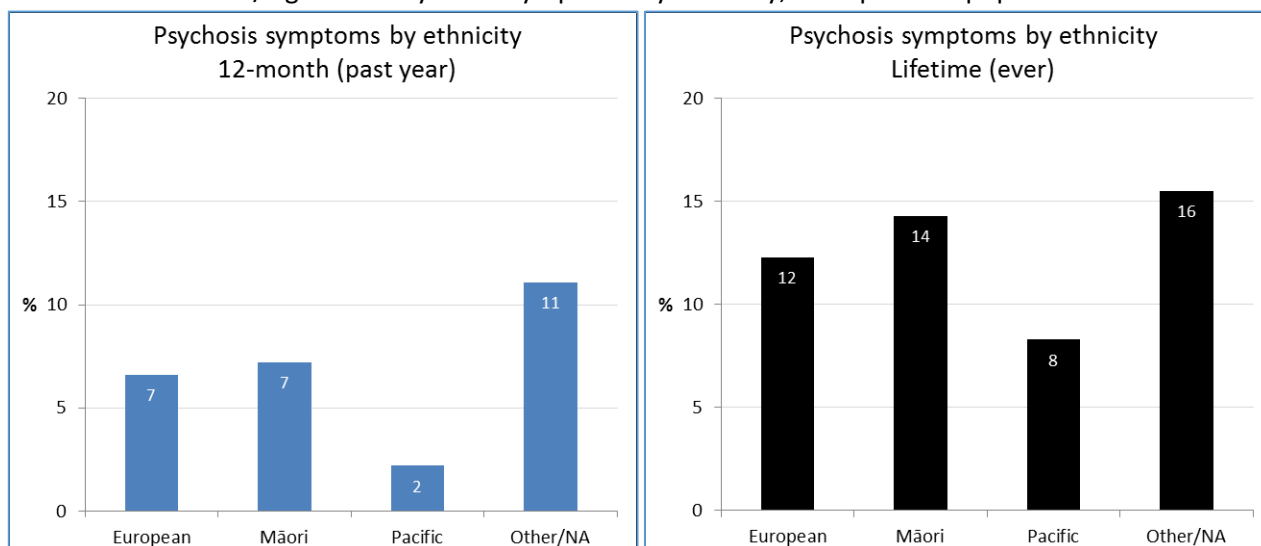
2015 prisoner population		17-24 (n=314) %	25-44 (n=686) %	45-64 (n=191) %	65+ (n=18) %
Psychosis symptoms	Past year	8.4	6.3	5.5 [^]	5.9 [^]
	Ever	13.6	12.3	13.8	12.9 [^]

[^]RSE >25% - interpret with caution

9.3 Psychosis symptoms by ethnicity

Māori prisoners were found to have a slightly higher prevalence of lifetime and 12-month psychosis symptoms, which may be the result of cultural differences in the perceptions of mental illness (Sanders et al, 2011). In the study by Sanders, these cultural differences included a higher proportion of Māori people believing that their illness was short-term and caused by chance or spiritual factors. The lowest prevalence of psychosis symptoms in the past year was found among Pacific peoples (Table 9.3).

Table/Figure 9.3 Psychosis symptoms by ethnicity, 2015 prisoner population



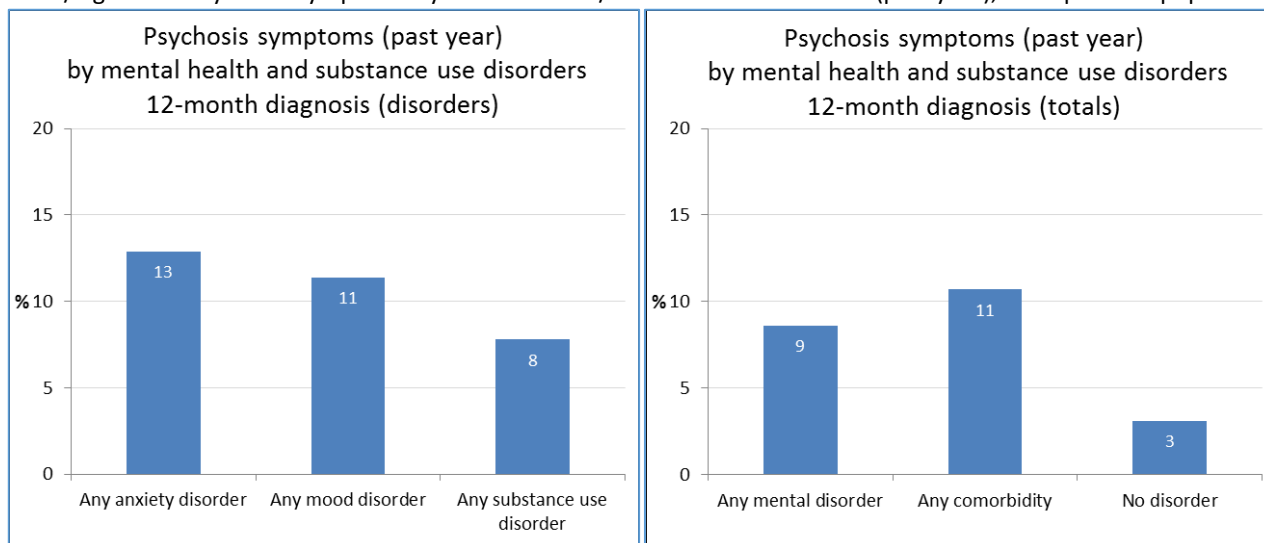
2015 prisoner population		European (n=423) %	Māori (n=622) %	Pacific peoples (n=119) %	Other/not available (n=45) %
Psychosis symptoms	Past year	6.6	7.2	2.2 [^]	11.1 [^]
	Ever	12.3	14.3	8.3 [^]	15.5 [^]

[^]RSE >25% - interpret with caution

9.4 Psychosis symptoms by mental health and substance use disorders

The prevalence of psychosis symptoms in the past year was highest among people with a 12-month diagnosis of anxiety disorders (13%), followed by those with mood disorders (11%) or mental health and substance use disorder comorbidity (11%) (Table 9.4).

Table/Figure 9.4 Psychosis symptoms by mental health/substance use disorders (past year), 2015 prisoner population

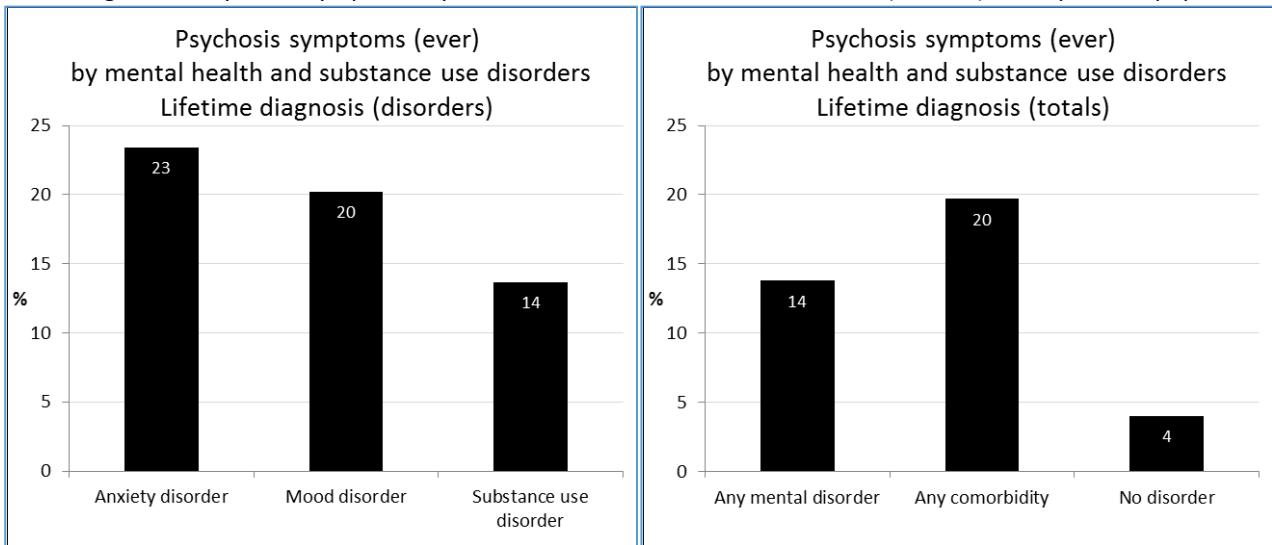


2015 prisoner population	12-month diagnosis					
	Any anxiety disorder % (n=284)	Any mood disorder % (n=301)	Any substance use disorder % (n=601)	Any mental disorder % (n=781)	Any comorbidity % (n=272)	No disorder % (n=428)
Psychosis symptoms (past year)	12.9	11.4	7.8	8.6	10.7	3.1 [^]

[^] RSE >25% - interpret with caution

Similar to what was found in the past year symptoms of psychosis, the highest prevalence of lifetime psychosis symptoms was found in people with a lifetime diagnosis of an anxiety disorder (23%), followed by mood disorders (20%) or any comorbidity (20%) (Table 9.5).

