

# The prevalence of mental disorders among convicted inmates in Norwegian prisons

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## **Foreword**

The Norwegian Correctional Service and the Norwegian Directorate of Health have long recognised the need and expressed a wish for a psychiatric epidemiological survey to be carried out in Norwegian prisons. On this basis, the Correctional Service's Central Administration (KSF), the Directorate of Health and Oslo University Hospital decided in 2009 to jointly fund a nationwide survey of the prevalence of mental disorders among convicted inmates. The project was carried out by the Centre for Research and Education in Forensic Psychiatry for the South-Eastern Health Region at Oslo University Hospital.

The project's steering committee consisted of Senior Adviser Anne-Grete Kvanvig of the Directorate of Health, Senior Adviser Anne Dahl of the Directorate of the Norwegian Correctional Service (previously KSF), Special Adviser Anne Aasen of the South-Eastern Regional Health Authority, and the following persons representing the Centre for Research and Education in Forensic Psychiatry: Head of Section Harald Aulie, Research Manager Christine Friestad, Psychiatric Nurse Åse-Bente Rustad and Project Manager Victoria Cramer. Two former managers at the centre participated in the steering committee from 2009 to summer 2013. Head of Department Andreas Skulberg of the Correctional Service's Central Administration participated from 2009 to summer 2013.

I would like to take this opportunity to thank everyone who has facilitated our collection of data in the prisons. We have had a good cooperation with our contact persons at the respective prisons. Last, but not least, I would like to thank those who were willing to be interviewed and participate in this research project. The interview team have done an excellent job collecting data from all over the country. The project has benefited greatly from their experience of prison psychiatry.

The project implementation has relied on help from colleagues at the Centre for Research and Education in Forensic Psychiatry. Åse-Bente Rustad and Martin Bjørnstad have done a great job coordinating the collection of data, and Trine Oppegaard Persson on punching in the data material. Christine Friestad, Carl-Fredrik Haaland and Harald Aulie have followed the project closely and produced written project reports during the project period.

A big thank you to Professor Petter Laake at the Department of Biostatistics at UiO, who has provided advice and guidance in connection with the data analyses. Thank you also to Professor Sverre Torgersen for his assistance in preparing the project description, and for help with developing the data processing.

The undersigned is of course responsible for any errors and shortcomings in the report.

**Oslo, November 2014**

**Victoria Cramer**

## Summary

This report presents the results of a survey of the prevalence of mental disorders among convicted inmates in Norwegian prisons. Never before has such an extensive survey been carried out in this field in Norway. A nationwide representative sample of prison inmates were studied during the period 2011–2013. Inmates who were on remand, in police custody or waiting to serve their sentence were not included in the survey. Comprehensive and structured diagnostic interviews were conducted of a total of 857 convicted women and men in order to map the prevalence of selected mental disorders. Although the survey used internationally recognised diagnostic assessment instruments, there is reason to underline that an interview cannot replace a thorough medical and psychiatric examination. This means that the diagnoses described in this report are not clinical diagnoses of a medical condition, but must be regarded as qualified estimates of the prevalence of mental disorders in the study sample. The diagnoses were split between diagnoses of a current condition at the time of the interview and diagnoses of a previous condition, known as lifetime prevalence.

The results of the survey were compared with the prevalence of mental disorders among inmates in other countries and with the prevalence of mental disorders in the general Norwegian population. We found that the prevalence of mental disorders among convicted inmates in Norwegian prisons is considerably higher than in the general population, and consistent with findings in corresponding surveys conducted abroad. We also found that it is not uncommon to have more than one mental disorder at the same time. We found that 8% of the inmates had no signs of mental disorders, while 73% had a personality disorder, 28.7% had experience of alcohol abuse or addiction, and 51.3% had experience of drug abuse or addiction, while 35% of the respondents had no experience of alcohol abuse/addiction or drug abuse/addiction, 42% had an anxiety disorder, 23% had a mood disorder, 18% had ADHD and 3.3% had at some point experienced symptoms consistent with non-affective psychosis. One or more suicide risk factors were found in 12% of the respondents. We found no significant gender differences in the prevalence of mental disorders among the inmates.

## **CHAPTER 1 INTRODUCTION**

### **1.1 Background**

The Correctional Service's annual statistics show that around 13,000 people are imprisoned every year, and that there are approximately 3,650 inmates in Norwegian prisons at all times. It is a well-known fact that prison inmates in general have a number of problems relating to poor living conditions, and that the level of morbidity, both mental and somatic, is higher among inmates than in the general population (Friestad & Skog Hansen, 2004). This has been shown in several studies of a smaller format, for example limited to individual prisons, individual diagnoses, screening surveys and/or certain subgroups of inmates. However, we have lacked a complete and systematic overview of the general distribution of inmates' morbidity between different diagnostic groups, and of how this distribution differs from the morbidity distribution in the general population, if at all. Internationally, there is also generally a lack of psychiatric epidemiological data on inmates (Salize & Dressing, 2008). On this basis, the Ministry of Justice and Public Security and the Directorate of Health decided to jointly fund a nationwide survey of the prevalence of mental disorders among convicted inmates. The project was carried out by the Centre for Research and Education in Forensic Psychiatry for the South-Eastern Health Region. No such comprehensive survey has previously been carried out, neither in terms of the number of participants nor in terms of the wide range of symptoms that were surveyed.

#### **1.1.1 Objective of the survey**

The survey presented in this report is a descriptive epidemiological study conducted among convicted inmates in Norwegian prisons. The goal is to describe the prevalence of mental disorders in this group, and to compare the prevalence figures with corresponding figures for the general population. The survey design has taken account of some of the most important changes that have taken place in the composition of the prison population in recent decades, by ensuring that the sample comprises a representative number of both women and persons of non-Norwegian ethnicity. Both factors may affect the burden of disease and the distribution in the prisons. In general, the prevalence of most mental disorders is higher among female inmates than among men (Binswanger, 2010), and belonging to an ethnic minority has proved to be a risk factor for serious mental disorders (Veling, 2013). The survey does not intend to study the prevalence of morbidity in different ethnic groups, but includes a sufficient number of non-Norwegian nationals for the sample as a whole to be assumed to be representative of inmates in general. Figures from two big epidemiological surveys of the population in the counties of Oslo and Sogn og Fjordane are used as the basis for comparison for the sample of inmates.

It is important to stress that the purpose of this report is to describe the prevalence of mental disorders. This does not include any assessment of each inmate's treatment needs or any mapping of how the health services work.

### **1.2 Mental disorders described with the help of psychiatric diagnoses**

Many terms are used to describe impaired mental health. Mental complaints or mental problems are conditions that are perceived as burdensome, but where the extent of symptoms is not at a level that warrants describing them as mental disorders or in terms of a diagnosis. Such problems are relatively common, and often transient (Nes & Clench-Aas, 2011).

The term ‘mental disorders’, the topic of this report, is used to describe conditions that meet a certain number of specified criteria (symptoms) that jointly form the bases for diagnoses, and that affect people’s thoughts, feelings, behaviour and interaction with others. Mental disorders cover a broad range of conditions, with varying degrees of severity, and are very common in the population. The Institute of Public Health estimates that one-third of the population meet the criteria for at least one mental disorder in the course of a year (referred to as 12-month prevalence), while around half the population will suffer from a mental disorder at some point in their lives (lifetime prevalence) (Mykletun, Knudsen & Mathiesen, 2009).

Since 1997, Norway has used ICD-10 (‘the International Statistical Classification of Diseases and Related Health Problems’, WHO) as the mandatory classification system for diagnoses in mental health care. However, the research literature is increasingly based on the US classification system DSM-IV (Diagnostic and Statistical Manual of Mental Disorders. American Psychiatric Association 1994). Most of the structured diagnostic interviews used in research in Norway are based on DSM-IV, and we have chosen to base this survey on DSM-based diagnostic instruments in order to provide the best possible basis for comparison with existing epidemiological population surveys. There are some differences between the two classification systems, and this will be commented on in this report where it has consequences for the interpretation of the results. (For an overall presentation of types of disorders, core symptoms and classification in accordance with ICD-10 and DSM-IV, reference is made to Mykletun et al., (2009) (pp. 58–59).) What the classification systems have in common, however, is that the diagnoses are descriptive, phenomenological and atheoretical (cf. Dahl & Aarre, 2012:27). The diagnoses consist of the sets of symptoms that individuals may suffer from to a varying degree (from a little to a lot). The prevailing diagnosis systems are based on the categorical approach, where a mental disorder is something you either have or do not have (Mykletun et al., 2009, page 15). The diagnoses are based on interpretations of available scientific documentation and change with the acquisition of new and more precise knowledge. This is illustrated by the fact that a new version of the DSM system, DSM-V, was published in 2013.

DSM-IV (1994, pp. XXI–XXII) defines mental disorders as follows: ‘Mental disorders are conceptualized as a clinically significant behavioral or psychological syndrome or pattern that occurs in an individual and that is associated with present distress (e.g., a painful symptom) or disability (i.e., impairment in one or more important areas of functioning) or with a significantly increased risk of suffering death, pain, disability, or an important loss of freedom. In addition, this syndrome or pattern must not be merely an expectable and culturally sanctioned response to a particular event, for example, the death of a loved one. Whatever its original cause, it must currently be considered a manifestation of a behavioral, psychological, or biological dysfunction in the individual. Neither deviant behavior (e.g., political, religious or sexual) nor conflicts that are primarily between the individual and society are mental disorders unless the deviance or conflict is a symptom of a dysfunction in the individual, as described above.’

