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HOMELESSNESS AND HEALTH: ANALYSIS OF MORTALITY AND MORBIDITY FROM A GENDER PERSPECTIVE

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ABSTRACT

In this thesis, results from epidemiological cohort studies of morbidity and mortality among homeless men and women are presented. Comparisons were made with the general population concerning hospital care for somatic diseases, injury and mental disorders, and concerning mortality. The thesis contains also the results from a five-year follow-up study of 82 homeless men with mental problems.

Results from **Paper I** shows that the mortality among the 82 homeless men was higher than expected (SMR 4.7). Surprisingly, among men with severe psychiatric disorders, such as schizophrenia, none had died at the follow-up. Among the survivors, 75% were still homeless, and the mental health problems combined with substance use problems had increased. **Paper II**, shows that among 1 364 homeless men and 340 homeless women, the relative risk of being hospitalised for physical diseases was double that of men and women in the general population. When age was considered, younger homeless women had the highest risk compared to homeless men (RR 1.6). The highest prevalence was found in the diagnosis group injury/poisoning (22% men, and 20% women). The highest risk was found for skin diseases (RR 36.9) and concerned homeless women. **Paper III** shows that among 1 364 homeless men and 340 homeless women, the relative risk of having mental disorders, including alcohol and drugs, was 13-21 times higher that of the general population. The homeless women ran a higher risk compared with homeless men (RR 1.2), where younger homeless women had the highest risk (RR 2.2). Alcohol use disorders were equally common among homeless men and women, but women had more drug use disorders (RR 1.3). Women had a higher risk of schizophrenia (RR 2.8), and personality disorders (RR 2.7). When adjustment was made for substance use disorders, no increased risk for mental disorder was found in the homeless group. **Paper IV** reports a relative risk of 3.1 for death among 1 758 homeless men compared with men in the population, and a relative risk of 2.5 for 527 homeless women compared to women in the population. No difference in mortality was found between homeless men and women. The mortality among men was principally related to alcohol, and among women to drug abuse.

For homeless men with long homelessness and mental problems including substance misuse, the life and housing situation had not improved at the 5-year follow-up, and substance misuse problems and mental problems had increased among them.

There was no connection between mortality and mental illness. Among homeless men and women the risk of having diseases that requires hospitalisation was very high, compared with the general population. Younger homeless women were particularly at risk. There were a number of gender specific somatic and psychiatric diagnoses that are important to take into account when planning services for homeless people. The excess risk for mental illness found among the homeless was entirely related to alcohol and drug misuse, as was their excess mortality.

Kewords: Homeless people, gender, hospital care, mortality, mental disorders, substance misuse, physical diseases.

SAMMANFATTNING

Denna avhandling presenterar resultat från epidemiologiska kohortstudier av hemlösa män och kvinnors fysiska och psykiska sjuklighet, samt dödlighet, jämfört med män och kvinnor i den allmänna befolkningen. Avhandlingen innehåller också resultat från en femårig uppföljningsstudie av 82 hemlösa män med psykiska problem, inklusive missbruksproblem och lång hemlöshet.

Artikel I visar att dödligheten var högre än väntat bland 82 hemlösa män med psykiska problem (SMR 4,7). Förvånande nog hade ingen i gruppen med svåra psykiska sjukdomar, såsom schizofreni, avlidit vid uppföljningen. Störst var dödligheten bland dem med narkotikamissbruk (SMR 52,6). Bland de överlevande var 75% fortfarande hemlösa och psykiska problem i kombination med missbruksproblem hade ökat bland dem. **Artikel II** visar att för 1 364 hemlösa män och 340 hemlösa kvinnor var den relativa risken att hamna på sjukhus för fysiska sjukdomar dubbelt så hög som för män och kvinnor i den allmänna befolkningen. Yngre hemlösa kvinnor hade större risk jämfört med hemlösa män (RR 1,6) och jämfört med kvinnor i befolkningen (RR 2,4). Den diagnosgrupp som dominerade bland hemlösa var skador/förgiftningar (22% av männen och 20% av kvinnorna). Den största risken fanns i gruppen hemlösa kvinnor jämfört med kvinnor i befolkningen och gällde hudsjukdomar (RR 36,9). **Artikel III** visar att den relativa risken för psykisk sjukdom, inklusive alkohol- och drogmissbruk för 1 364 hemlösa män och 340 hemlösa kvinnor var 13 respektive 21 gånger högre än för befolkningen i övrigt. Hemlösa kvinnor hade en högre risk jämfört med hemlösa män (RR 1,2), där yngre kvinnor hade den högsta risken (RR 2,2). Att ha en alkoholdiagnos var lika vanligt för hemlösa män som för kvinnor, men hemlösa kvinnor hade större risk än män att ha en drogdiagnos (RR 1,3). Kvinnor hade också högre risk för schizofreni (RR 2,8) och personlighetsstörning (RR 2,7). Överrisken för psykiska sjukdomar bland de hemlösa försvann när kontroll gjordes för alkohol och droger. **Artikel IV** redovisar att 1 758 hemlösa män hade en relativ risk av 3,1 att dö i förtid jämfört med män i befolkningen, och 527 hemlösa kvinnor en relativ risk av 2,5 jämfört med kvinnor i befolkningen. Ingen skillnad i dödlighet konstaterades mellan hemlösa män och kvinnor. Överdödligheten bland de hemlösa försvann helt då kontroll gjordes för tidigare vård för alkoholproblem.

Boendesituationen för en mindre grupp hemlösa män med psykiska problem, inklusive missbruksproblem och lång hemlöshet, hade inte förbättrats vid uppföljningen efter fem år. Vidare noterades att alkohol- och narkotikaproblem, liksom psykiska problem, hade ökat i gruppen. Något samband mellan dödlighet och psykisk sjukdom fanns inte, däremot ett starkt samband mellan alkohol- och narkotikaproblem och dödlighet.