Table/Figure 9.5 Psychosis symptoms by mental health/substance use disorders (lifetime), 2015 prisoner population



2015 prisoner population	Lifetime diagnosis					
	Any anxiety disorder % (n=377)	Any mood disorder % (n=402)	Any substance use disorder % (n=1063)	Any mental disorder % (n=1107)	Any comorbidity % (n=523)	No disorder % (n=102)
Psychosis symptoms (ever)	23.4	20.2	13.7	13.8	19.7	4.0

9.5 Psychosis symptoms conclusions

This survey did not utilise a diagnostic instrument for the measurement of psychosis and other psychotic disorders so interpretation must be attempted with caution. Instead, this chapter summarised a range of symptoms of psychosis, such as seeing visions and hearing voices by participant characteristics. The prevalence of these psychosis symptoms is high among prisoners but more validation is needed to determine the clinical significance of these findings, including consideration of how many are transient and/or drug-related.

10. Psychological distress

The CIDI includes a module called 30 Day Symptoms which was derived from the Kessler Psychological Distress Scale (K10) (Kessler et al, 2002). Previous research highlighted strong associations between high scores on the K10 and a current diagnosis of an anxiety or mood disorder (Andrews and Slade, 2001).

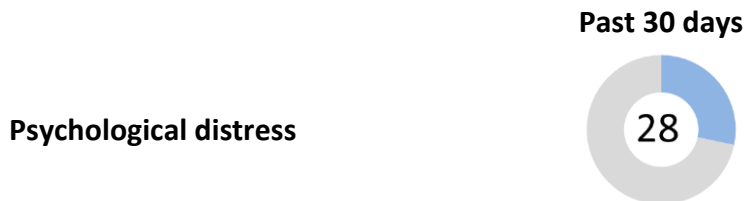
The K10 was measured as part of the 2013/14 New Zealand Health Survey and a cut-off of 12 or more was defined as having psychological distress. This was found in just over 6% of the New Zealand population (Ministry of Health, 2014).

Expected key findings

- Prisoners had significantly higher rates of psychological distress in the past 30 days than the general population.
- Prisoners with psychological distress were highly likely to have an anxiety or mood disorder 12-month diagnosis.

Unexpected key findings

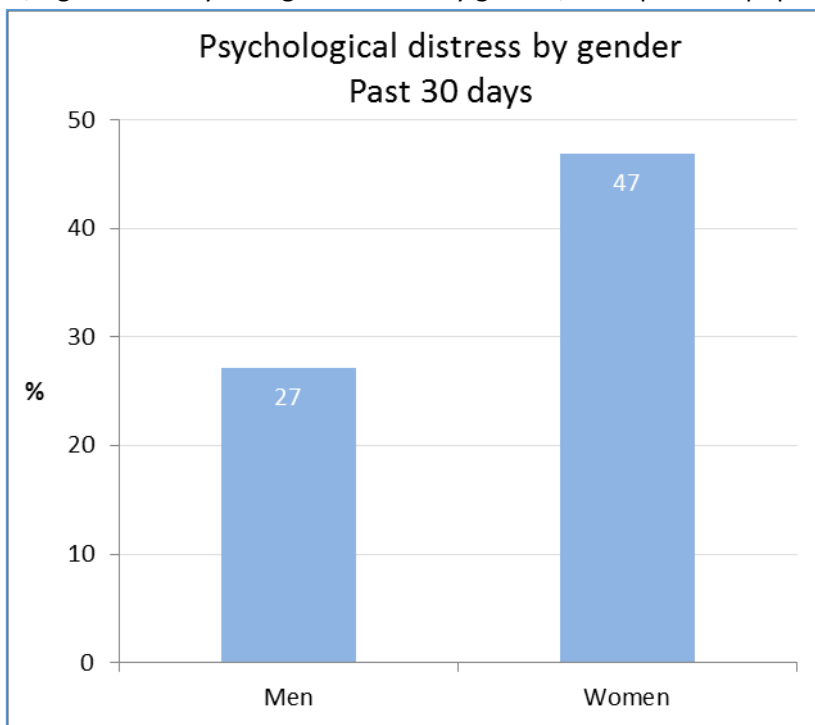
- The prevalence of psychological distress for female prisoners was nearly twice as high as that for men.
- Psychological distress was highest among prisoners of European descent, while in the general population Pacific peoples were twice as likely to have psychological distress as people of European descent.



10.1 Psychological distress by gender

Nearly half (47%) of female prisoners had symptoms of psychological distress in the past 30 days, compared to 27% of men (Table 10.1). This prevalence of psychological distress was more than six times higher than found in the general population for women and more than five times higher than found for men.

Table/Figure 10.1 Psychological distress by gender, 2015 prisoner population



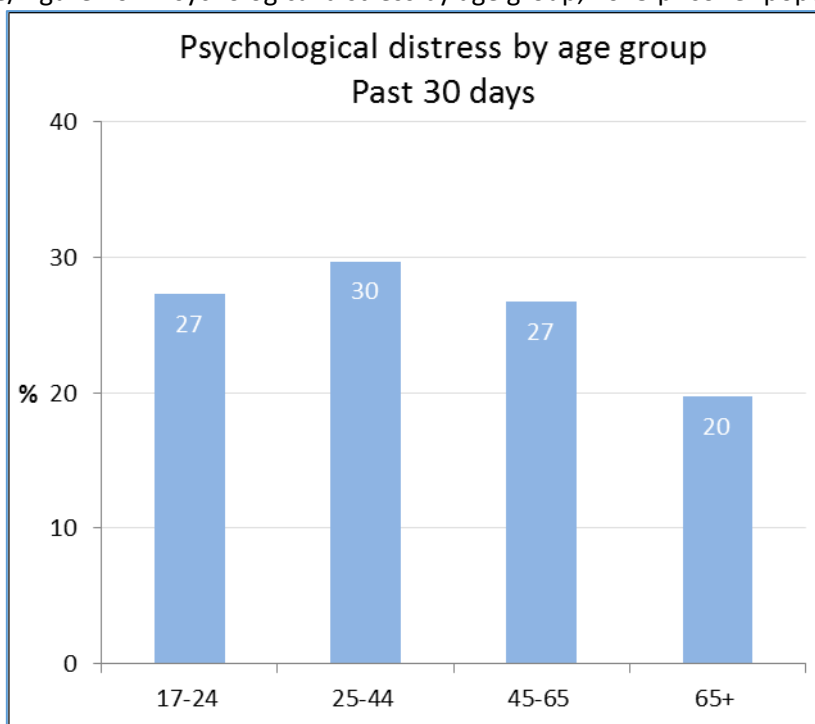
	2015 prisoner population			2013/14 Health Survey		
	Men (n=1093) %	Women (n=112) %	Total (n=1205) %	Men %	Women %	Total %
Psychological distress	27.2 [†]	46.9	28.3	5.2	7.1	6.2

[†]Statistically significant (P<0.05)

10.2 Psychological distress by age group

In the 2013/14 New Zealand Health Survey, psychological distress decreases with age with the highest prevalence found among young people aged 17 to 24 years (Table 10.2). Among prisoners, the highest prevalence of psychological distress was found among those aged 25 to 44 years (30%), with only slightly smaller proportions found among those aged 17 to 24 years (27%) and those aged 45 to 64 years (27%).

Table/Figure 10.2 Psychological distress by age group, 2015 prisoner population



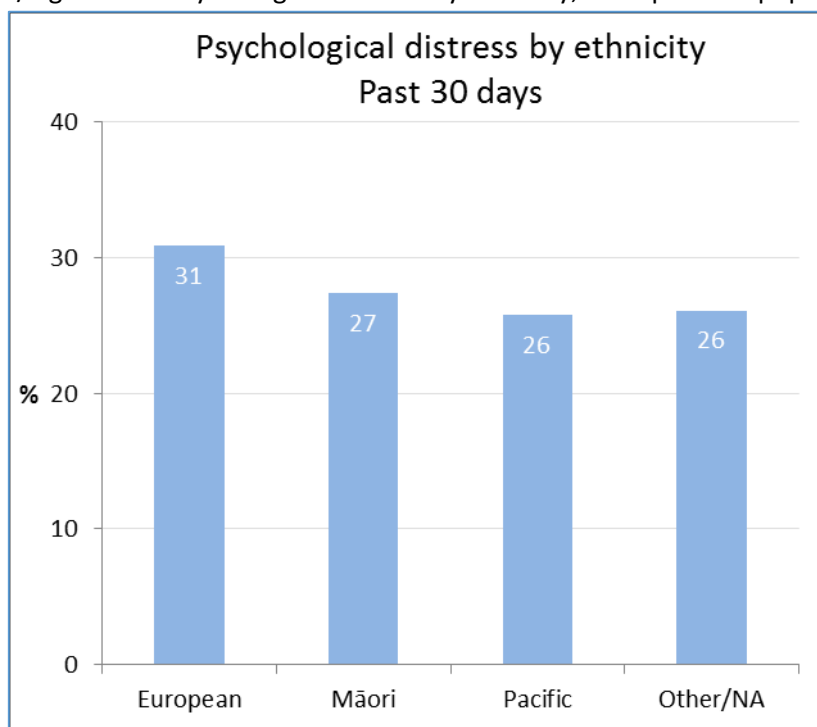
	2015 prisoner population				2013/14 Health Survey			
	17-24 (n=310) %	25-44 (n=686) %	45-64 (n=190) %	65+ (n=18) %	17-24 %	25-44 %	45-64 %	65+ %
Psychological distress	27.3	29.7	26.7	19.7 [^]	7.1	6.4	6.2	4.6

[^]RSE >25% - interpret with caution

10.3 Psychological distress by ethnicity

In the general population, Pacific peoples had the highest proportion (13%) reporting psychological distress, followed by Māori (9%) then Europeans (6%) (Table 10.3). By contrast, psychological distress did not vary as much by ethnicity for prisoners but the highest prevalence was found among those of European descent (31%) and the lowest among Pacific peoples (26%).