In summary, a condition is considered to be a mental disorder in the diagnostic sense based on the intensity and duration of the symptoms and their effect on the individual’s level of functioning.

The classification systems divide mental disorders into main diagnostic groups based on a set of core symptoms. Each main group comprises sub-categories specified in more detail, based on what typically constitute the most prominent symptoms. This survey is about the prevalence of the following main groups: anxiety disorders, mood disorders, substance use disorders, psychosis disorders, personality disorders and ADHD.

The disorders vary in terms of age of onset and duration, but early onset (before the age of 30–40) is characteristic of most mental disorders (Mykletun et al., 2009).

The prevalence figures for mental disorders vary with the time period the diagnosis refers to (for example: past 6 months, 12 months or lifetime). As a rule, the prevalence figure is higher the longer the time period. For chronic disorders, however, there is typically less difference between the estimates than for disorders of a more limited duration. The time period the diagnosis refers to is one of several important factors to take into account when comparing results from different surveys.

### 1.2.1 Diagnoses for use in research

We use the term ‘diagnosis’ in this report, but it is important to underline that it always refers to the result of the assessment of symptoms carried out with the instruments described in Chapter 2 (section 2.5). In clinical practice, the normal approach is to obtain additional information from sources other than the patients themselves, and then use overall clinical assessments as the bases for the final diagnoses. The diagnoses described in the survey are only intended for research purposes. We describe the number of inmates who report symptoms that are consistent with the psychiatric diagnoses we have surveyed, but the survey does not include a full diagnostic assessment of the individual inmates. It was stressed in relation to each individual respondent that the diagnoses made in the survey may not be used for treatment purposes by the respondents themselves or by the prison.

### 1.2.2 Comorbidity

When a person meets the criteria for at least two concurring mental disorders, the condition is described as ‘comorbidity’. Concurrent prevalence of more than one disorder is very common for mental disorders (Mykletun et al., 2009), and has therefore been the topic of several studies, including among inmates (Fazel & Seewald, 2012). Concurrent substance use disorders and other mental disorders are associated with a considerably higher risk of suicide among inmates (Lukasiewicz et al., 2009), and with higher somatic morbidity and the accumulation of other psychosocial problems (Piselli, 2009).

## 1.3 Mental disorders among prison inmates – what we know

The knowledge we have indicates that inmates have a higher prevalence of mental disorders compared with the general population (Fazel & Baillargeon, 2011). The extent of the difference between inmates and the general population varies from one survey to the next. In the following sections, we give a brief presentation of the knowledge status in the field. The presentation of studies conducted abroad is not exhaustive. We have emphasised systematic literature studies and meta analyses, and recent studies of representative prison populations. For a more thorough review of individual studies and comparisons between them, reference is made to other literature (see, for example, Andersen (2004)). The presentation of Norwegian surveys seeks to provide a comprehensive overview of surveys conducted with a view to identifying the prevalence of mental disorders among inmates in Norwegian prisons. The literature is classified by the main groups of mental disorders included in the present survey. We have also chosen to include suicidality in the survey and this is discussed in a separate section.

### 1.3.1 Mental disorders among prison inmates – surveys conducted abroad

#### **Anxiety disorders, mood disorders and substance use disorders**

There is great variation in the estimates of the proportion of inmates who have suffered from an anxiety disorder at some point in their lives, from 7–14% (Pondé et al., 2011) to 45% (Vicens et al., 2011). For the period ‘past four weeks’, the prevalence of anxiety disorders in the survey by Vicens et al. was 23.3%. Mundt et al. (2013) reported of a 12-month prevalence for anxiety disorders of 8.3%, of which the biggest sub-groups were social phobia (3.2%) and other specific phobias (3.1%).

Depressive disorders vary in intensity and duration. Estimates based on lifetime prevalence of depressive disorders vary from around 8.1% (Mundt et al., 2013) to 41% (Vicens et al., 2011). In both cases, depression is the biggest sub-group (6.9% in Mundt et al. (2013) and 22.3% in Vicens et al. (2011)). Based on analyses of data from a number of individual surveys that present figures for depression, Fazel (2012) found a prevalence of 10–12% (last six months). According to Fazel & Seewald’s (2012) results, there are neither gender differences nor differences between remand prisoners and convicted prisoners in the prevalence of depressions. When the time period is limited to the past four weeks, the figures for depressive disorders totalled 14.9%, of which severe depression accounted for 7.8% (Vicens et al. 2011). Broken down by women and men, Brinded (2001) finds 11% and 6%, respectively, for severe depression (past four weeks). If we divide the prison population by, for example, age, there is a higher prevalence of depression among older inmates (Kingston et al., 2011).

For bipolar disorders, the estimates vary from a lifetime prevalence of 1.8% (Vicens et al., 2011) to 5–10% (Pondé et al., 2011). The prevalence for the past four weeks is 1% (Brinded, 2001; Vicens et al. 2011).

Substance use disorders is a collective term for conditions that occur in connection with the use of chemical substances that affect psychological functions. The disorders are diagnosed on the basis of the substance that gives rise to the disorder, and the consequential condition (abuse, addiction, withdrawal etc.) (Mykletun et al., 2009). If we first look at disorders related to alcohol, Fazel (2006) found a prevalence of alcohol abuse and addiction of 18–30% among men and 10–24% among women. For abuse of and addiction to other substances, the figures were 10–48% among men and 30–60% among women. More recent studies have reported prevalence figures of between 60% and 80% (Assadi et al., 2006; Vicens et al., 2011; Litonen et al. 2011; Lukasiewicz, 2009; Kinyanjui et al., 2013). Although the estimates vary greatly, they are significantly higher among inmates than in the general population (Fazel, 2006). Certain deviations from the general picture are found in the survey by Mundt et al. (2013) from Chile, where alcohol abuse and addition was less prevalent among male inmates than in the general population.

### **Psychotic disorders**

After analysing figures from 74 individual studies of inmates in a number of different countries, Fazel & Seewald (2012) found an overall prevalence of psychoses of 3.6% among male inmates and 3.9% among female inmates (past six months). They found neither gender differences nor differences between categories of inmates (remand vs. convicted inmates), or that the prevalence changed over time. Some of the estimates in the individual studies included in the analysis basis for this figure vary widely, and the variations seems to follow a pattern where studies from low/middle-income countries (based on the World Bank’s classification) have a higher prevalence of psychosis among inmates than studies based on prison populations in high-income countries. Several of the surveys included in Fazel & Seewald’s (2012) analysis basis also report a lifetime prevalence of psychotic disorders with estimates as high as 10.7% (figures from Vicens et al., 2011, from a survey of the prevalence of mental disorders in Spanish prisons).

### **Personality disorders**

Several surveys have found a far higher prevalence of personality disorders among prison inmates than in general population samples. A review by Fazel & Danesh (2002) of a number of individual surveys showed that 65% of male and 42% of female inmates met the criteria for a personality disorder. Antisocial personality disorders represented a high proportion of these disorders: 47% among men and 21% among women. Prevalence figures in the area 30–40% have also been reported for borderline (emotionally unstable) and narcissistic personality disorders (Vicens et al., 2011; Pondé et al. 2011; Black et al., 2007). Black et al. (2007) found that borderline personality disorders are related to several other problems, both suicide risk, reduced quality of life, higher recidivism figures and comorbidity with other mental disorders. Several of these correlations also proved to be present for inmates with antisocial personality disorders (Black et al., 2010).

## **ADHD**

There are not many international surveys of the prevalence of ADHD among inmates that make use of recognised diagnosis instruments to set the diagnosis. The survey by Cahill et al. (2012) from the USA is an exception, and it found a prevalence among young adults of 10.5%. The survey supports the theory that the prevalence is considerably higher among inmates than in the rest of the adult population, where the prevalence is estimated at 2–4% (Kessler et al., 2006), and that female inmates have a higher prevalence of ADHD than male inmates (15.1% versus 9.8%). However, other studies have found a prevalence in the past 12 months of only 2.2% (Mundt et al., 2013), also based on recognised instruments. Sub-groups of inmates can have a far higher prevalence of ADHD, as Ginsberg et al. (2010) showed in their survey of male inmates in a Swedish prison serving long sentences primarily related to drug crime or violent crime. They found a prevalence of 40% adult ADHD, and that a very small proportion had been diagnosed as a child. Usher et al. (2013) found 16.5% adult ADHD among men in a Canadian prison population, who were studied using the same instruments as in the present survey.

A survey by Einarsson et al. (2009) from Iceland showed that 50% met the criteria for childhood ADHD, while 30% met the requirements for ADHD at the time the survey was conducted (i.e. in adult age). With the exception of one person, everyone in the adult ADHD group suffered from at least one other mental disorder. The strongest correlation was found between antisocial personality disorders and ADHD. A higher degree of comorbidity among inmates with ADHD was also found in other surveys, among both (young) men (Rosler et al., 2004) and women (Rosler et al., 2009).

## **Suicidality**

Internationally, suicide is the most frequent cause of death among inmates, and suicide alone represents half of all deaths in prisons (Fazel, Cartwright, Norman-Nott & Hawton, 2008). As a consequence of this, the problem of elevated suicide risk among inmates has been addressed in a number of scientific publications, and the World Health Organisation has published a separate report on the prevention of suicide among inmates (World Health Organisation, 2007).