Risken för fysiska och psykiska sjukdomar bland hemlösa män och kvinnor var mycket hög jämfört med befolkningen i övrigt. Unga hemlösa kvinnor var särskilt utsatta. Avhandlingen pekar på ett antal könsspecifika sjukdomar som är viktiga att känna till när man vill hjälpa hemlösa. Risk för psykisk ohälsa bland de hemlösa var helt relaterad till alkohol och narkotikamissbruk. Den höga dödligheten bland hemlösa män och kvinnor var också starkt relaterad till alkohol och drogmissbruk.

LIST OF PUBLICATIONS

This thesis is based on the following papers:

I. Beijer, U., Andréasson, S., Ågren, G., Fugelstad, A. (2007). Mortality, mental disorders and addiction: A 5-year follow-up of 82 homeless men in Stockholm. *Nordic Journal of Psychiatry*, 61, 363-368.

II. Beijer, U. & Andréasson, S. (2009). Physical diseases among homeless people: Gender differences and comparisons with the general populations. *Scandinavian Journal of Public Health,* 37, 93-100.

III. Beijer, U. & Andréasson, S. Gender, hospitalisation, and mental disorders among homeless people compared with the general population – a cohort study. Submitted manuscript.

IV. Beijer, U., Andréasson, S., Ågren, G., Fugelstad, A. Mortality and causes of death patterns among homeless men and women in Stockholm. Manuscript.

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1 BACKGROUND

1.1 ABOUT THIS THESIS

Despite earlier studies of homeless people's health and mortality, a substantial number of questions concerning the health of the homeless remain unanswered. In particular, there is a lack of studies of homelessness and health from a gender perspective. Therefore, little is known about homeless men and women's health in relation to each other, and in relation to men and women in the general population. Studies of homelessness and health have usually been based on interviews with small groups of homeless people who visit casualty departments, shelters or temporary housing, or homeless people who have contact with outreach teams from social services or the healthcare service. There have been only a few epidemiological studies of homelessness and health based on archival data. The lack of register studies of homelessness and health reflects the absence of national inpatient and outpatient care registers in most countries in the world, making follow-up studies of homeless groups feasible. Furthermore, studies on mortality, including studies of causes of death from a gender perspective are lacking. An assessment of the prevalence of severe physical and mental diseases can be obtained by studying hospital admissions data for a large group of homeless men and women over time.

The World Health Organisation defines health as "… a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO 2008). With this broad definition, the measurement of health would be a formidable task. In this thesis however, I limit myself to measuring health in terms of diagnosed physical and mental diseases, as well as mortality and causes of death. Thus, the papers in thesis comprise results from epidemiological studies of morbidity and mortality among homeless people. These in turn are derived from archival data. A gender perspective is included in the analysis. Concerning research on homelessness and mental health, studies with a follow-up longer than 1-3 years have been lacking. In this thesis, a five-year follow-up study of homeless men with mental problems is presented, including a comparison of their mortality rates with men in the general population.

1.2 HEALTH AND MORTALITY AMONG HOMELESS PEOPLE

1.2.1 Research on homelessness in Sweden from a social medicine perspective – a historical review

Homeless people suffer from poor health in general. Social medicine has played an important role in homelessness research in Sweden. The first scientific studies about homeless people in Sweden were conducted in the early 1960s by Gunnar Inghe (1962 a, b), who later became the first Professor of Social Medicine at Karolinska Institutet in Stockholm. One study (1962 a) covered 5 200 homeless men who lived in various shelters and temporary accommodation units in Stockholm. The study showed that three-quarters of them had been convicted of drinking-related offences, two thirds had received social benefits and about a fifth had received psychiatric treatment in a hospital. The second study (1962b) included 581 homeless women who lived in a shelter for women. One third of the women had received social benefits, nearly one sixth of them had drug problem, and one sixth had received psychiatric treatment in a hospital. Concerning the homeless women, Inghe found that they were a very heterogeneous group with a wide range of needs and problems, from women who had an occupation and no apparent problems other than lack of housing, to women who had severe mental or drug related problems and who had been homeless for a long time. He therefore suggested that a number of smaller institutions, tailored to women's different needs, should be set up by the city council. Homeless men, on the one hand had a large number of shelters and temporary accommodation units to choose from, so the need for several smaller institutions for them had already been met. Homeless women, on the other hand had access to one shelter with a capacity of approximately 200 women. His proposal was never implemented. Instead, a large, modern institution for homeless women was built (Ängshöjden), an institution the women for various reasons rejected (Beijer, 1998).

The social medicine approach of research into homelessness continued in the 1970s. During a two-year period (1967-1969), Johan Norman, a social medical officer and psychiatrist, and Ragnar Schultze, a psychologist, estimated that about 2 000 homeless men were staying at shelters in Stockholm City. From this shelter group, a randomised number of 165 men were selected. The men went through a medical clinical examination, a social medical interview, gave a social history, and were followed in different registers. Most of them had “advanced alcohol abuse” and 95% had been convicted of drink-related offences. The dominant diagnoses were injury caused by

external violence and mental ill-health, and 40% had evidence of ongoing liver damage. Eighty percent of them were in the serious crime register. Two thirds had once had an own apartment. During childhood, many of them had lived in an orphanage or been in foster care, or seen their parents split up. A large proportion of the men had brain damage after prolonged alcohol misuse. The 165 men were divided into one treatment group (45 men), who received therapy including environmental therapy, and one control group (120 men). A follow-up comparison between the two groups showed that half of the men in the treatment group had an adequate living environment with housing, while none in the control group had good living conditions and housing. Sixty percent in the treatment group had some form of work, while this applied only to 25% of the controls.