Table/Figure 10.3 Psychological distress by ethnicity, 2015 prisoner population



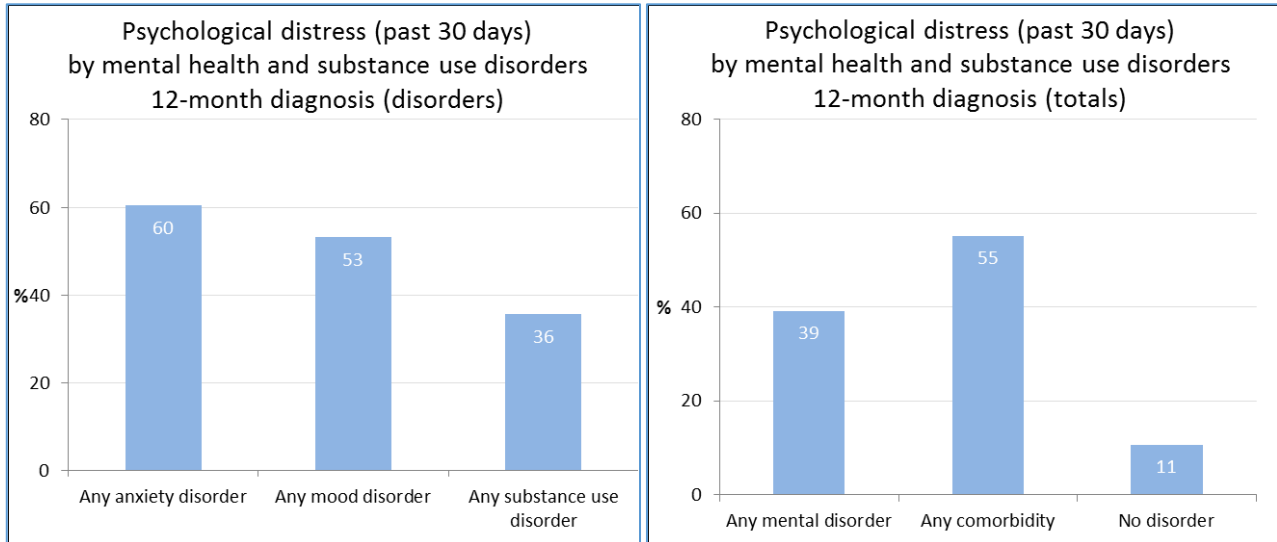
	2015 prisoner population				2013/14 Health Survey*		
	European (n=419) %	Māori (n=622) %	Pacific peoples (n=119) %	Other/not available (n=45) %	European/ Other %	Māori %	Pacific peoples %
Psychological distress	30.9	27.4	25.8	26.1	5.6	9.3	12.6

*2013/14 New Zealand Health Survey combines European/other

10.4 Psychological distress by mental health and substance use disorders

As previously reported, approximately 23% of prisoners had been diagnosed with an anxiety disorder in the past 12 months. Of these people, over 60% were found to have recent psychological distress (Table 10.4). Similarly high rates of psychological distress were found among prisoners diagnosed with comorbidity (55%) or a mood disorder (53%) in the past 12 months. These rates of psychological distress were about twice as high as the prevalence found in the total prisoner population (28%).

Table/Figure 10.4 Psychological distress by mental health and substance use disorders, 2015 prisoner population



2015 prisoner population	12-month diagnosis					
	Any anxiety disorder % (n=284)	Any mood disorder % (n=301)	Any substance use disorder % (n=601)	Any mental disorder % (n=781)	Any comorbidity % (n=272)	No disorder % (n=428)
Psychological distress	60.4	53.2	35.6	39.1	55.1	10.7

10.5 Psychological distress conclusions

Psychological distress was very high among prisoners, with rates more than five times those found in the general population. The prevalence of psychological distress was consistently high across ethnicities and age groups but was nearly twice as high for women as for men. There were strong correlations among prisoners who had psychological distress and those found to have an anxiety or mood disorder diagnosis in the past 12 months.

11. Suicidal behaviours

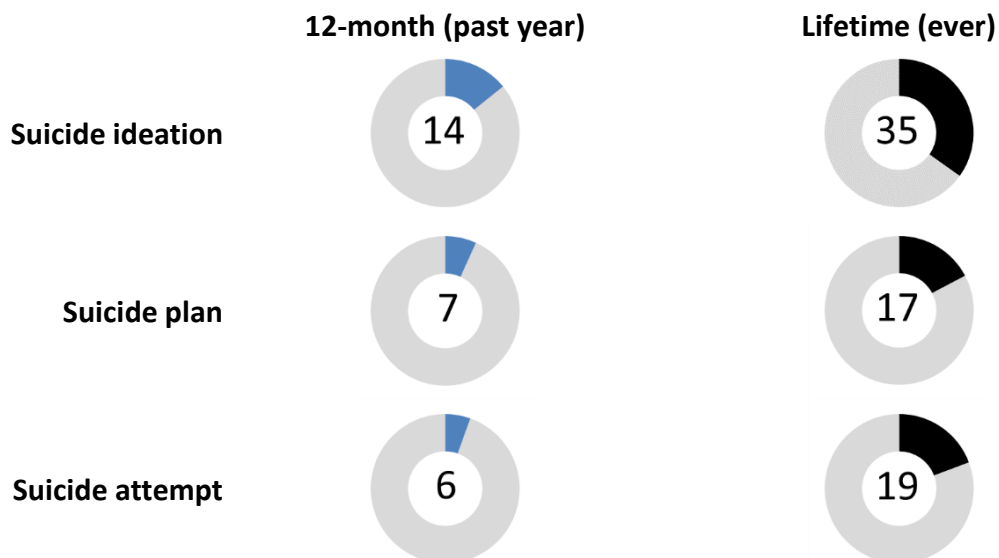
Suicide is a major cause of death among people with a mental illness and is significantly more prevalent among prisoners compared to the general population (Larney et al, 2012; Butler et al, 2006). In New Zealand, over 500 people take their lives annually, with males nearly three times more likely to commit suicide than females. The highest rate was among young people aged 15-24 years (Ministry of Health, 2015). A further 3,000 New Zealanders were reported to have a self-harm-related hospital admission with the rate among females more than twice as high as among males (Ministry of Health, 2015).

Expected key findings

- Prisoners had higher rates of suicidal behaviours than people in the general population, including being twice as likely to have ever thought about suicide and being four times as likely to have ever attempted suicide.
- Women had higher rates of suicidal behaviours than men in both prisoner and general population samples.

Unexpected key findings

- Both recent and lifetime suicidal behaviours remained high among prisoners regardless of age group, compared to steep declines in general population samples.
- Prisoners of European descent had higher rates of suicidal behaviours than Māori or Pacific peoples.
- The highest rate of most suicidal behaviours was found among prisoners with diagnosed anxiety disorders.



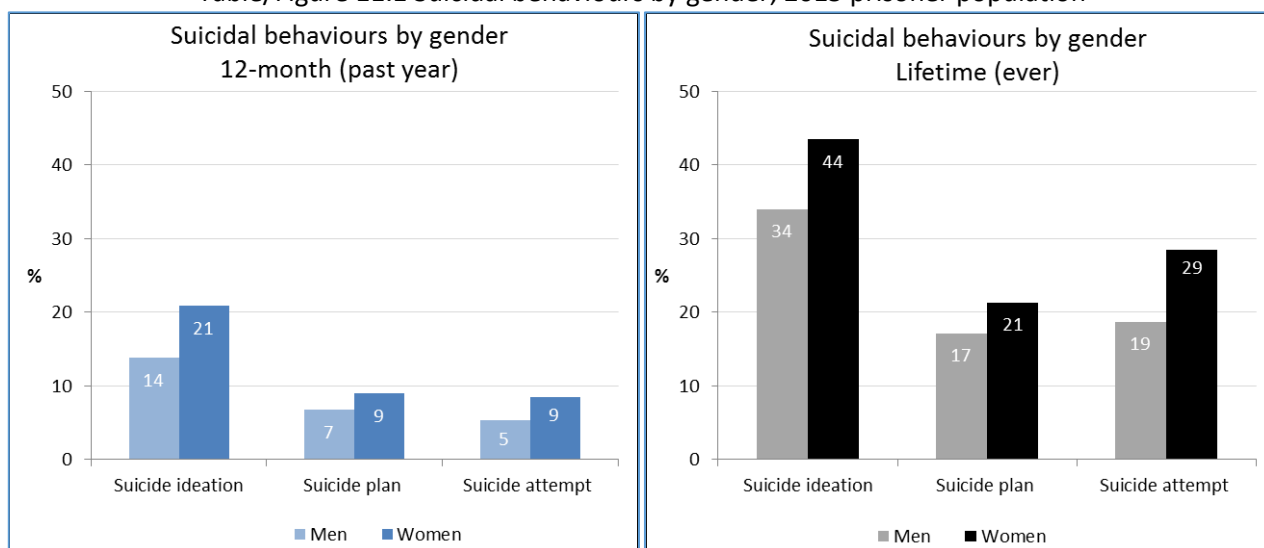
11.1 Suicidal behaviours by gender

Prisoners were more than twice as likely to have ever thought about suicide and more than four times as likely to have ever attempted suicide compared to the New Zealand population as a whole, as illustrated in Table 11.1 below. Prisoners were four times more likely to have suicidal thoughts in the past year and nearly fourteen times more likely to have attempted suicide in the past year compared to those in the general population. In both prisons and the general population, women were more likely to report suicidal behaviours than men.