An overview of the prevalence of suicide, based on data from 24 countries (EUPRIS), showed variations between the countries over time (1990–2005), but relative stability within each country (Salize et al., 2007). A comparison between suicide rates among inmates and the population in general in several different countries has shown that the suicide rate among inmates is generally at least three times higher (Fazel et al., 2011). The elevated suicide risk has proved to continue after release (Binswanger et al., 2007). A survey by Fazel et al. (2008) emphasised the following important risk factors for suicide among inmates: serving the sentence in a single cell, recent suicidal ideation, previous suicide attempts, diagnosed with mental disorder or a history of alcohol problems. Borill & Taylor's (2009) survey of suicides among inmates of foreign nationality found the same risk factors, but also a set of factors specifically related to the traumatic experiences of refugees, language problems, fear of deportation and feelings of shame. A survey of suicides among inmates in German

prisons during the period 2000–2011 showed that the average suicide rate (suicides per 100,000 inmates) was 105.8 for men and 54.7 for women. During the survey period, the rate for men went down, while it increased for convicted women (Opitz-Welke et al., 2013).

### 1.3.2 Mental disorders among prison inmates – surveys conducted in Norway

Before we take a closer look at each diagnostic group, we present in brief some of the figures on the total proportion of inmates with mental disorders. Gamman & Linaker (2000) found that 21% of all new inmates in Kristiansand Prison during the period 1997–99 were suffering from a mental disorder requiring treatment. A survey by Langeveld & Melhus (2004) from Stavanger Prison showed a prevalence of mental disorders requiring treatment of 48%. Kjelsberg & Hartvig (2005) found, based on the use of medication among Norwegian inmates, that a total of 35% had (at least) one mental disorder. When the prison health service and the specialist health service reported on the proportion of prison inmates under treatment for mental disorders, a total prevalence of 23.5% was found (Hartvig & Østberg, 2004) (25% in Kjelsberg et al. (2006)). Some sub-groups can have a considerably higher morbidity rate than the prison population as a whole. Inmates serving preventive detention sentences are an example of such a group.

In connection with a re-examination of the rules on compulsory care, the breakdown of diagnoses among inmates serving preventive detention sentences was reviewed. It showed that 78.1% had at least one mental disorder, 77.1% had substance addiction problems and 9.5% had a history of psychosis (Ministry of Justice and the Police, 2008). Young inmates on remand are another sub-group where a significantly higher proportion of mental morbidity has been identified. Sørland & Kjelsberg's (2009) survey of this group showed that 36 of the 40 respondents had a mental disorder, assessed with the help of structured diagnostic interviews.

#### **Anxiety disorders, mood disorders and substance use disorders**

The three main groups of disorders addressed in this section are the most common mental disorders in the Norwegian population. Substance use disorders primarily concern abuse of and addiction to alcohol (Mykletun et al., 2009).

Rasmussen et al. (1999) found that, of 44 interviewed inmates in Tunga Prison, 23 had a lifetime diagnosis of depression or bipolar disorder, 20 met the criteria for an adjustment disorder and 11 suffered from an anxiety disorder. Twenty-four had experience of alcohol abuse/addiction and more than half had experience of drug abuse/addiction.

Gamman & Linaker's (2000) previously mentioned survey from Kristiansand Prison showed that mood disorders, especially depression, were most common, followed by withdrawal reactions and brief psychotic disorders. It is important to underline that eight of ten in this sample were inmates on remand, which influences the results. Langeveld & Melhus (2004) found that 25% suffered from moderate or severe depression, while 27.5% suffered from an anxiety disorder. In this sample, too, the majority of the respondents (57.5%) were inmates on remand. Kjelsberg & Hartvig (2005) estimated the prevalence of depressive disorders among inmates in general at 11%, while an equally large group experienced sleep problems. In Hartvig & Østberg (2004), anxiety and depression was combined into one group, for which the prison health service's estimate was 7.3%, while the specialist health service's estimate was slightly lower, at 5%.

Værøy's (2011) survey of inmates on preventive detention, who represent a highly selective group of inmates, showed a prevalence of 46% of mild depression and 19% of severe depression.

Approximately 30% suffered from an anxiety disorder. A high prevalence (35%) of anxiety and depression was also found among young inmates on remand (Sørland & Kjelsberg, 2009).

Estimates of inmates who have used illegal substances before being detained vary from 58% to 76% (Friestad & Skog-Hansen, 2004; Skardhamar, 2002; Ødegaard, 2008), but none of these surveys were based on diagnostic criteria and the results cannot therefore be compared with prevalence figures for substance use disorders. Langeveld & Melhus (2004) reported on substance use disorders in accordance with the DSM-IV criteria and found that 95% met the criteria for abuse, while 35% also met the criteria for addiction. In the survey of inmates on preventive detention, 70% had a history of alcohol and/or drug use before imprisonment (Værøy, 2011). The survey of young inmates on remand also showed high prevalence figures for substance use disorders (77.5%) (Sørland & Kjelsberg, 2009).

### **Psychotic disorders**

Gamman & Linaker's (2000) survey from Kristiansand Prison showed a prevalence of 3.2% for psychotic conditions (they largely concerned brief psychoses). Langeveld & Melhus (2004) found that 7 (17.5%) of 40 inmates in the sample had symptoms of psychosis.

With one exception, this concerned psychoses triggered by substance use. Based on the use of medication, Kjelsberg & Hartvig (2005) estimated a prevalence of 4% for psychoses (when affective psychoses were included), and the estimates from the general and specialist health services in prison were 2% and 1%, respectively, for psychotic disorders, and 4.7% and 1.7% for behavioural deviations with suspected psychosis (Hartvig & Østberg, 2004). Although the results vary between different surveys, the picture is one of a generally higher prevalence of psychoses among inmates compared with the general population, where the prevalence is less than 1% (Kringlen et al. 2002).

### **ADHD**

Rasmussen et al. (2001) studied the prevalence of ADHD among a selection of inmates and estimated that 30% had a probable ADHD diagnosis. Kjelsberg & Sørland's (2009) survey of young inmates on remand also found a prevalence of 30% for ADHD.

### **Personality disorders**

Rasmussen et al. (1999; 2001) found a prevalence of 65% for personality disorders in cluster A (eccentric), 80% for cluster B (dramatic), of which 60% antisocial, and a prevalence of 64% for cluster C (anxious) in a sample of prison inmates. Langeveld & Melhus (2004) found a prevalence of personality disorders of 80% (63% of the antisocial type). Hartvig & Østberg's (2004) survey, which was based on reports from the health service, reported a prevalence of 12% for behavioural deviations (without suspicion of psychosis). The latter is a simple estimate, but it says something about the huge variation in the estimates for the proportion of inmates with personality disorders.

### **Suicidality**

In the period 1990–2012, 80 inmates have committed suicide in Norway, most of them while remanded in custody (Hammerlin, 2013). Fazel et al. (2011) analysed data from 12 countries, which showed that the suicide rate among inmates is generally far higher than in the population at large. The survey included Norway, where the suicide rate among inmates was found to be seven times higher than in the general population. Hammerlin (2010; 2013) underlines that the number of non-Norwegian nationals who have committed suicide in prison has increased significantly.

#### **1.3.3 Summary**

International studies point to a clearly higher prevalence of mental disorders among inmates, compared with the general population. There are huge variations in the estimates, however, and many differences between the surveys that make comparison difficult. The Norwegian surveys of inmates that have been conducted so far indicate that the prevalence of both symptom disorders and personality disorders is considerably higher than in the general population. The surveys conducted in Norway are largely based on small and/or selective samples, or on indirect estimates of the prevalence of morbidity (primarily based on reporting by the health services). It is nonetheless worth noting that there is a high degree of consistency as regards the prevalence of psychotic disorders (3–4%), while the surveys differ far more when it comes to estimates for substance use disorders, anxiety disorders and mood disorders.

#### **1.4 Structure of the report**

The report is structured around a result chapter (Chapter 3), in which the figures showing the prevalence of various mental disorders are grouped the same way as in the introductory chapter and presented in separate sections, with comparisons of corresponding figures for the population samples in each case. Chapter 2 presents the material and method, including a description of how the participants in the survey were sampled, and comments on non-response rates and limitations in the material. The final chapter is dedicated to an overall discussion of some of the main findings.

**CHAPTER 2 MATERIAL AND METHOD**

The survey described in this report has been approved by the Regional Committee for Medical and Health Research Ethics (REK) and the Norwegian Correctional Service, and recommended by the data protection officer at Oslo University Hospital (OUS). The sections below describe the procedures for sampling and data collection in more detail.

**2.1 Sampling**

The survey population consisted of all women and men who had received a legally binding judgment, whereby all inmates on remand were excluded. Lists of inmate populations were obtained from the correctional service’s IT service, and made up the sampling basis for the eight separate samples that form the basis for the survey (the initial sample). The lists contained inmate numbers, categories of offences, release dates, citizenship, gender and length of non-suspended sentences. Before sampling, each population list was stratified manually into four groups based on the registered main offence category: crime against property, drug crime, violent crime and other (which entailed relatively short prison terms for driving under the influence, violation of the Firearms Act, arson etc.). Two hundred inmates were selected from each of these four categories, so that each initial sample consisted of 800 inmates. Figure 1 illustrates the procedure for selecting the net sample in each case. Based on strength calculations, the target figure for conducted interviews was set to 800 – 700 for men and 100 for women – to provide a sufficient basis for statistical comparisons between sub-groups. Women were systematically oversampled in order to reach the goal of 100 female respondents. For that reason, the initial samples in 2013 consisted of women only.