The first thesis on the homeless in Sweden was written by psychiatrist Stefan Borg (1974) at Karolinska Institutet (KI). The thesis was a social psychological and clinical study of 158 men from the Stockholm social services office for homeless men in 1968-1971. Again, most of the men had serious alcohol problems, but three quarters had socially stable relationships and many of them had been married. Social disruption had emerged gradually, usually after prolonged alcohol misuse. Homelessness was usually late in this development spectrum. Borg was also the first who published data on the mortality of homeless men (Table I).

The first article about mortality among homeless in Sweden that was published in an international scientific journal was in 1975 (Alström, Lindelius, Salum, 1975). The number of homeless in the study was greater than in Borg's study (more than 6 000 men), but again, the mortality rate among homeless men was four times higher than men in the population (Table I).

Table I. Mortality studies of homeless people in Sweden.

	Number of homeless		Follow-up	Times higher risk	
	Men	Women	Years	Men	Women
Borg, 1974	158		3	4	
Alström et al, 1975	6,032		3	4	
Norman, 1979	4,536		10	2	
Stadig, 1987		227	5		9
Ågren, 1989	1,548		12	3	

In 1979, the second thesis on homeless in Sweden was published, also at KI, this time by Härje Åsander. He conducted a follow-up study and a clinical psychiatric field

survey. The thesis was based on a sample population of the 6 000 men (Alström et al. 1975), and included personal interviews and a series of index data. The results of this study demonstrated that the health of homeless men had not deteriorated in relation to Gunnar Inghe's study from 1962.

The third thesis on homeless in Sweden also had a social medicine perspective and was presented by Johan Norman at Sahlgrenska Hospital in Gothenburg (1979). Norman made a ten-year follow-up of approximately 4 500 of the 5 200 homeless men in Stockholm from Gunnar Inghe's study of homeless men in 1962. Mortality was lower than in previous studies: twice that of men in the population (Table I).

Gunnar Ågren's thesis from 1989, produced at the Division of Social Medicine, KI, included a follow-up mortality study (during the period 1962-1982) of 1 548 homeless men living in a temporary housing institution (Skarpnäcksgården). He, and co-author Sten Jakobsson, found that the mortality rate was three times higher than among men in the population (Table I). The causes of death were alcohol-related diseases such as cirrhosis and pancreatitis, but also an excess mortality from cardiovascular disease.

In the same year (1989), journalist Leif Stenberg, Leif Svanström, Professor of Social Medicine at KI, and Stig Åhs, then Secretary of the Folksam Social and Scientific Council, conducted a field study on outdoor/rough sleepers. The authors noted in particular that evictions had increased in recent years and that it had become difficult for the homeless to enter the labour market, despite low unemployment. Their final analysis of the causes of homelessness pointed to poverty, substance misuse, mental problems and lack of housing. Their concluding question was: "Even if we reach the homeless and the marginalised and give them care, how do we build up a network that can help and encourage them to continue living without a relapse?" (Stenberg, Svanström, Åhs, 1989, p. 177).

In 2000, a clinical pilot study of 35 homeless people - the first clinical study of homeless people in Sweden in 30 years - was conducted over a 3-month period (Halldin et al, 2001). The study had a multidisciplinary approach and was a collaboration between Stockholm County Council, the Division of Social Medicine at KI, and the City of Stockholm Research and Development (R&D) Unit. The investigation team consisted of general practitioners, dentists, nurses, social workers, psychiatrists, infectious diseases physicians and psychologists. The homeless who had contact with outreach workers from social services and health service were invited to

participate in the study. Thirty-five homeless people took part, 22 men and 13 women. They underwent a physical examination, chest X-ray, gave urine and blood tests, received a dental examination, filled in a self-assessment form (SCL-90) and were interviewed using the Addiction Severity Index (ASI) interview format. They also took part in a tape interview with semi-structured questions about life, including homelessness. Just over half of them had been homeless for five years or longer. Most had a long-term history of misuse of alcohol and other drugs, one third had begun to misuse before the age of 14. Nearly half were infected with hepatitis C. Three were HIV-positive, one of which was a previously unknown case. The chest X-rays showed no signs of tuberculosis. Every fourth person was prescribed daily medication, but half of them had no access to medicines. Three-quarters did not know which clinic they belonged to. Nearly half had a potential psychiatric disorder. The homeless women's self-estimation of their physical and mental health problems was higher than the men's. The most important thing was to obtain help with housing followed by dental care. The interviews illuminated several of the negative aspects of being homeless: "... you are all alone" (a man), "you have no privacy" (a man), "You have nowhere to be…You must always keep an eye open ... "(a woman),"... to be tired and not having somewhere to sleep "(a man), ..." feel that you interfere everywhere, people want you to disappear, you don't belong anywhere " (a woman), "You feel less worthy" (a man). One of the positive developments that resulted from this of the study was the setting-up of a clinic for homeless people in Stockholm (Hållpunkt).

In cooperation with the Division of Social Medicine at KI, the first international scientific article on the dental status of homeless people in Sweden was published at KI (De Palma et al, 2005). The study included 147 homeless people who were interviewed and underwent a dental examination. The results showed that most had very poor dental health, missing several teeth, and in need of several root fillings. Most of them had not been to the dentist for several years, reflecting very poor dental health in this population.

The latest study from the Division of Social Medicine, KI came in 2007 and was an interview study of 155 homeless people, 21% of whom were women (Burström et al, 2007). Among other things, 85% replied that they had a long-term illness, problems after an accident, disability or other weakness. Compared with the rest of the population, there was an over-representation of illnesses linked to substance use problems. For example, 21% of the men and 34% of the women reported having

hepatitis C. The homeless attributed their homelessness situation to their misuse of alcohol and drugs. More women than men (half of the women) had been victims of violence. Despite their vulnerable situation, the majority felt that they could control their lives. The homeless wanted to be treated like anyone else in the population by carers, helpers and the public. A quarter said they did not have someone to turn to if they had problems.