When compared to the 2009 New South Wales Inmate Health Survey, the prevalence of 'ever' thinking about suicide was similar (35% in the New Zealand study compared to 33% in the New South Wales study), as was the prevalence of 'ever' attempting suicide (19% in the New Zealand study compared to 21% in the New South Wales study) (Indig et al, 2010).

The gender differences in suicidal behaviours were roughly similar in both the New South Wales and New Zealand surveys for 'ever' attempting suicide (29% of women and 18% of men in New Zealand, compared to 27% of women and 19% of men in New South Wales). Direct comparisons with the 1999 New Zealand Prisoner Mental Health Study were not possible because it focused on suicidal behaviours of participants since they had been in prison. However, that study reported 21% of prisoners had thought about suicide since entering prison, while the current study found that 14% of prisoners had thought about suicide in the past year.

Table/Figure 11.1 Suicidal behaviours by gender, 2015 prisoner population



		2015 prisoner population			2006 general population		
		Men (n=1052) %	Women (n=110) %	Total (n=1162) %	Men %	Women %	Total %
Suicide ideation	Past year	13.8 [†]	20.9	14.2	2.6	3.7	3.2
	Ever	34.0 [†]	43.5	34.5	14.0	17.4	15.7
Suicide plan	Past year	6.7	9.0 [^]	6.8	0.9	1.0	1.0
	Ever	17.1	21.3	17.3	4.6	6.4	5.5
Suicide attempt	Past year	5.3	8.5 [^]	5.5	0.4	0.4	0.4
	Ever	18.7 [†]	28.5	19.3	3.4	5.6	4.5

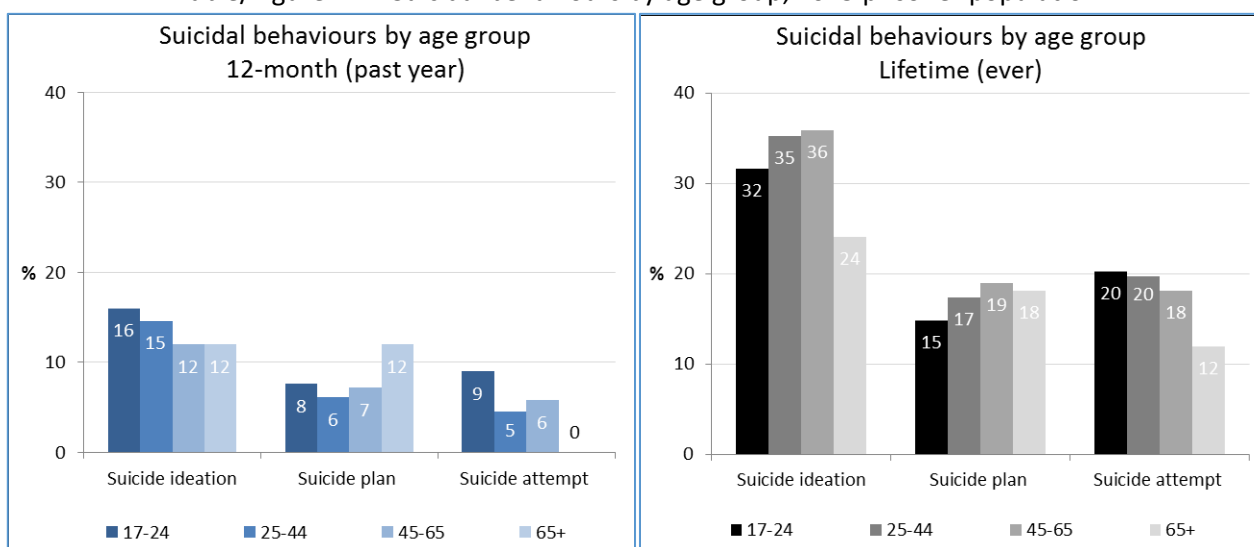
[†]Statistically significant (P<0.05); [^]RSE >25% - interpret with caution

11.2 Suicidal behaviours by age group

Prisoners aged 17 to 24 years have the highest prevalence (20%) of ever attempting suicide. This suicide attempt rate decreased with age (Table 11.2). This trend matches the statistics for deaths by suicide and intentional self-harm hospitalisations in New Zealand as a whole, with the youngest age group having the highest rate of suicide (Ministry of Health, 2015).

However, unlike the general population sample, the prevalence of all suicidal behaviours among prisoners remained high across nearly all age groups, both for ever displaying the behaviours or in the past year. This trend was also seen for suicidal thoughts since being in prison for the 1999 New Zealand Prisoner Mental Health Study.

Table/Figure 11.2 Suicidal behaviours by age group, 2015 prisoner population



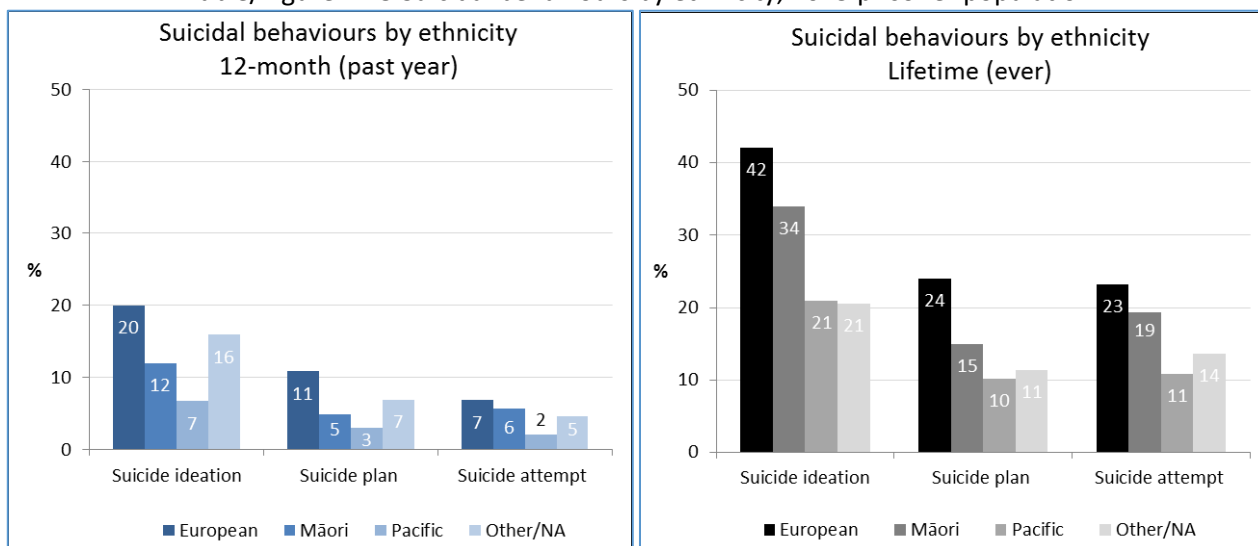
2015 prisoner population		17-24 (n=300) %	25-44 (n=663) %	45-64 (n=182) %	65+ (n=17) %
Suicide ideation	Past year	16.0	14.6	12.0	12.0 [^]
	Ever	31.6	35.3	35.9	24.1 [^]
Suicide plan	Past year	7.6	6.1	7.2 [^]	12.0 [^]
	Ever	14.8	17.4	19.0	18.1 [^]
Suicide attempt	Past year	9.0	4.5	5.8 [^]	0.0 [^]
	Ever	20.3	19.7	18.1	12.0 [^]

[^]RSE >25% - interpret with caution

11.3 Suicidal behaviours by ethnicity

Prisoners of European descent had the highest prevalence of all suicidal behaviours, followed by Māori then Pacific peoples (Table 11.3). This finding was in contrast to what was found in the general New Zealand population where Māori had a slightly higher rate of suicide deaths and intentional self-harm hospitalisations (Ministry of Health, 2015). However, the 1999 New Zealand Prisoner Mental Health Study found Māori had the lowest rates (16%) of suicidal thoughts since entering prison, with similar rates found for prisoners of European (24%) descent and Pacific peoples (24%).