Figure 1: Illustration of the sampling process

Year 2011 1,961 ↓ 800 ↓ 280	Year 2011 2,619 ↓ 800 ↓ 190	
Year 2012 1,998 ↓ 800 ↓ 137	Year 2012 2,714 ↓ 800 ↓ 141	Year 2012 2,527 ↓ 800 ↓ 126
Year 2013 2,719 ↓ 158 ↓ 32	Year 2013 2,675 ↓ 33 ↓ 17	Year 2013 2,664 ↓ 25 ↓ 15

Figure 1 shows, for each of the eight samples, the total number of convicted inmates and the number with whom interviews were conducted. For example: The first sample in 2011 consisted of a total of

1,961 convicted inmates. Of these, a sample of 800 people was selected (distributed between four categories of crime as described above), 280 of whom were interviewed. This procedure was repeated seven times. The resultant number of conducted interviews is shown in the figure.

The data were collected over a period of two years, which means that we have a relatively long timeline that can take account of both changes in the composition of the study population and changes in prison conditions. It has not been possible to carry out a more thorough non-response analysis, for example with regard to the age distribution or citizenship in the sample compared with the population from which the sample is taken. This is because we lack data for those who were selected to participate as respondents, but failed to do so for various reasons. The analyses we have carried out with regard to age and citizenship in the sample show that there are no statistically significant differences between those included in the sample and the population the sample is intended to represent, neither in terms of age nor citizenship.

## **2.2 Data collection**

Participation in the survey was voluntary and based on informed written consent. Each inmate who was selected to participate in the survey received an information sheet with a declaration of consent from the project's contact person in each individual prison. The contact person was authorised for the assignment by the prison administration and had to be someone other than the inmate's contact officer. It was underlined in the information sheet for each inmate that their participation in the survey would have neither a positive nor a negative effect on the conditions under which they were serving their sentence, nor would it have consequences for their daily allowance payments. The contact persons, usually health personnel employed by the individual prison's health department, assessed the selected inmates' ability to give consent. They registered inmates who had the ability to give consent and wanted to be interviewed, and communicated this to the project administration. Inmates who, for health reasons, were considered incapable of participating in a demanding research interview were excluded. The same happened if uncertainty about the respondent's ability to give consent arose during the interview. A total of 15 interviews were interrupted either because of communication difficulties or because the respondent did not wish to participate after all.

Those who consented to participating in the survey underwent a structured personal interview based on the interview guide described in section 2.5. The interview guide had been tested and adjusted in advance through test interviews with 22 inmates in seven prisons in Eastern Norway in winter 2010/2011.

The interviews were conducted by a total of 12 interviewers, all health professionals who were recruited especially for this project. The majority of the interviewers had clinical experience from psychiatric care in either security and/or prison settings. The interviewers received three days of basic training in use of the interview structure and scoring of the individual instruments. In addition to the basic training, each interviewer conducted ten test interviews in order to qualify for the task of interviewing inmates. The test interviews were conducted in spring 2011, and the actual data collection started immediately after this and lasted until summer 2013.

The interviews with the inmates were conducted in the prisons' visiting rooms, or in other suitable places. The interviews lasted 2–3 hours on average. The participants were free to withdraw during the interview and were informed about the possibility of splitting the interview into several parts if they found it too demanding to complete it in one go. The interviews were conducted in English, German, French, Spanish or Serbian. It had been agreed in advance that assistance would be provided by the respective prison health departments should anything unforeseen occur during the interviews, or if the respondents wanted to get in touch with health personnel after the interviews. In agreement with the

respondents, the health department was contacted in cases where there were indications of suicide risk or signs of serious mental disorders.

### **2.3 Description of the sample**

A total of 857 persons were interviewed: 102 women and 755 men. Table 1 shows some key characteristics of the interviewees' background.

As shown in the table, the majority of the respondents were under 40 years of age. Among the women, the majority of the respondents were in the 40–49 age group, while there was a larger contingent of men in the younger age groups. The level of education was generally low in the sample, with lower levels among men than among women. A majority of the respondents, a slightly higher proportion of men than women, had never been married. Nearly four of ten were non-Norwegian nationals. The main group consisted of other European nationals, but Asian nationals also made up a considerable proportion of the sample. As regards the term of imprisonment, there were more respondents with sentences exceeding three years (40%) than with sentences of up to one year (29%).

**Table 1: The sample's background characteristics. Absolute figures, percentages in brackets.**

	GENDER		TOTAL
	Men	Women	
<b>Age*</b>			
17–19 years	13 (2)	0 (-)	13 (2)
20–24 years	115 (15)	17 (16)	132 (15)
25–29 years	109 (14)	13 (13)	122 (14)
30–34 years	117 (16)	13 (13)	130 (15)
35–39 years	113 (15)	10 (10)	123 (14)
40–49 years	165 (22)	33 (32)	198 (23)
50–59 years	78 (10)	13 (13)	91 (11)
60 years and older	34 (5)	2 (2)	36 (4)
Age unknown	11 (1)	1 (1)	12 (1)
<b>Total</b>	755 (100)	102 (100)	857 (100)
<b>Education*</b>			
Not completed lower secondary school	235 (31)	27 (27)	262 (31)
Lower secondary school	115 (15)	18 (18)	133 (16)
Upper secondary school	168 (22)	28 (27)	196 (23)
Post upper secondary school education	143 (19)	20 (20)	163 (19)
University college/university	94 (13)	9 (9)	103 (12)
<b>Total</b>	755 (100)	102 (100)	857 (100)
<b>Marital status*</b>			
Married	118 (16)	19 (19)	137 (16)
Widow/widower	10 (1)	3 (3)	13 (2)
Separated	28 (4)	1 (1)	29 (3)
Divorced	127 (17)	26 (25)	153 (18)
Never married	471 (62)	53 (52)	524 (61)
Marital status not stated	1 (-)	0 (-)	1 (-)
<b>Total</b>	755 (100)	102 (100)	857 (100)
<b>Citizenship</b>			
Norwegian	470 (62)	75 (74)	545 (63)
Other European	122 (16)	13 (12)	135 (16)
African	58 (8)	6 (6)	64 (8)
Asian	78 (10)	5 (5)	83 (10)
American (South and North)	7 (1)	2 (2)	9 (1)
Citizenship not stated	20 (3)	1 (1)	21 (3)
<b>Total</b>	755 (100)	102 (100)	857 (100)
<b>Term of imprisonment</b>			
Up to 30 days	10 (1)	7 (7)	17 (2)
1–3 months	35 (5)	2 (12)	47 (6)
3–6 months	46 (6)	10 (10)	56 (7)
6–11 months	102 (14)	18 (17)	120 (14)
1–2 years	257 (34)	18 (17)	275 (32)
3–4 years	127 (17)	17 (17)	144 (17)
5–6 years	56 (7)	6 (6)	62 (7)
7–8 years	33 (4)	3 (3)	36 (4)
9 years or more	89 (12)	11 (11)	100 (12)
<b>Total</b>	755 (100)	102 (100)	857 (100)

\*= statistically significant ( $p < 0.05$ ) difference between men and women

### 2.3.1 Non-response and limitations in the material

Even though arrangements had been made at the administrative level to facilitate the survey, optimum data collection was nonetheless prevented by day-to-day occurrences. Examples of such occurrences include that inmates were not present when the interviewer arrived because they had been moved to another prison at short notice or because they were engaged in other activities despite having an interview appointment. However, the most important reason for non-response was that inmates had been released even though administrative data indicated that their release date was some time ahead. The time that elapsed from the preparation of the initial sample list until the interviewer's arrival at the respective prisons turned out to be the most critical factor, because a great majority of the prison terms were of short duration. This is reflected in the fact that the contingent of inmates serving short sentences was lower in the sample than their actual proportion of the prison population would indicate (see Table 1). This is a consequence of the selection process. A lack of unique inmate numbers was another important source of non-response because it made it impossible to trace inmates who had been selected for participation if they had been transferred to another prison.

## 2.4 Comparative data

Comparisons between prison inmates and the general Norwegian population in this report are based on data material taken from two separate epidemiological population surveys, conducted in Oslo (sampled in 1994) and Sogn og Fjordane (sampled in 1996), respectively. Statistics Norway carried out the sampling for both surveys, based on information from the Population Register. The samples were intended to be representative of the population in the respective counties, based on gender and age. Both samples are described in more detail in other publications (Kringlen, 2001; Torgersen, 2001; Cramer, 2003). The figures for the breakdown by personality disorder in Sogn og Fjordane county were prepared specifically for this publication.

The comparative data are based on sample surveys of an urban and a rural population. There are significant differences in the prevalence of mental disorders between the two samples, with generally far higher morbidity rates in the Oslo sample than in the sample from Sogn og Fjordane. After these surveys were conducted, another extensive study of the prevalence of mental disorders in Norway has been conducted, namely the Institute of Public Health's twin study, conducted in the period 1999–2004. The sample in that survey is representative of the country and consists of persons in the 19–36 age group (cf. Mykletun et al., 2009:16).