1.2.2 Physical health

The physical diseases and injuries homeless sustain include respiratory disorders, infections, dermatological conditions, fractures and poisoning. One study, which analyses the hospitalisation costs associated with homeless people (18% women) in New York between 1992 and 1993, shows that 20% of them had been admitted to hospital for trauma, respiratory disorders, skin disorders and infectious diseases (Salit et al, 1998). Of 221 homeless people living in shelters in Marseilles, half had at least one respiratory problem, 42 (19%) had chronic bronchitis, 22 (10%) had chronic obstructive pulmonary disease (COPD), and two had tuberculosis (Badiaga et al, 2009). Sixty-eight homeless people living in shelters in San Francisco were interviewed and examined. Of these, 68% were smokers, 24% had asthma, 19% chronic bronchitis, and 4% COPD (Snyder & Eisner**,** 2004). In an interview study of 445 people recently made homeless in New York City, 6% had diabetes, 17% hypertension and 17% asthma (Schanzer et al**,** 2007). Concerning cardiovas-cular diseases, one study shows that homeless people were more likely to have a cardiovascular disease than people who never been homeless (Diez-roux et al**,** 1999). In contrast, one study of 202 people (11% women) living in shelters for homeless in Toronto, who underwent interviews, physical measurements, and blood sampling, shows that hypertension, high cholesterol, and diabetes were no more prevalent than in the general population (Lee et al, 2005). Homeless people are more likely than other groups to engage in behaviours, such as risky sexual practices and injection drug use that place them at risk for infections such as HIV and hepatitis C (Kidder et al, 2007). An interview study of 363 (39% women) homeless people in Dublin, living in temporary accommodation, shows that 6% had HIV and 36% hepatitis C (O'Carroll & O'Reilly, 2008). Homeless people experience a high degree of injuries and physical assault (Zakrison, Hamel, Hwang, 2004) and have a risk for traumatic brain injuries (Hwang et al, 2008). Among 904 homeless (34% women) in shelters in Toronto, 53% had experienced some traumatic brain injury at

some point in their life, and 12% had had moderate or severe traumatic brain injury (ibid.).

In addition to the Swedish social medicine studies presented earlier, other studies of homeless people's physical health had been performed in Sweden. An examination of 229 homeless women's hospitalised health care over a 15-year period (1970-1984) showed that more than one quarter (27%) had received hospital treatment for attempted suicide, two fifths (42%) for various kinds of accidents, including slipping accidents that were dominant, just over one-sixth (17%) for physical abuse and rape and a sixth (15%) for poisoning (Stadig, 1987). According to the 2005 national survey of homeless in Sweden, an estimated 17% had physical health problems (Socialstyrelsen, 2006). A survey of homeless people in Stockholm showed that 3% (2.6% men and 2.8% women) had HIV (Finne, 2003).

Many of the diseases among the homeless are alcohol- and drug-related, such as HIV, hepatitis C, different kinds of injuries, poisoning, diseases of the digestive system, such as liver cirrhosis, as well as diseases of the circulatory system, including heart disease and hypertension (Finnie & Nicolson, 2002; Inciardi, Surratt, Kurtz, 2006; Kramer et al, 2008; Rehm et al, 2003; Salize et al, 1998; Statigos & Katsambas, 2003; Takano, Nakamura, Takeuchi, 1999).

1.2.2.1 Fear that disease can be spread among homeless

One of the diseases that scientists fear will increase and can be spread among the homeless is tuberculosis. Two studies, for example, identified homeless people with tuberculosis, living in different parts of New York and Minneapolis for an extended period, who had infected a large number of people (Curtis, et al, 2000; Kline, Hedemark, Davies, 1995). Scientists also fear that infections can come from the Baltic States and Russia, which have recorded a number of cases with resistant bacteria. For this reason, studies are regularly performed in Europe in shelters for homeless, to examine the prevalence of these diseases and any possible increases (Badiaga et al, 2009). Other diseases that can be spread among homeless intravenous drug-users include HIV and hepatitis C (Azim et al, 2008; Neale, 2008; Zetola et al, 2008). In order to prevent the spread of HIV, a project to prevent the sharing of syringes was implemented in Malmö, Sweden (Sprutbytesprojektet). Unfortunately, the project was unable to prevent the spread, but did have other positive features, such as good contact

between staff and drug-users, a necessary prerequisite for being able to help homeless drug-users (Stenström, 2007).

1.2.3 Mental disorders, including alcohol and drug use disorders

Mental disorders, including substance misuse, are common among the homeless. A meta-analysis of 29 surveys, including a total of 5 684 homeless people from seven western European countries, showed that the most common mental disorders were alcohol dependence, which ranged from 8% to 59%, and drug dependence, which ranged from 5% to 54%. For psychotic illness, the prevalence ranged from 3% to 42%, with similar findings for major depression (Fazel et al, 2008).

The interview study of 363 homeless people in Dublin showed that 51% of them had a depression (O'Carroll & O'Reilly, 2008). Among 104 homeless people in France, who consistently attended a psychiatric emergency clinic over a six-month period, 33% had a psychotic disorder, compared with 16% among non-homeless people (Cougnard et al, 2006). In a study of 10 340 people treated for schizophrenia, bipolar disorder, or major depression by the San Diego County Adult Mental Health Services, 15% were homeless and 20% of these had schizophrenia. Homeless people with serious mental illnesses consumed more inpatient and emergency care and less outpatient care (Folsom et al, 2005).