Table/Figure 11.3 Suicidal behaviours by ethnicity, 2015 prisoner population



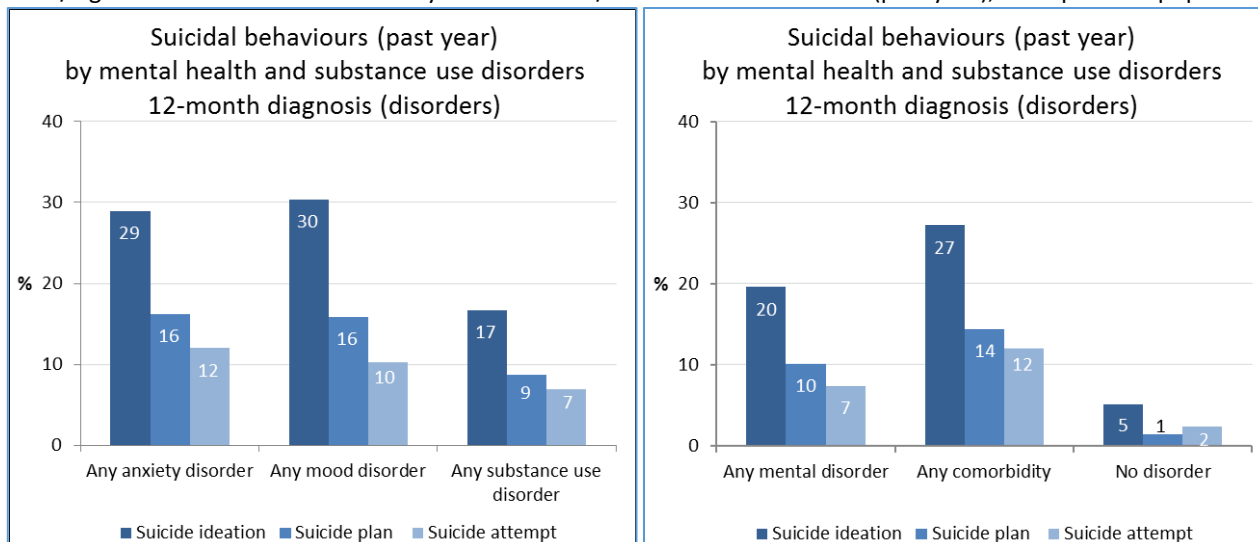
2015 prisoner population		European (n=414) %	Māori (n=593) %	Pacific peoples (n=112) %	Other/not available (n=43) %
Suicide ideation	Past year	20.0	12.0	6.7 [^]	15.9 [^]
	Ever	42.1	34.0	20.9	20.5 [^]
Suicide plan	Past year	10.9	4.9	3.0 [^]	6.9 [^]
	Ever	24.0	15.0	10.2 [^]	11.3 [^]
Suicide attempt	Past year	6.8	5.6	2.1 [^]	4.6 [^]
	Ever	23.2	19.3	10.8 [^]	13.6 [^]

[^]RSE >25% - interpret with caution

11.4 Suicidal behaviours by mental health and substance use disorders

Thoughts about suicide in the past year were slightly higher among people with a mood disorder (30%) compared to people with an anxiety disorder (29%) (Table 11.4). By contrast, suicidal behaviours in the past year were nearly half as high (17%) for people with a substance use disorder.

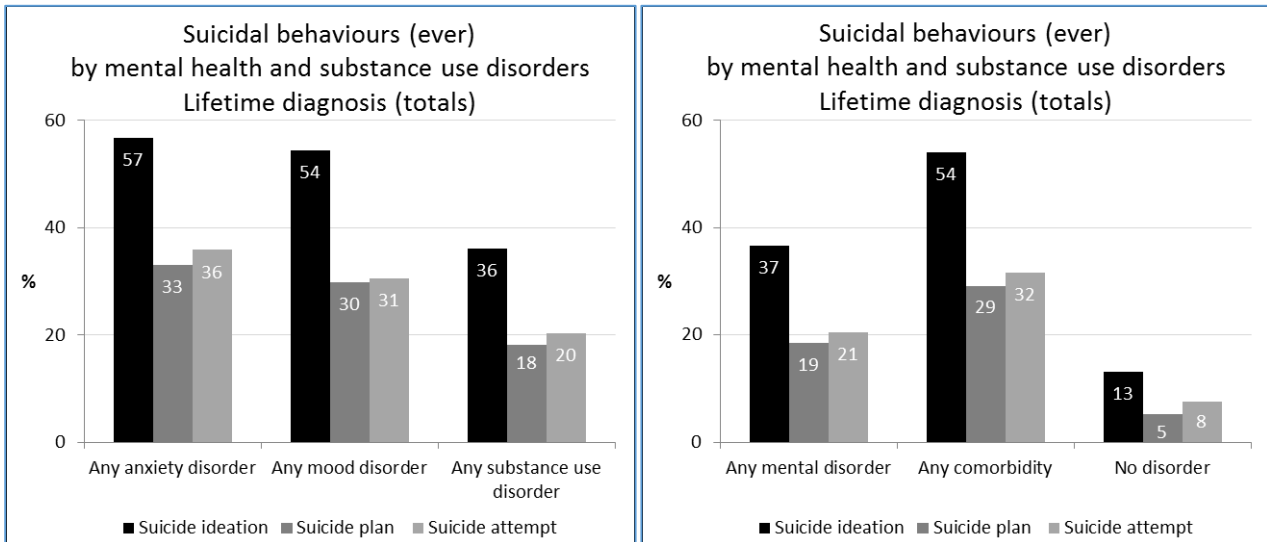
Table/Figure 11.4 Suicidal behaviours by mental health/substance use disorders (past year), 2015 prisoner population



2015 prisoner population	12-month diagnosis					
	Any anxiety disorder % (n=284)	Any mood disorder % (n=301)	Any substance use disorder % (n=601)	Any mental disorder % (n=781)	Any comorbidity % (n=272)	No disorder % (n=428)
Suicide ideation	28.9	30.4	16.7	19.6	27.2	5.1
Suicide plan	16.2	15.9	8.7	10.1	14.4	1.4
Suicide attempt	12.0	10.3	6.9	7.4	12.0	2.4

The lifetime prevalence of suicidal behaviours was highest among people with an anxiety disorder, closely followed by people with a mood disorder or any comorbidity (Table 11.5). Suicidal ideation was identified in 13% of people with no lifetime diagnosis of a mental health or substance use disorder.

Table/Figure 11.5 Suicidal behaviours by mental health/substance use disorders (lifetime), 2015 prisoner population



2015 prisoner population	Lifetime diagnosis					
	Any anxiety disorder % (n=377)	Any mood disorder % (n=402)	Any substance use disorder % (n=1063)	Any mental disorder % (n=1107)	Any comorbidity % (n=523)	No disorder % (n=102)
Suicide ideation	56.8	54.4	36.2	36.7	54.0	13.2
Suicide plan	33.1	29.9	18.2	18.5	29.2	5.2
Suicide attempt	35.9	30.6	20.3	20.5	31.7	7.5

11.5 Suicidal behaviours conclusions

Suicidal behaviours were highly prevalent among prisoners, with women consistently reporting higher rates than men. The prevalence of suicidal thoughts and attempts among prisoners was mostly consistent across age groups, compared to general population samples where suicidal behaviours decrease as people get older. Prisoners with a mental health disorder (such as an anxiety or mood disorder) had the highest rates of recent or lifetime suicidal behaviours.

12. Mental health treatment

Unmet mental health treatment needs is a major global health problem (World Health Organisation World Mental Health Consortium, 2004). In the 2006 New Zealand Mental Health Survey, it was estimated that 39% of people who met criteria for a mental disorder in the past 12 months had at least one mental health visit to a care provider in the past year (Oakley Browne et al, 2006). The assumption in this definition of unmet mental health treatment needs is that anyone with a current diagnosis of a mental illness should have seen a mental health professional in the past 12 months. The 2006 general population survey found that unmet need for treatment was greatest in younger people and Pacific peoples.

Expected key findings

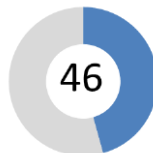
- Female prisoners were more likely than male prisoners to access health services for their mental health.
- Consistent with the general population, Pacific peoples were substantially less likely to access health services for their mental health than prisoners of European descent.

Unexpected key findings

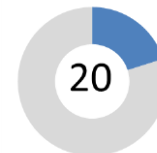
- Accessing mental health treatment generally decreased with age among prisoners with a 12-month substance use disorder or comorbidity diagnosis, contrary to the finding of treatment increasing with age among prisoners with a 12-month diagnosis of anxiety or mood disorders.
- There was little difference among prisoners (58%) and the general population (55%) with a 12-month mood disorder diagnosis in accessing mental health treatment in the past year.