## 2.5 The interview guide

The interview started with questions relating to socio-demographic conditions and questions about quality of life, based on a form developed by Cramer et al. (2003). The form was expanded to include questions about citizenship, length of sentence, term of imprisonment and crime category. The rest of the interview was spent on identifying symptoms of different mental disorders. Mental disorders can be examined with the aid of a number of different instruments. In this survey, it was primarily important to choose internationally recognised instruments validated for Norwegian conditions that would generate data that could be compared with data from the above-mentioned population surveys.

Secondly, it was important to choose time-efficient instruments that covered the disorders that were assumed to be most prevalent. This report presents results derived from the following instruments:

The MINI international neuropsychiatric interview (Sheehan et al., 1998) (Norwegian version by Leiknes & Malt, 2009) is a semi-structured interview that covers the most important main groups of mental disorders, as well as antisocial personality disorder. For each disorder, it is indicated whether

the presence of the disorder is current, past or recurrent. For questions relating to suicidality, we have broken down the answers by the number of questions answered in the affirmative, and considered this an expression of the number of risk factors for suicidality that appear to be present.

MINI only detects antisocial personality disorder, and the Norwegian version of SIDP-IV (Pfohl & Zimmermann, 1995) was therefore included to cover other personality disorders. The questions included in SIDP-IV are divided into topics and cover behaviour, thoughts and feelings that have been present for most of the time (i.e. more than half of the time) during the past five years, and which thereby can be assumed to represent the person in question's general personality functioning. Each personality disorder is scored as present if the number of criteria meet the lower limit for the personality disorder in question. There are no specific criteria that must be met, but a certain *number* of criteria must be met. SIDP-IV covers the following personality disorders: paranoid, schizoid, schizotypal, dramatic, unstable, narcissistic, antisocial, negativistic, depressive, obsessive-compulsive, avoidant, self-destructive, dependent.

The interview guide covers two instruments for identifying ADHD, and the survey was conducted in accordance with the following guidelines: If the respondent states a sufficient number of ADHD symptoms in adult age, measured with the help of the screening part of the approved Norwegian version of ASRS-V1.1 (Kessler et al., 2005), the interviewer continues to the next form, the Norwegian version of the Wender Utah Rating Scale for Attention (WURS) (Ward et al., 1993). The WURS form entails a retrospective survey of the presence of ADHD symptoms as a child. If the respondent scores positive on this form also, the final part of ASRS-V1.1 must be completed. This means that respondents who report ADHD symptoms above a specified level as adults and also state having had such symptoms as a child are classified as having ADHD (Ward et al., 1993).

Norwegian translations of MINI and WURS are made available for research purposes through the Norwegian Electronic Health Library and were obtained from the library for use in this survey. Separate permits were obtained from the copyrights holders for the use of SIDP.

## **2.6 Analyses and presentation of results**

The results are largely based on univariate and bivariate analyses, presented in the form of frequency distributions and contingency tables with chi-square testing. The significance level is generally set to  $p < 0.05$ , unless otherwise stated in the text/table. Pearson's chi-square test was used for significance testing of tables where the expected number of cells exceeded 5 and Fisher's exact test for tables where the expected number of cells was less than 5. The analyses were performed using the statistics programs SPSS 15.0 and 21.0.

## CHAPTER 3 RESULTS

### 3.1 Introduction

This chapter starts with a presentation of tables showing the gender distribution of different disorders in prison inmates. We go on to present the results of comparisons between inmates (women and men together) and the general population.

The terminology used in the description of the results reflects the terminology used in the instruments that are applied. In addition, the following applies: 'Current' means at the time of the interview and one month back in time for psychoses, suicidality and anxiety disorders, and the past 14 days for depression. 'Lifetime prevalence' means at some point in life.

There is reason to underline that, although internationally recognised diagnostic assessment instruments are used in this survey, they are no replacement for a full medical and psychiatric assessment performed by qualified health personnel (doctor or psychologist). Consequently, the diagnoses described here cannot be seen as corresponding to psychiatric diagnostics in clinical practice. The results presented in this chapter must therefore be regarded as qualified estimates of the prevalence of different mental disorders.

### 3.2 Anxiety disorders, mood disorders and substance use disorders

Anxiety is an important additional problem in many patients suffering from mental and somatic disorders. What is described as anxiety disorders in this context, however, are conditions where anxiety is the primary symptom and the one that causes most suffering and problems for the person in question. Anxiety disorders are divided into different types as described in Table 1. Common to all the types are symptoms of bodily reactions such as palpitation, breathing difficulties, (cold) sweat or dizziness, and unspecific symptoms such as concentration and memory problems, fatigue, muscular and skeletal pains etc. (cf. Malt et al., 2012, page 259).

**Table 2: Anxiety disorders (current) among convicted inmates, women and men.**

**Absolute figures, percentages in brackets.**

	Women (n=102)	Men (n=755)	Total (n=857)
Anxiety disorders (all in this group)	45 (45)	312 (41)	357 (42)
Panic disorder*	16 (16)	80 (11)	96 (11)
Agoraphobia	11 (11)	76 (10)	87 (10)
Social phobia	18 (18)	109 (14)	127 (15)
Obsessive-compulsive disorder	10 (10)	58 (8)	68 (8)
Post-traumatic stress disorder (PTSD)	17 (17)	93 (12)	110 (13)

\*Statistically significant difference ( $p < 0.05$ ) between women and men

Table 2 shows that a total of 42% of the sample meet criteria that are consistent with one of the specific anxiety disorders presented in the table. The prevalence of the different forms of anxiety disorder is relatively similar among women and men, except for panic disorder, which seems to be more common among women than men.

Table 3 presents the results for the prevalence of mood disorders, which in this case include depression (moderate/severe) and bipolar disorder, previously referred to as manic-depressive disorder.

**Table 3: Mood disorders (current) among convicted inmates, women and men.**

**Absolute figures, percentages in brackets.**

	Women (n=102)	Men (n=755)	Total (n=857)
All mood disorders	28 (27)	171 (22)	199 (23)
Moderate/severe depression	25 (25)	156 (21)	181 (21)
Bipolar disorder	3 (2.9)	15 (2.4)	18 (2.5)

In total, 23% of the sample have symptoms consistent with at least one current mood disorder, in most cases depression. Analyses of the relationship between the term of imprisonment and depression showed that the prevalence was clearly lower (7.7%;  $p < 0.001$ ) in the group with the shortest sentences (< 30 days) than among inmates serving longer sentences.

In this context, substance use disorders include mental disorders caused by the use of psychoactive substances and are diagnostically broken down by degree of severity and type of substance.

This survey uses two degrees of severity, namely abuse and addiction, and two main groups of psychoactive substances, namely alcohol and other substances/medicines.

**Table 4: Lifetime prevalence of alcohol abuse/addiction and substance abuse/addiction among convicted inmates, by gender.**

**Absolute figures, percentages in brackets.**

	Men (n=755)	Women (n=102)	Total (n=857)
Alcohol abuse/addiction	218 (28.9)	28 (27.5)	246 (28.7)
Substance abuse/addiction	392 (51.9)	48 (47.1)	440 (51.3)
Substance and alcohol abuse/addiction	113 (14.9)	15 (14.7)	128 (14.9)

Unlike the preceding tables, Table 4 only indicates the lifetime prevalence of substance use disorders. This is because current substance use disorders are difficult to identify in individuals who live in a protected environment where access to substances is limited, as in the case of prison inmates, many of whom have been living in such an environment for a long time. Although it is well-known that inmates can have access to substances during their time in prison, highly limited access means that the estimates of current abuse/addiction will be highly uncertain. The survey therefore focused on abuse/addiction before imprisonment. The results showed that nearly three of ten convicted inmates met the criteria for alcohol abuse/addiction, while half (51.3%) met the criteria for substance abuse/addiction. The prevalence is relatively similar among men and women.

A total of 128 of the interviewees had symptoms consistent with abuse/addiction of both alcohol and substances, and that the symptoms were almost equally distributed between men and women. A total of 299 persons (35%) had no abuse/addiction problems at all.

### 3.3 Personality disorders

In this study, personality disorders refer to how the person in question normally thinks and acts in various situations. For each personality disorder, each feature/criterion was considered to be present if it had been present for most of the time in the past five years. On this basis, the results show that a total of 73% of the sample meet the criteria for a personality disorder. The breakdown by type of personality disorder is shown in Table 5. The categories refer to the terms used in DSM-III-R/DSM-IV and are not completely identical with the groups in ICD-10.

**Table 5: Prevalence of different types of personality disorders among convicted inmates, women and men. Absolute figures, percentages in brackets.**

	Men (n=726)	Women (n=95)	Total (n=821)
At least one personality disorder	544 (75)	65 (68)	605 (73)
Paranoid	159 (21)	21 (21)	180 (21)
Schizoid	52 (7)	6 (7)	58 (7)
Schizotypal	25 (3)	3 (3)	28 (3)
Dramatic	49 (6)	6 (6)	55 (7)
Antisocial	438 (59)	49 (51)	487 (59)
Narcissistic	79 (11)	4 (4)	83 (10)
Borderline	148 (20)	24 (25)	172 (21)
Obsessive-compulsive	222 (29)	29 (30)	251 (30)
Dependent	45 (6)	7 (7)	52 (6)
Avoidant	154 (21)	14 (14)	168 (20)
Passive-aggressive	81 (11)	9 (9)	90 (11)
Self-destructive*	63 (9)	14 (15)	77 (9)

\*Statistically significant difference ( $p > 0.05$ ) between women and men

With the exception of self-destructive personality disorder, which seems to be more prevalent among women, there are no gender differences in the prevalence of personality disorders in this sample. Antisocial, paranoid, obsessive-compulsive and unstable personality disorders are the most frequent among both women and men.