In Sweden, a large proportion of the homeless population has mental problems, and substance use problems. In the past two Swedish national surveys in 1999 and 2005, the percentage of homeless people with substance use problems decreased from 70% to 62% (2005: 67% men and 46% women). The proportion of people with mental health problems increased from 35% to 40% (2005: 38% men and 47% women). According to surveys carried out by the City of Stockholm R & D unit between 1993 and 2001, the percentage of homeless people with substance use problems increased from 62% to 79% (men from 46% to 81%, and women from 40% to 64%), the proportion with mental health problems, from 17% to 41% (men from 16% to 38%, and women from 19% to 49%), and the proportion of homeless people with both substance use and mental health problems had also increased from 19% to 26% (Ågren, Berglund, Franér, 1994, Ågren et al, 1996; Finne, 1999, 2001, 2003). Among homeless with substance use problems, alcohol was the dominant substance among men (54%), and illicit drugs among women (60%) (Finne, 2003).

It is not only surveys of homeless people that have shown that mental ill-health has increased. Regarding serious mental illnesses among homeless women staying at shelters in Stockholm, for example, a comparison of three studies, over a 50-year period, shows that the proportion of homeless women diagnosed with schizophrenia has risen over the years from 5% (Inghe, 1962 b) to 8% (Beijer, 1998) and finally to 15% (Beijer, 2007).

1.2.4 Mortality

Several international studies show increased mortality among homeless people with a relative risk between 2 and 5 times than that of the general population (Cheung & Hwang, 2004; Hibbs et al, 1994; Hwang et al, 1997; Nordentoft & Wandal-Holm, 2003). Studies conducted in the major metropolitan cities in the United states and Canada have demonstrated high rates of mortality in the homeless population compared to the general population. In Philadelphia, mortality was 3.5 times higher than among the rest of the population (Hibbs et al, 1994). In Boston, mortality among men aged 18-24 years was six times higher and three times higher in the 25-44 age group than in the rest of the population (Hwang et al, 1997). In a study of homeless people living at shelters in New York, mortality was between two and three times higher than the city's population (Barrow et al, 1999). Among homeless people living at shelters in Toronto, mortality in the 18-24 age group was eight times higher and in the 45-64 age group four times higher than men in the general population (Hwang, 2000). Use of illicit drugs and alcohol has been identified as a clear risk factor for death among homeless people, and it has also been brought into question whether homelessness itself has some kind of independent role as a risk factor, assuming that we correct for these confounders (Hwang, 2002).

The relationship between mental illness and excess mortality among homeless people has also been discussed. A three-year follow-up study has been carried out on 265 homeless men with mental illness living rough or using overnight shelters in Munich (Fichter & Quadfieg, 2005). More than 75% had permanent accommodation at the follow-up, but the standard mortality ratio (SMR) was 4.4. One study from Sydney, Australia, reported a SMR of 3.8 for men with the diagnosis schizophrenia compared to those without this illness (Baridge, Buhrich, Butler, 2001). The suicide rate was significantly higher among homeless men with a diagnosis of schizophrenia. A nine-year follow-up of 1 715 homeless, mentally ill veterans in the US shows that those who

had been homeless for one year or less had a higher mortality risk than a non-homeless cohort: the men who at the baseline were age 45 to 54 had a relative risk (RR) of 1.6, and men aged 55 or older had a RR of 1.8 (Kasprow & Rosenheck, 2000).

Five mortality studies of homeless people were conducted in Sweden during the 1970s and 1980s (Alström, Lindelius, Salum, 1975; Borg, 1974; Norman, 1979; Stadig, 1987; Ågren, 1989). The SMRs in these studies were 2 to 4 times higher among men compared with men in the general population, and 9 times higher among women compared to women in general (Table I). This excess mortality was due to violent death and intoxication in connection with substance misuse and poor living conditions.

1.2.5 Gender differences in health and mortality

There is a lack of studies of homelessness and health from a gender perspective. Studies about homeless people have usually reported findings for men and women combined, obscuring important findings related to differences between genders (Robertson & Winkleby, 1996). There are a small number of clinical studies and interviews based studies on that provide information about gender differences in physical health. Two international studies, for example, show that homeless men have higher rates of AIDS (Culhane et al, 2001) and hepatitis C infections (HCV) (Nyamanthi et al, 2002) compared to homeless women. Of 2 577 interviewed people (77% homeless) in San Francisco, being homeless was associated with sexual assault for women, but not for men. Among homeless persons with mental illness, 21% of women and 2% of men reported having been sexually assaulted, and 49% of women and 40% of men reported physical assault (Kushel et al, 2003). Homeless women were also more likely, in comparison to men, to have reported worsening health such as, asthma, depression and anxiety (O’Carroll & O’Reilly, 2008).

In surveys of homeless people in Sweden, more women than men had psychiatric problems, and in Stockholm more women than men misused drugs (Finne, 2003; Socialstyrelsen, 2006). In the pilot clinical study of homeless people in Stockholm, it was found that women experienced more physical and mental suffering than men (Halldin et al, 2001). In the interview study of 150 homeless in Stockholm, more women than men had a physical disease, physical problems after accidents, a disability or another physical weakness (Burström el al, 2007). Thirty-six percent of the men and 16% of the women had musculoskeletal or connective tissue diseases,

26% of men and 38% of the women had infections: hepatitis C (21% of the men and 34 % of the women), and HIV (7% of the men and 6% of the women) (ibid).

In summary, homeless women with mental illness are seen as a more “vulnerable group” than their male counterparts (Cheng & Kelly, 2008). However, to date there is a lack of studies addressing the specific and important question concerning gender differences in mental illness among homeless people.

There is also a lack of studies concerning differences between homeless men and women in mortality. One study shows that homeless women had the same level of mortality as under-45 men, but this was lower in the over-45s (Cheung & Hwang, 2004).