**Mental health treatment
in past year**

**12-month diagnosis
Any mental disorder**



**12-month diagnosis
No disorder**

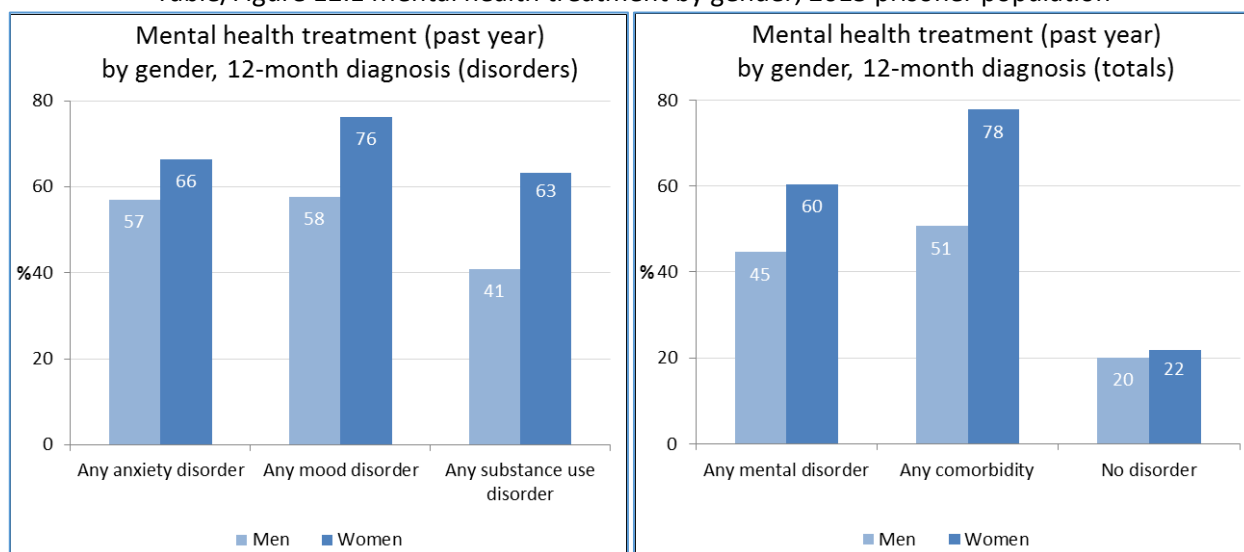


12.1 Mental health treatment by gender

Among prisoners with a 12-month diagnosis of any mental disorder, 46% had received some form of mental health treatment in the past year, compared to 39% in the general population (Table 12.1). In both populations, people with mood disorders had the highest rates of treatment (59% of prisoners and 55% in the general population), while prisoners had higher rates of treatment for both anxiety disorders (58% compared to 39%) and substance use disorders (42% compared to 30%) than found in the general population.

Female prisoners had significantly higher rates of mental health treatment than males for nearly all disorders, with the highest (78%) found for women with any comorbidity. This was consistent with what was reported in the 2006 general population survey where 43% of women and 32% of men with a 12-month mental disorder diagnosis had mental health treatment in the past year (data not shown).

Table/Figure 12.1 Mental health treatment by gender, 2015 prisoner population



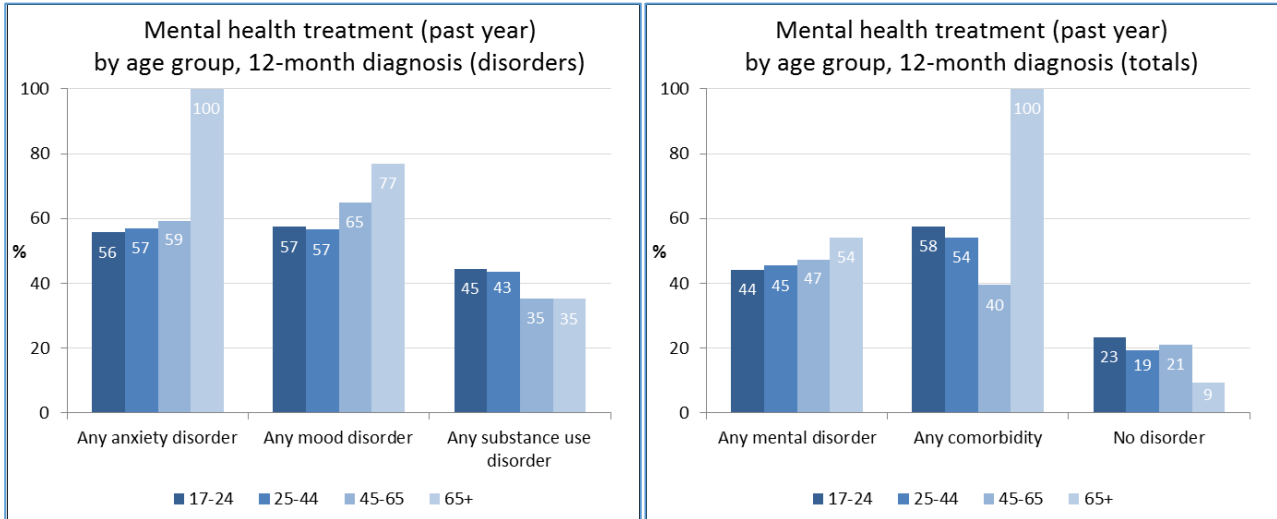
	Mental health treatment (past year)/12-month diagnosis					
	Any anxiety disorder % (n=284)	Any mood disorder % (n=301)	Any substance use disorder % (n=601)	Any mental disorder % (n=781)	Any comorbidity % (n=272)	No disorder % (n=428)
2015 prisoner population						
Men	57.0	57.7	40.8	44.6	50.6	20.1
Women	66.3	76.2†	63.3†	60.4†	77.7	21.8^
Total	58.0	58.8	42.2	45.7	53.1	20.1
2006 general population total	39.4	55.1	29.9	38.9	⌘	⌘

†Statistically significant (P<0.05); ⌘Not reported; ^RSE >25% - interpret with caution

12.2 Mental health treatment by age group

Among both prisoners with any 12-month mental disorder diagnosis or any anxiety or mood disorder, treatment increased with age (Table 12.2). This was consistent with the 2006 general population survey where any treatment was lowest among those 16-24 (32%), then rose to 40% among those 25-44, and 43% among those 45-64 and down slightly to 42% among those aged 65 years and over (data not shown). However, treatment for any substance use disorder or any comorbidity among prisoners generally decreased with age.

Table/Figure 12.2 Mental health treatment by age group, 2015 prisoner population



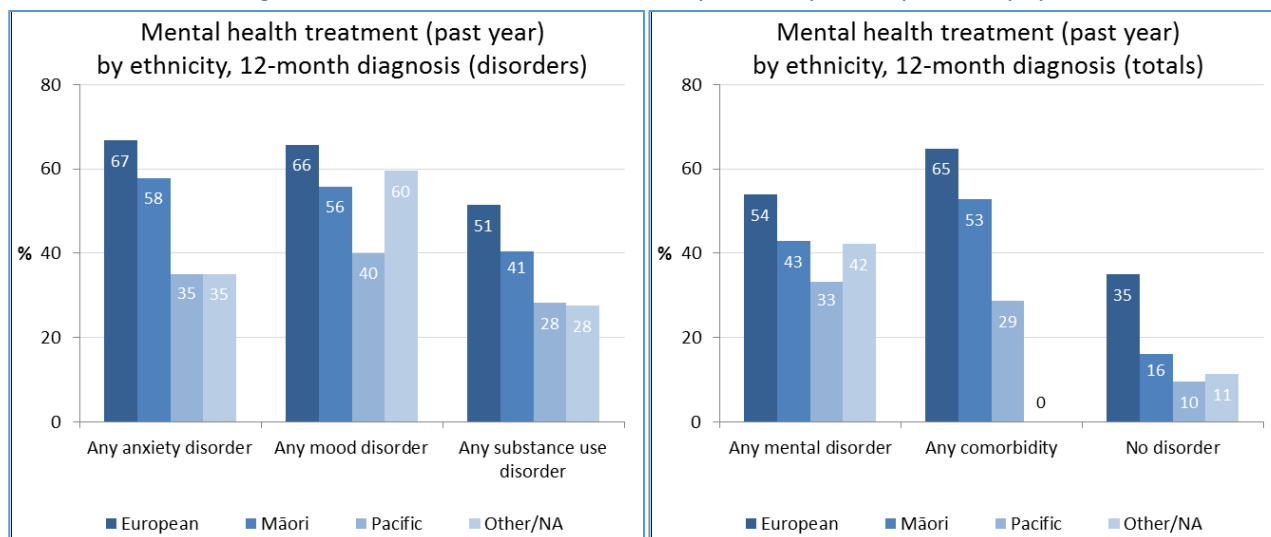
2015 prisoner population	Mental health treatment (past year)/12-month diagnosis					
	Any anxiety disorder % (n=284)	Any mood disorder % (n=301)	Any substance use disorder % (n=601)	Any mental disorder % (n=781)	Any comorbidity % (n=272)	No disorder % (n=428)
17-24	55.7	57.4	44.5	44.1	57.5	23.4
25-44	57.0	56.6	43.4	45.4	54.1	19.4
45-64	59.1	64.9	35.4	47.2	39.5	21.0
65+	100.0 [^]	77.0 [^]	35.2 [^]	54.1 [^]	100.0 [^]	9.3 [^]

[^]RSE >25% - interpret with caution

12.3 Mental health treatment by ethnicity

Consistent with what was reported in the 2006 general population survey, prisoners from Pacific nations with a 12-month mental disorder diagnosis had the lowest rates of seeking mental health treatment in the past year (Table 12.3). Prisoners of European descent had the highest rates of treatment, including being more than twice as likely as Pacific peoples (65% compared to 29%) to obtain treatment if they have any comorbidity diagnosis.

Table/Figure 12.3 Mental health treatment by ethnicity, 2015 prisoner population



2015 prisoner population	Mental health treatment (past year)/12-month diagnosis					
	Any anxiety disorder % (n=284)	Any mood disorder % (n=301)	Any substance use disorder % (n=601)	Any mental disorder % (n=781)	Any comorbidity % (n=272)	No disorder % (n=428)
European	66.8	65.7	51.4	53.9	64.8	34.9
Maori	57.8	55.8	40.5	42.9	52.8	16.0
Pacific peoples	35.0^	40.0^	28.2	33.3	28.7^	9.5^
Other/not available	35.1^	59.5^	27.6^	42.2^	0.0^	11.3^

^RSE >25% - interpret with caution

12.4 Mental health treatment conclusions

Fewer than half (46%) of prisoners with a 12-month diagnosis of any mental disorder did not see a mental health professional in the past year, reflecting unmet mental health treatment needs. In particular, male prisoners and Pacific peoples were the least likely to access mental health treatment. Accessing mental health treatment was highest among people diagnosed with mood disorders (59%), followed closely by prisoners with anxiety disorders (58%).