### 3.4 ADHD

ADHD is a behavioural disorder that arises during the first seven years of life and is characterised by hyperactivity, attention deficit and impulsiveness. Diagnosing ADHD is an extensive process that requires access to information from several sources, and exclusion of other alternative disorders as the cause of the symptoms. This survey has only obtained information from the inmates themselves, about their current and previous situation in life. This is not sufficient to diagnose someone with ADHD. There is therefore reason to underline that the results in Table 6 must be seen as an unverified estimate of the proportion of inmates who reported symptoms at the diagnostic level. The table distinguishes between criteria in childhood and in adult age. As described in section 2.5, it is a precondition for being diagnosed as an adult that you met the criteria as a child.

**Table 6: ADHD symptoms among convicted inmates, women and men.**

**Absolute figures, percentages in brackets.**

	Women (n=102)	Men (n=755)	Total (n=857)
Met criteria for ADHD in childhood	26 (26)	156 (21)	182 (21)
Met criteria for adult ADHD	17 (17)	143 (19)	150 (18)

The table shows that nearly two of ten inmates report ADHD symptoms at the diagnostic level in adult age, and that the distribution is relatively even between women and men.

### 3.5 Suicidality

The structured interviews that were conducted included a set of questions about thoughts, feelings and behaviour relating to suicidality, which includes both self-harm and attempted suicide. The greater the number of questions answered in the affirmative, the greater the number of risk factors for suicidality. Table 7 presents the results according to the number of risk factors present.

**Table 7: Current suicidality. Absolute figures, percentages in brackets.**

Suicidality	Women	Men	Total
No identified risk factors	41 (40)	355 (47)	396 (46)
Low number of identified risk factors	49 (48)	310 (41)	359 (42)
Moderate number of identified risk factors	5 (5)	37 (5)	42 (5)
High number of identified risk factors	7 (7)	53 (7)	60 (7)
<b>Total</b>	<b>102 (100)</b>	<b>755 (100)</b>	<b>857 (100)</b>

None of these risk factors were present in nearly half the respondents, while a few of the risk factors were present in 42% of the respondents. Some or more risk factors were found to be present in a small group representing a total of 12% of the respondents and who appeared to be a vulnerable group. There were no significant differences between men and women.

### 3.6 Psychotic disorders and mood disorders with psychosis

A psychosis is a pervasive mental breakdown that affects the sensory perceptions, thoughts, feelings and behaviour of the individual in question. Many conditions can give rise to a psychotic breakdown, for example schizophrenia, severe depression and severe mania, neurological diseases and metabolism disorders, infectious diseases and the use of narcotic drugs. In our survey, we looked into the prevalence of psychotic disorders based on mental illness.

Table 8 shows the prevalence of symptoms consistent with different psychotic disorders. The table shows a breakdown of symptoms according to whether they were present at the time of the interview (current) or had occurred previously in the inmates' lives (lifetime prevalence).

**Table 8: Psychosis and psychotic symptoms among convicted inmates (N=857).**

Absolute figures, percentages in brackets.

	Psychotic disorder (non-affective psychosis)			Mood disorder with psychotic symptoms		
	Women n (102)	Men n (755)	Total N (857)	Women n (102)	Men n (755)	Total N (857)
<b>Current</b>	3 (3)	8 (1)	11 (1.3)	4 (4)	21 (2.8)	25 (2.9)
<b>Lifetime</b>	9 (9)	19 (2.5)	28 (3.3)	5 (5)	43 (5.7)	48 (5.6)

It was found in the interviews that a total of 36 persons (4.1% of the total sample) had symptoms consistent with a current psychosis disorder. For the majority (25 persons, 2.9%), it concerned a mood disorder with symptoms of psychosis. For 11 persons (1.3%), the symptoms were of a nature that put them in the category current psychotic disorder. The lifetime prevalence for psychosis was 3.3% and for mood disorders with psychotic symptoms 5.6%.

### 3.7 Mental disorders among prison inmates compared with the general population

The results presented so far have described current symptoms among female and male inmates. In the remaining presentation of results, the results for female and male inmates are combined and compared with findings from two population samples (see a more detailed description of these in Chapter 2, section 2.4). All the comparisons are based on lifetime prevalence, i.e. both current and previous prevalence.

**Table 9: Comparison of the prevalence of mental disorders (lifetime) in two population samples and among convicted inmates. Percentage**

Type of disorder	Oslo (N= 2,066)	Sogn og Fjordane (N= 1,083)	Convicted inmates (N= 857)
Alcohol abuse/addiction <sup>1</sup>	22.7	9.4	28.7
Drug abuse/addiction <sup>1</sup>	3.4	0.4	51.3
Moderate/severe depression	17.8	8.3	57.6
Social phobia <sup>2</sup>	13.7	7.3	11.2
Agoraphobia <sup>2</sup>	6.1	3.6	10.2
Panic disorder <sup>1</sup>	4.5	2.6	20.4
Generalised anxiety <sup>1</sup>	4.5	3.4	12.6
Eating disorders <sup>3</sup>	1.8	0.5	0.3
Obsessive-compulsive <sup>1</sup>	1.6	0.6	7.9
Bipolar disorder <sup>1</sup>	1.6	0.2	13.1
Non-affective psychosis <sup>1</sup>	0.4	0.4	3.3

*1 Significant difference (p<0.001) between the prison inmate sample and the two population samples*

*2 Significant difference (p<0.001) between the prison inmate sample and the Sogn og Fjordane sample*

*3 Significant difference (p<0.001) between the prison inmate sample and the Oslo sample*

The lifetime prevalence of mental disorders is considerably higher among convicted inmates than in both the population samples, with two exceptions. One concerns eating disorders, for which there is a higher prevalence in the Oslo population than among inmates. The other exception concerns social phobia, for which a significant difference is only found between the prevalence in Sogn og Fjordane and in the inmate sample.

**Table 10: The prevalence of personality disorders in Oslo, Sogn og Fjordane and among convicted inmates. Absolute figures, percentages in brackets.**

	Oslo (N= 2,066)	Sogn og Fjordane (N= 1,080)	Convicted inmates (N= 825)
At least one personality disorder <sup>1</sup>	268 (13)	86 (8)	605 (73)
Paranoid	46 (2.2)	13 (1.2)	180 (21)
Schizoid	32 (1.5)	20 (1.8)	58 (7)
Schizotypal	12 (0.6)	8 (0.7)	28 (3.5)
Histrionic or dramatic	39 (1.9)	10 (0.9)	55 (6.4)
Antisocial	12 (0.6)	3 (0.3)	485 (59)
Narcissistic	12 (0.6)	6 (0.6)	82 (10)
Borderline or emotionally unstable	14 (0.7)	27 (0.2)	172 (21)
Obsessive-compulsive	39 (1.9)	12 (1.1)	251 (30)
Dependent	31 (1.5)	11 (1.0)	52 (6)
Avoidant	102 (5)	27 (2.5)	168 (20)
Passive-aggressive or negativistic	32 (1.5)	10 (0.9)	90 (11)
Self-destructive	10 (0.8)	6 (0.6)	77 (9)

*1 The different types of personality disorders reflects the division in DSM-III-R/DSM-IV, not in ICD-10.*

All the personality disorders presented in Table 10 are significantly more prevalent among inmates than in both the population samples (all comparisons are clearly statistically significant ( $p < 0.001$ )). The total figure for inmates in the table ( $n=821$ ) is lower than in the previous tables. This is because persons with symptoms that are consistent with a current psychosis (in total 36 persons, see Table 8) were excluded from the screening for personality disorders.

As described in the introduction (see section 1.2.2), there is a high degree of comorbidity for different types of mental disorders. Table 11 provides a simple overview of the correlation between the prevalence of personality disorders and other mental disorders among convicted inmates.

**Table 11: Comorbidity of personality disorders with other mental disorders.**

**Absolute figures, percentages in brackets.**

Personality disorder	Other mental disorders		Total
	No	Yes	
No	72 (27)	187 (73)	259 (100)
Yes	78 (13)	520 (87)	598 (100)
Total	150 (17)	707 (83)	857 (100)

The table shows that 72 persons (8% of the whole sample) have neither a personality disorder nor any of the other mental disorders covered by the survey. The other extremity is represented by the 520 persons (61% of the whole sample) who have both a personality disorder and one or more mental

disorders. The rest of the inmates (31% of the whole sample) have either a personality disorder or another mental disorder.

Comorbidity was also analysed in relation to the term of imprisonment, and the results are presented in Table 12.

**Table 12: Correlation between other mental disorders and personality disorders (comorbidity) and term of imprisonment. Absolute figures and percentages in brackets.**

Other mental disorders	Personality disorders		
	no	yes	Total
Term of imprisonment			
< 1 year			
no	22 (31.9)	47 (68.1)	69 (100)
yes	13 (6.3)	192 (93.7)	205 (100)
Between 1 and 3 years			
no	23 (33.3)	46 (66.7)	69 (100)
yes	26 (13.8)	162 (86.2)	188 (100)
> 3 years			
no	27 (30.7)	61 (69.3)	88 (100)
yes	39 (16.4)	199 (83.6)	238 (100)
total			
no	72 (31.9)	154 (68.1)	226 (100)
yes	78 (12.4)	553 (87.6)	631 (100)
Total	150 (15.5)	707 (82.5)	857 (100)

The correlation between other mental disorders and personality disorders (comorbidity) and term of imprisonment in Table 12 is statistically significant ( $p < 0.001$ ).