1.3 DEFINITIONS AND EXTENT OF HOMELESSNESS

In this thesis, a homeless person is defined as someone having no fixed abode, owned or rented; having to rely on temporary accommodation options, or living rough. People living in institutions or shelters and who do not have a place to live when they are discharged are also included in the definition. It is the same definition that was used in the national survey of the homeless in Sweden in 1993, and also used in the surveys of homeless people in Stockholm between 1993 and 2001, implemented by the R&D Unit at the City of Stockholm (Finne, 1999, 2001, 2003; Socialstyrelsen 1993, 1994, 1999, 2006; Ågren, Berglund, Franér 1994; Ågren et al, 1997).

However, the definition above is not entirely clear-cut; as demonstrated by the three national surveys of homeless people conducted between 1993 and 2005 by the National Board of Health and Welfare (Socialstyrelsen, 1993, 1994, 1999, 2005). A discussion about who should be counted as homeless ensued, especially after the second national survey of the homeless (Socialstyrelsen, 2006). Therefore, the definition of homeless people that was used in the latest National Board of Health and Welfare survey from 2005 was broader than the definition in the survey in 1999, but more like that of 1993. The 2005 survey also included people living in supported accommodation in which they stay for at least three months, but do not have any accommodation arranged in the event of being discharged or of them moving out at some time in the future. It also included people staying temporarily with friends, family or relatives or people in temporary lodgings or subletting. Because of the broader definition, the number of

people classified as homeless in Sweden doubled from approximately 9 000 in 1999 (22% women) to almost 17 600 (26% women) in 2005. The largest number of homeless people is found in Stockholm and Gothenburg. About one third of all homeless people in Sweden can be found in Stockholm. Apart from the increase in the proportion of homeless women, the proportion of homeless people born outside the Nordic region has also increased, from 14 to 32%, with the proportion varying between large and small municipalities. A fifth of homeless people in 2005 (3 600 persons: 2 700 men and 900 women) were living outdoors or at shelters for the homeless. Since the 1999 survey, the number of men in this group had declined by 12% and the number of women had increased by 12% (Socialstyrelsen, 1999, 2006).

According to the surveys of homeless people in Stockholm during 1993-2001, conducted by the City of Stockholm R&D unit, and also partly according to the national surveys, the number of homeless people in Stockholm during this period can be estimated at around 3 000 people, with an uncertainty margin of a few hundred people (Finne, 1999, 2001, 2003; Ågren, Beijer, Finne, 2000; Ågren, Berglund, Franér 1994; Ågren et al, 1997). During the period 1993-2001, the proportion of women had increased from 17% to 23%, and between 1999-2001, the proportion of homeless people born outside the Nordic region had increased among the men (from 13 to 16%) and among the women (from 8 to 12%).

The homeless population in Sweden consists of people who are living outdoors/rough, living in temporary homes and institutions, and those living in "trial apartments" (temporary apartments where the homeless can reacclimatise themselves to having a home). In neighbouring Denmark, the national survey conducted in 2007 used a similar definition to the one used in the Swedish survey from 2005 (Benjaminsen & Christensen, 2007). Among the homeless population in Denmark, the proportion of women was 20%. In Sweden and in Denmark, about 0.1% of the populations are homeless. Other countries have slight narrower definitions of homelessness, including people who are living outdoors/rough, living in shelters, living in supported accommodation, institutional accommodation, bed & breakfast, and living with third parties temporarily, but nevertheless report more homeless people. For example, in the United States, the homeless population can be estimated at between 0.2 and 0.7% of the population, in Australia approximately 0.5% and in France 0.4% (Almanac of Policy Issues, 2009; Australian Bureau of Statistics, 2009; Edgar, Doherty, Meert, 2003;

HUD, 2009). A large proportion of homeless populations are women. In the United States, for example, about 25-37% are women (HUD, 2008).

1.3.1 Mainly single homeless in Sweden

The homeless population in Sweden consists mainly of adults over 18 years, single persons or couples. The average age in the 2005 survey was 41 years, men 42 years and women 39 years (Socialstyrelsen, 2006).

There are a small number of families in Sweden, mostly in Malmö, who live in hotels or hostels (Andersson & Swärd, 2007; Socialdepartementet, 2004). There are also teenagers who have run away, escaped from a hostile home environment or been thrown out by their parents and for a shorter or longer time are acutely homeless, living in the streets or temporarily with friends (Ring, 2008; Sjöblom, 2002). Occasionally, families with children are evicted (Flyghed & Stenberg, 1993; Socialdepartementet, 2004), although the Swedish Social Services Act (SoL) is intended to safeguard against this.

In other, non-Nordic countries, children and teenagers are included in the homelessness population. In the United States, 34% of the homeless were families (Burt et al, 1999). In Australia, 26% were estimated to be homeless families with children (26,790 people), 12% were children under 12 years of age (Australian Bureau of Statistics, 2009).

1.3.2 The length of homelessness

Some of those included in homelessness studies and surveys are not necessarily suffering from chronic homelessness. In the Swedish National Board of Health and Welfare survey from 2005, two fifths had been homeless for less than 12 months (35% men and 43% women) and 12% had been homeless for more than 10 years (13% men and 9% women).

Among people who had lived in shelters for homeless in Stockholm, the proportion with longer homelessness was higher: between 21-55% of the women had been homeless longer than 5 years (Beijer, 1998; Halldin et al, 2001) and between 50-55% of the men (Halldin et al 2001; Beijer, 2003). In a study of 150 homeless people, 40% had been homeless over 10 years (Burström et al, 2007).

1.4 WHY HOMELESS?

1.4.1 The homeless - a marginalised group

People who for a short or longer time live in a socially marginalised situation, including beggars, the homeless, etc., have been studied and discussed for a long time (e.g. Stonequist 1937, 1964; Svedberg 1994, 1997). On the one hand, such a marginalised person can be considered an outsider, an element at odds with a homogenous culture. Some people think that they should make a choice and either reject their marginalised status and strive to become a full member of the culture from which they have been excluded or voluntarily break away to live a care-free existence outside of society. On the other hand, the marginalised person can also be seen from a traditionally materialistic perspective, where the socioeconomically disadvantaged are seen as victims of poverty and underpaid work (ibid). Regardless of the explanation, the concept of "marginalisation" implies that there is something from which one is marginalised. The homeless are seen as marginalised in relation to the social norms of having one's own home, be it owned or rented. Being marginalised can also be seen as a position between two points: "Not marginalised" and "Beyond marginalisation" (Svedberg 1994) (Figure I).