Summary and conclusions

In this study, prisoners were found to have a high prevalence of both lifetime and 12-month diagnosis of mental health and substance use disorders. This included nearly all (91%) prisoners having a lifetime diagnosis of a mental health or substance use disorder and 42% having a lifetime prevalence of a comorbid mental health and substance use disorder. Over half (62%) of prisoners had a 12-month diagnosis of a mental health or substance use disorder and one in five (20%) had a 12-month diagnosis of comorbidity for both disorders. With this high prevalence of comorbidity, it is important for treatment provided in prison to address both mental health and substance abuse treatment needs concurrently.

The prevalence of most mental health and substance use disorders was significantly higher among female prisoners than found in men, reflecting their more complex and higher care needs. In particular, women had nearly twice the prevalence of anxiety disorders than found among male prisoners. With the high rates of post-traumatic stress disorder and trauma experienced by women, additional care is needed to ensure their mental health care needs are appropriately met.

The lifetime prevalence of mental disorders among prisoners was consistently high across nearly all age groups, peaking in the 25 to 44 year age group. Anxiety disorders were found to mostly increase with age among prisoners, with the highest lifetime and 12-month prevalence found in the 45 to 64 year age group. The highest prevalence anxiety disorder was post-traumatic stress disorder which is often underdiagnosed and untreated among prisoners.

The prevalence of most mental health and substance use disorders did not vary greatly by the ethnicity of prisoners. However, the study found that the lowest prevalence of comorbidity was found for Māori prisoners, while in the general population, Māori had the highest rates of comorbidity. More research is needed as to why this trend is reversed among prisoners, particularly since Māori are disproportionately incarcerated compared to other New Zealanders. The finding may suggest that social disadvantage rather than ethnicity was the dominant factor in mental health and substance use disorders among prisoners. Alternatively, it may suggest that since Māori have a higher incarceration rate, a greater cross-section of the Māori population is in prison, not just those who may have a mental illness. However, ensuring culturally appropriate mental health and substance use disorder treatment for Māori prisoners is important to improve their health and reduce re-offending.

The majority of (87%) prisoners had a lifetime diagnosis of a substance use disorder, compared to 12% in the general population. This study provides further evidence of the changing nature of substance use disorders in New Zealand, including a substantial increase in stimulant (such as methamphetamines or 'p') abuse and dependence. In particular, the lifetime prevalence of stimulant dependence was the highest of all drug types (23%), compared to 20% for marijuana dependence. This change is notable since the 1999 New Zealand Prisoner Mental Health Survey did not even report separately on stimulant abuse and dependence but combined it with an 'other' category including all drug types except marijuana, suggesting the prevalence was not particularly high.

Prisoners were more than twice as likely to have ever thought about suicide and more than four times as likely to have ever attempted suicide compared to the general population. The study also identified that suicidal ideation and attempts in the past year were nearly twice as high among prisoners diagnosed with a 12-month diagnosis of anxiety or mood disorders. This highlights the importance of risk management procedures in prison to adequately screen new prison receptions for mental health disorders and suicidality to ensure appropriate care can be provided.

Nearly half (47%) of prisoners with a 12-month diagnosis of a mental health or substance use disorder had mental health treatment in the preceding year, suggesting high rates of unmet treatment needs. The lowest rate of treatment received in the past year was for substance use disorders (42%), compared to 59% for prisoners with a mood disorder. Men were also significantly less likely to have sought any mental health

treatment compared to women. Addressing substance use disorders and developing strategies to engage men in mental health and substance use disorder treatment are important prevention strategies to reduce future offending behaviours.

Implications for policy and practice

The findings of this report provide important evidence to assist with identifying areas for improved detection, early intervention, treatment and rehabilitation and diversion away from the criminal justice system. A review of existing mental health and substance abuse screening tools used in prison compared to the findings in this report may be helpful to identify any areas for improvement. With the high association between suicidal thoughts and attempts and anxiety or mood disorders, consideration should be given to providing more comprehensive screening for prisoners who are detected with recent suicidality. Improving the mental health literacy and training of the Corrections workforce can also be a helpful strategy. This should include the development of appropriate post-release referral pathways for prisoners to improve health and prevent re-offending.

This study highlights that improved integration of mental health and substance use disorder treatment would be an important strategy for improving the health and reducing the re-offending of New Zealand prisoners. In particular, ensuring prisoners have access to evidence-based psychotherapies, such as cognitive behavioural therapy for panic disorder and post-traumatic stress disorder, mindfulness and dialectical behavioural therapy for emotional instability as part of a personality disorder would be beneficial. Psychotherapies should be the first option for anxiety disorders, although many prisoners are more used to medicating themselves. The study also highlights the importance of developing more evidence-based treatments for people with stimulant abuse and dependence, which has increased substantially in recent years.

There are a number of areas for further research arising from this study. This includes investigating the associations between mental health and substance use disorders with offending behaviours, which was available in the study dataset. Other areas for further research include assessment of the severity of mental health and substance use disorders for prisoners, including variations by gender, age and ethnicity. A more detailed review of the characteristics of prisoners with unmet treatment needs is another important area for research. It is also recommended to repeat this survey again in the near future to monitor key trends.

Strengths and Limitations

This study had a number of strengths, including the use of validated and reliable diagnostic instruments (the CIDI and PDQ4) which have been used in New Zealand prisoner and general population surveys, as well as extensively internationally. The study sample size was large, ensuring comprehensive coverage of the mental health and substance use disorder characteristics of the prisoner population. The survey was conducted by trained lay interviewers independent of the prison system to ensure objectivity and study procedures adhered to rigorous protocols to ensure participant confidentiality and safety. Further, the data collected was extensively checked for quality and consistency and weighted to reflect the New Zealand prison population as a whole.

The study also had a number of limitations, including being unable to quantify the number of prisoners approached by Corrections to determine the overall study response rate and assess sample representativeness. There were also a high number of participants who did not complete the interview (10% of prisoners who consented to participate) as a result of its length and some of the distressing issues it covered. A further limitation is that the study did not over-sample on certain prisoner population groups (women, those aged 65 years and older, and Pacific Peoples) which limited the ability to obtain valid estimates for comparison to the general population. Another limitation was that not all anxiety modules which were asked in the 2006 New Zealand Mental Health Survey were included in this study so comparison of all anxiety disorders cannot be made between these groups. It should also be noted that the

presentation of psychosis symptoms should not be interpreted as a diagnosis for psychosis which requires a longer clinically administered instrument. Lastly, translation services were not available so prisoners of non-English speaking background were not assessed.

Conclusions

In summary, New Zealand prisoners have high rates of mental health and substance use disorders including high rates of comorbidity which are often undetected and under-treated. The findings of this report provide important evidence to assist with identifying areas for improved detection, early intervention, treatment and rehabilitation and diversion away from the criminal justice system. In particular, the findings suggest that improved integration of mental health and substance use disorder treatment would be an important strategy for improving the health and reducing the re-offending of New Zealand prisoners.