The analyses show a statistical difference in the prevalence of emotionally unstable personality disorder, bipolar disorder and substance abuse/addiction compared with the prevalence of other mental disorders among inmates serving sentences of < 1 year.

The survey included a simple question about whether the inmate had received any form of treatment in the past two months (treatment defined as provided by the prison health department, a GP, a district psychiatric centre, a psychologist in private practice, a psychiatrist in private practice or a psychiatric in-patient unit). The responses showed that 24% of the sample (37 women and 164 men) had received treatment (of some form), and the proportion was relatively similar among women and men.

## CHAPTER 4 DISCUSSION

As pointed out in the introduction, this is the most extensive survey that has ever been carried out of mental disorders among prison inmates in Norway, with regard to both the number of inmates who were interviewed and the number of disorders covered by the survey. The results therefore provide a good starting point for further discussion, and we will in this chapter launch this discussion by highlighting some main findings. At the same time, it is important to underline that there are also weaknesses in the chosen methods and limits for what conclusions can be drawn from the findings. The chapter also includes a section that addresses this in more detail.

### 4.1 High prevalence of mental disorders

In summary, the results of this survey show that the prevalence of mental disorders among prison inmates is considerably higher than in both the Norwegian population samples we have used for comparison. This is true for nearly all the categories of diagnoses in the survey. Personality disorders turned out to be most prevalent, as 73% of the respondents met the criteria for one or more such disorders. High prevalence was also found for substance use disorders (51%), and for anxiety disorders (42%) and depression (21%).

#### Personality disorders

It is common to see personality as consisting of personality features, which are the individual's habitual, regular and stable patterns of thinking, emotions, actions and behaviour. A person's personality is the result of hereditary factors and personal development in interaction with their surroundings. The category personality disorders is used when a person's personality features deviate considerably from those of other individuals belonging to the same culture and society and create difficulties or problems for the individual and/or their surroundings. Personality disorders are established at young adult age and are stable and lasting, unlike defined symptom disorders, which occur in episodes, periodically or as chronic illnesses, with varying intensity.

The results show that 73% of convicted inmates meet the diagnostic criteria for at least one personality disorder. The corresponding figures in the Norwegian population are 13% (Oslo) and 8% (Sogn og Fjordane), respectively. In other words, we are talking about a very much higher prevalence among inmates. This is in line with both Norwegian and international surveys of prison inmates (Fazel, 2002; Vicens et al., 2011).

At the same time, there is reason to note that, in general, the instrument used in this survey (and the two population surveys we have used for comparison) results in higher prevalence figures for personality disorders than surveys based on other instruments (cf. Huang, Kotov, de Girolamo et al., 2009). By comparison, WHO's survey of mental disorders based on data from 13 countries found a prevalence of personality disorders in the general population of 6.1% (Huang et al., 2009). But even if we take account of a certain overestimation as a result of the survey instrument used, however, this does not explain the vast difference between inmates and the general population. Nor does it explain the differences we observe in the types of personality disorders that are most prevalent. The most recent international figures indicate that personality disorders of the eccentric type (paranoid, schizoid) are most common in the general population, while the dramatic types (narcissistic, antisocial, histrionic and borderline) are the least common (Huang, et al., 2009). Among inmates, the breakdown is different: Antisocial personality disorder is by far the most prevalent, followed by obsessive-compulsive, paranoid and borderline. Antisocial and borderline personality disorders both belong to the group of 'dramatic' personality disorders (characterised by affective instability, impulsiveness and

dissocial features), which seems to have the biggest overlap with symptom disorders (cf. Huang et al., 2009).

The proportion of inmates displaying symptoms consistent with antisocial personality disorder was 59% in this survey, a figure that is quite close to previous Norwegian findings (63% in Langeveld & Melhus, 2004; and 60% in Rasmussen, 2001). We have diagnosed antisocial personality disorder on the basis of the criteria in DSM-IV, which require a conduct disorder before the age of 15 in order to make the diagnosis. This is not a requirement in ICD-10. In other words, we have a somewhat higher threshold for classifying antisocial personality disorder than what forms the basis for dissocial personality disorder in ICD-10. In order to be diagnosed with antisocial personality disorder, in addition to a conduct disorder before the age of 15, the person must since the age of 15 have displayed a pervasive pattern of disregard for and violation of the rights of others, and failure to conform to age-appropriate social norms for lawful behaviour. Since various norm-breaking criteria are a condition for being diagnosed with antisocial personality disorder, it is obvious that this diagnosis will be more prevalent in a group where everyone has committed crime than in the general population.

Obsessive-compulsive personality disorder stands out with a relatively high prevalence in both the general population and among inmates. According to the diagnostic criteria, it is a disorder characterised by being overly concerned with orderliness, perfectionism and control, at the expense of flexibility, openness and efficiency. The disorder in itself is often regarded as a mild form of personality disorder, but it is important to underline that, in clinical samples (patient samples), it is often associated with other personality disorders (Hummelen, Wilberg, Pedersen et al., 2008).

### **Abuse and addiction of alcohol and other substances**

One group of inmates (299 persons, 35%) had no abuse/addiction problems at all. Of the remaining inmates, nearly three of ten had alcohol problems in the sense of abuse/addiction, measured as lifetime prevalence. This is higher than in the general population, but the difference between inmates and the Oslo sample was not huge. Other surveys have shown that alcohol abuse and addiction is not significantly more prevalent among inmates than in the general population, but that the drinking patterns differ. Among inmates, it is often the case that they either drink little or no alcohol because they use substances other than alcohol, or they have a very high consumption. Inmates often have a history of extensive multiple substance abuse.

The same variation in the consumption pattern is not found in the general population (Ødegård, 2008).

Half of the inmates were registered with abuse/addiction to substances other than alcohol. A small group (15%) had abuse/addiction problems relating to both alcohol and other substances. After depression, substance abuse is the mental disorder that has the highest lifetime prevalence among inmates. The prevalence figures for substance abuse vary from one survey to the next, both internationally and nationally, but the figures in this survey are consistent with *inter alia* the systematic literature review by Fazel et al. (2006). The prevalence is somewhat lower than what has previously been presented based on self-reporting of alcohol/substance abuse by inmates (see, for example, Friestad & Skog Hansen, 2004; Skardhamar, 2002).

### **Anxiety and mood disorders**

All anxiety disorders are more prevalent among inmates than in the general population, except social phobia, which is more prevalent in Oslo (13% compared with 11% among inmates). In previous surveys of anxiety disorders among inmates, panic disorder has proved to be the most frequent disorder (Pondé, 2011; Vicens, 2011). This survey shows the same picture, and the proportion is slightly higher among women than men. The high prevalence of anxiety can be due to many factors, such as committing a crime, being in a crisis, being convicted, waiting to serve a sentence and the actual term of imprisonment. The person may have been exposed to great stress and mental strain over

a prolonged period of time. An anxiety disorder has a tendency to develop into several types of anxiety disorders in the same person. Differentiation to make the correct diagnosis is important with regard to treatment. Anxiety combined with depression is the most common combination of symptoms.

Two of ten inmates had a current depression at the time of the survey, while nearly six of ten had suffered from depression at some point in their life. This is a considerably higher lifetime prevalence of depression than what has been found in the general population (9.9% for men and 24% for women (Kringlen, 2001)). There is also reason to note the high prevalence of bipolar disorder among inmates (13.1%).

## **Psychosis**

Psychotic disorders are often considered to be the most serious mental disorders, and it is natural therefore to give thorough consideration to the results in this area. The results showed an estimate of 4% for current psychosis among inmates, which is consistent with both other Norwegian surveys and analyses of large data sets from various surveys conducted in other countries (Fazel & Danesh, 2002; Fazel & Seewald, 2012). Converted into absolute figures, this means that, on any given day, there can be 148 inmates in Norwegian prisons with symptoms that are consistent with a current psychosis. That is a seriously high number. At the same time, it is important to underline that the figure is derived from an estimate that must be verified through further clinical tests in each individual case. Only after further diagnostic examinations is it possible to come up with an exact figure for how many people need medical care outside prison. Gunn et al. (1991) have previously studied the relationship between prevalence figures and treatment needs among prison inmates. The results showed that a small minority (2.9%) of inmates who were identified as having a mental disorder needed hospitalisation, while the same was true for a minority of inmates suffering from psychotic disorders. Another important finding was that the prison authorities had not necessarily identified everyone in this group as inmates with mental health problems. Our observation in response to that is that persons who primarily show negative psychotic symptoms need attentive surroundings in order to be identified and given help to contact the health service so as to minimise the time during which the psychosis remains untreated.

We have previously pointed out that several conditions can trigger a psychosis, but that this survey only concerns psychoses based on mental illness. Substance abuse can be a triggering factor for psychosis, but this report does not concern such psychoses.