Becoming homeless can be described as a *marginalisation process*: away from security (assuming one has had one's own home), via marginalisation (living in an institution) to, in a worst-case scenario, being beyond marginalisation (living rough/in a shelter). For a person who is already marginalised, who either at some time in the past was secure or has never been in a position of security, the process can work in the opposite direction, towards security, an "anchoring" process, towards having one's own home. Even for someone who is down-and-out, the process may work in the direction of security on the housing market via the marginalisation position.

Figure I. Marginalisation as a position between “not marginalised” and “beyond marginalisation”.

The efforts offered to homeless people in Sweden, as regards having a roof over one’s head, may include hotel or shelter, accommodation in an institution, trial apartments. Often, the homeless people involved must be drug-free before they can be transferred from a shelter to an institution, or undergo treatment for their misuse, and thereafter be completely alcohol/drug-free for a long period of time before being given an trial apartment (an apartment rented by social services, in which a homeless person lives and has the option, if all goes well, of taking over the rental tenure). The way to security is seen as a kind of ladder that homeless people have to climb, qualifying for the next rung on the ladder, which we might call the ”ladder of dignity”, where society deems the person worthy of receiving the next type of accommodation (Beijer 1999, Sahlin 1996). If the person fails as she progresses up the ladder (i.e. falls back into misuse or becomes mentally ill), she may have to start again, right at the bottom (in a shelter). Research shows that social policies and measures in support of homeless people are not always successful (Löfstrand, 2005; Blid, 2008). Certain measures, where homeless people are given specific support to maintain independent living (category housing) have been more successful, and increased the likelihood of achieving own accommodation (Blid, 2008). The research also shows that giving homeless people with a misuse problem or mental disorder their own home immediately, “housing first”, rather than them having to climb the ”housing ladder”, can be a more successful measure (FEANSTA, 2008; Tsemberis, Gulcur, Nakae, 2004).

But if we keep to the currently prevailing social paradigm for homeless people, I would like to give an example here (Figure II) of the different situations a group of homeless people might find themselves (Beijer, 2003, Socialstyrelsen, 2004).

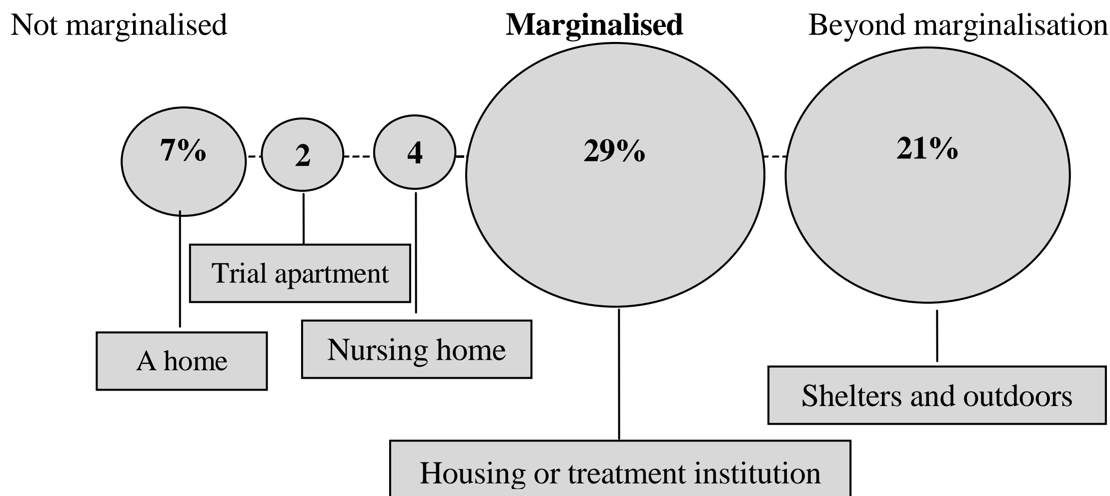

Figure II. The housing situation at follow-up of the men in Paper I in this thesis (Beijer, 2003, Socialstyrelsen, 2004)

Paper I of this thesis presented a five-year follow-up of a selected, especially vulnerable group of homeless men. These men were contacted by an outreach team from the Stockholm social services who tried to put them in touch with the medical or social services. At the baseline (1996), most of them had lived in a shelter and over half (55%) had been homeless for more than five years. At the follow-up, a fifth of the group had died. Of the remaining 63% who were still alive, still in Sweden and whose situation was known, the vast majority were still homeless and therefore could be described as being in a marginalised position or even beyond marginalisation (Figure II). Figure II reflects to a great extent society's failure, when so many in an extremely vulnerable group were still marginalised or beyond marginalisation at follow-up.

Being homeless for a long time also affects the individual's democratic participation. According to Michael Rowe (1999), there are three levels of citizenship: (1) full citizenship where people have strong and psychological links to society, (2) second-class citizenship with a marginal relationship to the rights, responsibilities and resources that society offers people through, for example, public and social institutions and (3) non-citizenship where individuals are excluded or have themselves broken away from society. The important thing for homeless people, according to Rowe, is that they don't remain in a limited homelessness system but become ex-homeless people and reach full citizenship.

1.4.2 Structural and individual factors

Both structural factors, such as the housing market, labour market, social insurance system, social services and health service, and individual factors, such as level of education, personal aims, values, experience, health, actions and non-actions, influence the marginalisation or anchoring process (Figure I).