References

- American Psychiatric Association (APA) (2000) Diagnostic and statistical manual of mental disorders (4th edition, text revision). Washington DC: American Psychiatric Association.
- American Psychiatric Association (APA) (2013) Diagnostic and statistical manual of mental disorders (5th edition). Washington DC: American Psychiatric Association.
- Andreasen NC. (1995) Symptoms, signs and diagnosis of schizophrenia. *Lancet*, 346: 477-81.
- Andrews G, Slade T. (2001) Interpreting scores on the Kessler Psychological Distress Scale (K10). *Australian and New Zealand Journal of Public Health*, 25(6): 494-7.
- Brugha T, Singleton N, Meltzer H, Farrell M, Jenkins R, Coid J, Fryers T, Melzer D, Lewis G. (2005) Psychosis in the community and in prisons: a report from the British National Survey of Psychiatric Morbidity. *American Journal of Psychiatry*, 162(4): 774-80.
- Butler T, Allnutt S, Cain D, Owens D, Muller C. (2005) Mental disorder in the New South Wales prisoner population. *Aust New Zealand J Psychiatry*, 39:407-13.
- Butler T, Andrews G, Allnutt S, Sakashita C, Smith NE, Basson J. (2006) Mental disorders in Australian prisoners: a comparison with a community sample. *Aust New Zealand J Psychiatry*, 40:272-6.
- Butler T, Indig D, Allnutt S, Mamoon H. (2011) Co-occurring mental illness and substance use disorder among Australian prisoners. *Drug and Alcohol Review*, 30: 188-94.
- Calvo N, Gutierrez F, Casas M. (2013) Diagnostic agreement between the Personality Diagnostic Questionnaire (PDQ-4+) and its clinical significance scale. *Psicothema*, 25(4): 427-32.
- Chang Z, Larsson H, Lichtenstein P, Fazel S. (2015) Psychiatric disorders and violent reoffending: a national cohort study of convicted prisoners in Sweden. *The Lancet Psychiatry*, 2(10): 891-900.
- Davison S, Leese M, Taylor PJ. (2001) Examination of the screening properties of the Personality Diagnostic Questionnaire 4+ (PDQ4+) in a prison population. *Journal of Personality Disorders*, 15(2): 180-94.
- Department of Corrections. (1999) The national study of psychiatric morbidity in New Zealand prisons. Prepared by: Simpson AF, Brinded PMJ, Laidlaw TM, Fairley N, Malcolm F. Wellington: Department of Corrections.
- Fazel S, Bains P, Doll H. (2006) Substance abuse and dependence in prisoners: a systematic review. *Addiction*, 101: 181-91.
- Fazel S, Seewald K. (2012) Severe mental illness in 33,588 prisoners worldwide: a systematic review and meta-regression analysis. *British Journal of Psychiatry*, 200(5): 364-73.
- Indig D, Topp L, Ross B, Mamoon H, Border B, Kumar S & McNamara M. (2010) 2009 NSW Inmate Health Survey: Key Findings Report. Justice Health: Sydney.
- Kessler KS, Gallagher TJ, Abelson JH, Kessler RC. (1996) Lifetime prevalence, demographic risk factors, and diagnostic validity of nonaffective psychosis as assessed in a US community sample. The National Comorbidity Survey. *Archives of General Psychiatry*, 53(11): 1022-31.
- Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand SL, Walters EE, Zaslavsky AM. (2002) Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, 32(6): 959-76.
- Kessler RC, Chiu WT, Demier O, Walters EE. (2005) Prevalence, severity and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *JAMA Psychiatry*, 62(6): 617-27.
- Larney S, Topp L, Indig D, O'Driscoll C, Greenberg D. (2012) A cross-sectional survey of prevalence and correlates of suicidal ideation and suicide attempts among prisoners in New South Wales, Australia. *BMC Public Health*; 12(14): 1-7.
- Ministry of Health. (2014) Annual update of key results 2013/14: New Zealand Health Survey. Wellington: Ministry of Health.
- Ministry of Health. (2015) Suicide Facts: Deaths and intentional self-harm hospitalisations 2012. Wellington: Ministry of Health.
- Oakley Browne MA, Wells JE, Scott KM (eds). (2006) *Te Rau Hinengaro: The New Zealand Mental Health Survey*. Wellington: Ministry of Health.
- RachBeisel J, Scott J, Dixon L. (1999) Co-occurring severe mental illness and substance use disorders: a review of recent research. *Psychiatric Services*, 50(11): 142-34.
- Rosenbaum DL and White KS. (2015) The relation of anxiety, depression and stress to binge eating behaviour. *Journal of Health Psychology*; 20(6): 887-98.
- Sanders D, Kydd R, Morunga E, Broadbent E. (2011) Differences in patients' perceptions of schizophrenia between Māori and New Zealand Europeans. *Australian and New Zealand Journal of Psychiatry*, 45(6): 483-8.
- WHO World Mental Health Consortium. (2004) Prevalence, severity and unmet need for treatment of mental disorders in the World Health Organisation World Mental Health Surveys. *JAMA*; 291(21): 2581-90.
- Young S, Wells J, Gudjonsson GH. (2011) Predictors of offending among prisoners: the role of attention-deficit hyperactivity disorder and substance use. *Journal of Psychopharmacology*, 25(11): 1524-32.

Appendix 1: Glossary

Bipolar disorder (sometimes referred to as manic depression) refers to a condition where people experience mood extremes from low (depression) to high (mania). This included any BipolarI, BipolarII, Mania or Hypomania disorders.

Comorbidity – is defined in this report as the presence of a mental health disorder (mood and/or anxiety) and a substance use disorder (alcohol and/or drugs).

Drugs types– more detail on what each drug type in the CIDI includes is described below

- Club drugs – includes ecstasy, ketamine and MDMA
- Cocaine – includes powder, crack, free base, coca leaves or paste
- Hallucinogens – includes LSD, mescaline, PCP, angel dust, mushrooms or peyote
- Inhalants – includes inhalants or solvents such as nitrous oxide, glue, paint or gasoline
- Marijuana – includes marijuana or hashish
- Opioids – includes heroin or opium
- Painkillers – including analgesics such as codeine, morphine and percodan
- Sedatives – includes sedatives or tranquilisers such as Valium, rohypnol, diazepam
- Stimulants – includes speed, ice, glass, crystal, crank, pep pills, methamphetamines, amphetamines, dexamyl, adderall, ritalin

Dysthymia is similar to major depressive disorder but is a chronic and persistent condition that may last a lifetime.

Generalised anxiety disorder is characterised by excessive or disproportionate anxiety about multiple aspects of life such as extreme worrying almost every day for six months or more.

Major depressive disorder refers to a single period of depression marked by negative or hopeless thoughts and physical symptoms like fatigue.

Mental disorder included the presence of any anxiety, mood, substance or eating disorder.

Mental health professionals included psychiatrists, psychologists, counsellors, social workers, general medical or nursing professionals, or other mental health workers.

Mental health treatment refers to a visit for a mental health problem to a mental health professional.

Multiple disorders refers to the presence of two or more mental health and/or substance use disorder diagnosis.

Panic disorder (with or without agoraphobia) is characterised by sudden attacks of intense fear or panic that triggers severe physical reactions when there is no real danger or apparent cause.

Personality disorder is an enduring pattern of inner experience and behaviour that differs markedly from the expectations of the individual's culture, is pervasive and inflexible, has an onset in adolescence or early adulthood, is stable over time and leads to distress or impairment.

Post-traumatic stress disorder is a condition of persistent mental and emotional stress as a result of traumatic events in life, typically involving sleep disturbance and dulled responses to others and the outside world.

Substance (alcohol or drug) abuse includes at least one of the following symptoms in a 12-month period:

- Repeated use in situations where it would be considered hazardous;
- Interference with the individual's ability to fulfil their work, school or home obligations;
- Continued use of these substances even though it is causing interpersonal difficulties; or
- Any legal problems that occurred as a result of substance abuse.

Substance (alcohol or drug) dependence includes at least three or more of the following symptoms in a 12-month period:

- Developing a tolerance for the substance, where they have to use more in order to get the same effect.
- Continues to abuse the substance despite obvious evidence that it is causing them harm.
- Experiences withdrawal symptoms when they stop taking the substance
- Difficulty cutting down on the amount they are using
- Lack of control over the amount they consume.
- Loss of interest in other activities that they once enjoyed.
- Devoting increasing amounts of time to the substance abuse (obtaining, using, recovering from it).

Appendix 2: Participant Information Sheet

MENTAL HEALTH AND WELLBING A SURVEY OF PEOPLE IN OUR PRISONS BY DEPARTMENT OF CORRECTIONS INFORMATION SHEET

Q. What is the survey all about?

How people feel emotionally and mentally may be important to why they have arrived in prison, and important to their rehabilitation while in prison. Corrections want to understand whether people who have newly come into prison are experiencing, or have previously experienced, mental or emotional ill health. Corrections also wish to understand whether, and how much, the use of drugs or medicines may have affected mental health.

Q. What are the benefits of the survey?

The study benefits people in prisons. It does this by making clearer to Corrections the kinds of mental health and drug use experiences prisoners may now be troubled by, and what some of the causes might be. Corrections can then design rehabilitation programmes that treat those mental health and wellbeing needs.

Q. Why have I been selected?

You have been selected to participate because you have served less than three months on your current sentence and you are based in one of the ten prisons selected for participation in this study.

Q. Are there any risks to me?

Some people may remember a sad, unpleasant or frightening experience or time in their life, during the interview, or in the days following the interview. This may make them feel upset. Please tell the interviewer and also ask to see the prison health staff, if you wish to. The interviewer will ask you how you are going during and at the end of the interview. They ask you if you need to see the prison health staff before referring you.

Q. What will I have to do?

All you do is to answer the questions that the interviewer asks you. The interview is not a test. You answer questions about experiences you may have had, and how they made you feel. It takes between one and two hours.

Q. Will other people know my answers?

No, your answers are confidential. They are protected by the Privacy Act which means they can only be used for the purpose for which they were collected. That includes providing good care for you if you need mental health support. However, your Person Record Number is attached to assist in the statistical analysis. Only Correction research and health staff may know your answers.

Q. Who will prepare and use the statistics?

The statistics and any reports that are written will be prepared using anonymised data only. This is done by removing your Person Record Number so no one can tell which is yours. The analysis will be done by professional and university health researchers. This data set will be kept for use in mental health research in future years, but never in a way that can identify anyone who did the interview.

Q. Does the study use any other information about me?

Yes, the sentencing information already held by Corrections is linked up with the survey answers to give a fuller picture of participants. The purpose is to see whether people with different histories and backgrounds are more or less inclined to experience particular mental health conditions.

Q. Is the survey compulsory?

No. It is voluntary.

Q. Can I start the interview to see if I feel okay about it, then stop if I want to?

Yes, you can stop the interview at any time. You can also refuse to answer any of the questions.

Q. Can I take the sheet away and think about taking part later?

Yes you can. Please ask the interviewer anything you feel has not been covered.

Q. Will my conditions or my sentence be affected by how I answer?

No there will be no connection between the survey and people's sentences or terms of stay in prison.