## **Comorbidity**

Several disorders can co-occur within the same time period. When the criteria for more than one mental disorder are met at the same time, we have chosen to call this comorbidity in this report. As we pointed out in the introduction, comorbidity is common for many mental disorders. This may be coincidental or be due to a joint predisposition for illness that manifests itself in different ways. Mental disorders can manifest themselves as a mixed pattern of symptoms or can be based on the same risk factors, but because of the lack of specificity in our understanding of the causes, the symptoms can end up in different categories in our diagnostic system. Anxiety and depression are the disorders that most commonly occur together. Comorbidity is also found between the different types of personality disorders. In principle, any symptom disorder can occur in combination with any type of personality disorder. Some personality disorders and mental disorders occur more commonly together than others, for example emotionally unstable personality disorder, depression and anxiety and alcohol and/or substance abuse and addiction.

In the comorbidity analyses, we have combined groups of disorders. All current symptom disorders are considered together and all personality disorders are considered together. On this basis, we found that 61% of the respondents in the sample had both one or more symptom disorders and one or more personality disorders. Only 72 of the 857 inmates who were interviewed did not meet the criteria for a

personality disorder or a symptom disorder. Seventy-eight inmates only met criteria that are consistent with a personality disorder, while 187 inmates only met criteria that are consistent with a symptom disorder.

A high prevalence of several co-occurring disorders is in line with what other people have found (Fazel 2012), and Sierfield et al. (2009) concluded that the prison population had four to five co-occurring diagnoses. It is not uncommon for inmates to meet the criteria for several co-occurring (3–4) personality disorders and some of the criteria for other personality disorders in addition to symptom disorders. High comorbidity of at least one personality disorder with all types of depressive disorders has been found in the general population.

The relationship between personality disorders/symptom disorders and term of imprisonment (cf. Table 12) showed that the prevalence of comorbidity did not change with the prison term. The group of inmates serving prison terms of less than a year have the highest prevalence of unstable personality disorder, bipolar disorders and substance use disorders. We know that most first-time offenders serve sentences of less than a year, so this picture seems reasonable and consistent with impulsiveness and criminal acts under the influence. Other surveys that have followed inmates over time have shown a higher prevalence of symptom disorders after longer periods of imprisonment (Kopp, 2011). These surveys have not studied comorbidity of personality disorders with symptom disorders, however, which gives a more nuanced picture.

### **Suicidality**

Suicidality is not a diagnosis, but a condition that may or may not be associated with mental disorders. In this survey, the risk of suicide among inmates was identified through questions about known risk factors, and risk was graded in four categories. The results show that nine of ten inmates had no or low suicide risk. The rest had either moderate or high suicide risk. A moderate or high risk that the inmate would take their own life was evenly distributed among women and men. Suicide is the most common cause of death in prison and is most frequent among inmates on remand. This is a group that is not represented in this survey, and it is therefore important to underline that the estimates for suicidality in this survey do not cover the group of inmates who are initially assumed to have the highest suicide risk.

### **4.2 Equal prevalence among men and women**

If we look at the most prevalent disorders among inmates – substance use disorders, depression and personality disorders – there are typically differences in the prevalence among women and men in surveys of the general population. Both in Norway and other countries, depression is more prevalent among women, while substance use disorders are more than twice as prevalent among men (see Table 5 in Mykletun et al., 2009). The figures from WHO showed that personality disorders are more prevalent among men than among women (Huang et al., 2009). Also among inmates, it is generally the case that most mental disorders have a higher prevalence among women than men, although the differences are often relatively small (cf. Fazel & Baillargeon, 2011). Our survey found no gender differences in the prevalence of the main groups of symptom disorders, personality disorders or ADHD. This is despite the fact that women were oversampled precisely to uncover significant gender differences. There is reason, therefore, to take note of this finding.

For some specific personality disorders, there were differences between the prevalence in women and men, but these figures must be interpreted with caution because the number in each sub-group is low.

### **4.3 What can the results tell us – and what can they not tell us?**

Several previous Norwegian surveys have shown that prison inmates are a marginalised group based on a number of key living condition indicators: Inmates generally have low levels of education, housing problems, financial problems and a weak or unstable affiliation to the labour market (Friestad & Skog Hansen, 2004; Skardhamar, 2002). The problems tend to accumulate and form the basis for increased risk of developing mental disorders. It is not surprising, therefore, that most of the surveys, including the present, finds an elevated prevalence of mental disorders in prison populations. This is serious in itself, and the group's lack of possibility of compensating for a lack of health resource with resources related to other living conditions indicates that the need for health services is potentially great. However, it is important to remember that the survey we have now conducted is a prevalence survey, not an assessment of treatment needs. The results provide an overview of the prevalence of problems within a broad range of mental disorders and show how prison inmates as a group score in each diagnostic category. Within each diagnostic category, however, there will always be persons with different degrees of severity of illness, different subjective complaints relating to the disorder and different self-assessed treatment wishes as well as clinically assessed treatment needs. The results do not provide a basis for drawing conclusions about the need for treatment in this group, other than to underline that this is an area where further research is needed, given the high morbidity prevalence that has been uncovered in this survey.

### **4.4 Strengths and weaknesses of the survey**

Important strengths of the present survey are the high number of interviewed inmates and that the interviews were based on internationally recognised instruments for which there are bases for comparison in the general population. The research material contains data from respondents who are new inmates, inmates who have been in prison for some time, and inmates who have served their term in prison and are about to be released. The sample seems to be representative of convicted inmates in Norwegian prisons on any given day, except for the shortest sentences. The majority of inmates in Norwegian prisons are first-time offenders serving short sentences. The selection of inmates for this survey took some time, and many inmates serving short sentences had been released or transferred before the interview was to take place. This means that there is a bias in the material towards longer prison terms. No differences have been found in the prevalence of mental disorders (comorbidity) between those serving sentences of less than a year, of one to three years and of more than three years' duration.

The sample consists of consecutive cross-sections of convicted inmates during the period 2011–2013. The age distribution of prison inmates in this sample is consistent with Statistics Norway's crime statistics, which state that the majority of inmates are over the age of 30, both women and men. The proportion of inmates of non-Norwegian ethnicity has increased considerably in recent years, and it is therefore a considerable strength of this survey that it also included a relatively large group of non-Norwegian inmates (37%). In order to further ensure that the sample was representative, the sample was sorted based on groups of offences. These are rough categories based on the main offence, and we have not differentiated the offences any further. Also with regard to socio-demographic characteristics, the sample seems to be consistent with previous surveys of the prison population in Norway.

In general, few studies of prison populations have described groups of inmates based on the 'sum' of different co-occurring disorders as we have done in this survey in terms of the prevalence of comorbidity. This survey, on the other hand, has analysed the comorbidity of all the personality disorders with all symptom disorders, with the result that it is clear how large a proportion of the inmates have symptoms of several co-occurring mental disorders.

In this type of survey, it can always be questioned whether the method overestimates or underestimates the prevalence of illness. There are arguments in support of both. A common argument supporting the view that the prevalence of illness is most likely underestimated is that many ill people, especially the ones who are most ill, do not appear for an interview and are thereby not included in the figures. This has probably also been the case in our survey, but it has not been possible for us to assess the extent of this form of non-response. Among those who actually appear for an interview, it can be envisaged that an interview effect arises during the interview that causes the respondent to give affirmative answers to questions that are repeated during the interview.

With so many disorders and partly overlapping symptoms, there will be questions that are repeated several times, using a slightly different wording. This may result in an overestimation of the prevalence of mental disorders. At the same time, we have underlined throughout the report that the prevalence figures we have presented are qualified prevalence estimates, and not exact figures for the number of inmates who 'have' one or more specific disorders. In all the instruments used, there is a possibility that they identify persons who, upon closer examination, turn out not to have the disorder in question, with the result that the 'actual' prevalence is overestimated. The screening for ADHD can serve as an example: The estimated prevalence of ADHD is based on internationally recognised self-rating scales. A far more thorough examination is needed in order for a person to be diagnosed with ADHD, however, among other things to exclude other possible explanations of the symptoms. Several of the symptoms of ADHD are similar to symptoms of, for example, bipolar disorder with hypomanic or manic symptoms and emotionally unstable personality disorder. In principle, the diagnostic instruments should pick up on the differences, but overdiagnosis can occur where symptoms of different disorders overlap. At the same time, it is worth noting that for ADHD, a corresponding prevalence figure (16%) was recently found in a Canadian prison population, based on use of the same instruments as we have used (Usher et al., 2013).

Another important point is that the instruments used in this survey – and most other surveys of prison inmates – were not developed for this population, and, so far, their validity has therefore not been clarified (Andersen, 2004). The prison context may make it difficult to interpret symptoms of mental disorders, because the person's response may, for example, be an expression of adaptation to an extreme context rather than of his or her general level of functioning.

#### **4.5 Further challenges**

A main finding in this survey is that convicted inmates have a very high prevalence of mental disorders compared with the general population. This is in line with previous research conducted in both Norway and other countries. Internationally, it has been suggested that the development of mental disorders among convicted inmates should be followed over time, with regular surveys based on common assessment instruments adapted to prison populations (Salize et al., 2007). This appears to be an important suggestion, also after this survey. An important challenge that remains for future surveys is to clarify the relationship between diagnoses and treatment needs. How many of the inmates need psychiatric treatment?

A survey of the type we have now conducted provides a thorough overview, but also covers a number of mild conditions and persons who neither want nor need treatment. Another approach to increased knowledge about prison populations is to establish a cohort that is followed over time, with examinations that cover both health-related factors and other factors that have a bearing on successful rehabilitation.

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