Structural factors, such as a universal welfare system, including access to housing, reach even the most vulnerable groups in Swedish society. Examples of this include the housing construction project known as the "million homes programme" in the 1960s and 1970s and the measures implemented to help homeless people that resulted in a significant drop in their numbers in Stockholm during the 1970s and 1980s (Ågren, Berglund, Franér, 1994).

Individual factors, such as health and education, are to a certain extent dependent on structural factors. For example, it must be possible for children and adolescents to grow up in safe and secure conditions, free from poverty, with good-quality childcare and good after-school care. They must also have access to environments where they can discuss values with responsible adults who set a good example, such as teachers and recreation leaders, thereby gaining positive experience, so that they can make good choices in life, avoid drugs, etc. Irrespective of this, however, there are still individual factors that affect whether a person becomes homeless or not, such as negative experiences as children and adolescents (Lu et al, 2008), genetically inherited shortcomings or weaknesses that affect their chances of being able to function in an ever-tougher society, for example being able to obtain and keep a job or place to live (Oakes & Davies, 2008).

1.4.3 Substance misuse and mental ill-health – contributory factors to homelessness

The importance of good conditions during childhood and adolescence is also born out in the Swedish clinical social medicine pilot study of 35 homeless people (Halldin et al, 2001). Almost three-quarters of the subjects had experienced substance misuse, mental illness or physical abuse in the parental home. Another finding from the same study was that about 40% of the homeless people had started to use alcohol and drugs before the age of 15. The occurrence of substance misuse prior to homelessness was also documented in a doctoral thesis from Karolinska Institutet on the subject of dental health among the homeless (De Palma, 2007).

Since between two-thirds and three-fourth of the homeless population in Sweden have substance misuse problems, it is probably the single most tangible reason why people are homeless. In the National Board of Health and Welfare's survey of homeless people in Sweden in 2005, the question was asked of data providers what they thought was the reason why the people were homeless. Several response alternatives could be given, but substance misuse was quoted as the primary cause, 60% of the homeless (65% men and 44% women) (Socialstyrelsen, 2006). How widespread the misuse was prior to homelessness for the entire homeless population is however unknown. In a homeless situation, it is difficult, not to say impossible, to reduce or cut out the misuse. On the contrary, the homeless situation in itself contributes to an increase in substance misuse; for example using central stimulants to stay awake and hence avoid being physically abused or raped (mostly women), or interacting with "homeless comrades", who are only too pleased to share their alcohol (Beijer, 1998, 2003).

Another major tangible difference in the homeless group in general, compared to the rest of the population, is that so many of them are mentally ill or have serious mental problems. The National Board of Health and Welfare's 2005 survey of the homeless in Sweden indicated that mental ill-health was the second-most common cause of homelessness (35%: 34% men and 39% women) (Socialstyrelsen, 2006).

The homeless situation, especially when it includes alcohol and drug use, hardly improves their mental health. Conversely, it is difficult to enjoy better mental health when homeless, including administering any medicine one may have received (Halldin et el, 2001).

1.4.4 Other causes of homelessness

Other causes of homelessness, apart from obvious substance misuse problems or mental ill-health, included, according to the 2005 survey, failure to pay off debts, being evicted, a housing shortage in the municipalities (Socialstyrelsen, 2006).

One cause of homelessness, especially for women, is also domestic violence. In, for example, the United Kingdom, 40% of all homeless women stated that domestic violence had contributed to their homelessness (Women's Resource Center, 2007). Among Swedish homeless women there are also people who previously had a fixed abode but for one reason or another had to leave their homes for a short time and stay in a homeless shelter (Beijer, 1998; Christophs, 1997). It may be a woman with an

abusive, aggressive son who refuses to leave the apartment, thereby forcing the mother to spend a short time in a shelter (Beijer, 1998). Or, it may be a migrant woman fleeing from an aggressive husband (Beijer 1998; Christophs, 1997).

It may also be a case of a mentally ill person setting fire to her apartment and therefore living in a shelter while the apartment is being renovated (Beijer, 1998).

1.5 THE SUPPORT SYSTEM FOR HOMELESS PEOPLE IN SWEDEN

The support system for homeless people in Sweden comprises three main actors: the social services (1), the health service (2), and NGOs, private entrepreneurs and other organisations (3).

The municipal social services (1) are responsible for helping people/the homeless according to the Swedish Social Services Act (SoL). Under Chapter I, Section I of this Act: "Public social services shall, on basis of democracy and solidarity, promote people's economic and social security, equality of living conditions, and active participation in the life of community…". Through social services, the homeless receive social benefits, a roof over their head /shelters for homeless/temporary housing institutions, and treatment for alcohol and drug problems. Many municipalities also have outreach workers targeting the homeless.

The health service (2) provides universal healthcare to everyone including the homeless, and the aim under Chapter I, Section II of the Swedish Health and Medical Services Act (HSL), is "… good health, and are on equal terms for the entire population. Care should be given with respect for the equal value of all people and for the dignity of the individual. Priority for health and medical care shall be given to the person whose need of care is greatest (1997:142)". The homeless have poor contact with outpatient clinics and often end up in hospital (Culhane, Averyt, Hadley, 1997; Halldin et al, 2001; Hwang, 2001, Rosenheck & Lam, 1997). In addition to access to health services and hospital care, in Stockholm, since 2002, there is a medical clinic for homeless (Hållpunkt) that also includes a dental clinic. Stockholm County Council has also two mobile medical outreach teams for the homeless.

NGOs, private entrepreneurs, and other organisations (3) provide, among other things, day centres, shelters, and temporary housing. Homeless accommodation in shelters and temporary housing institutions is mainly paid for by the social services.

Many homeless people have regular contact with all three of the abovementioned actors (Beijer, 1996, 1997, 1998, 2001). Typical for most homeless people is that in addition to suffering substance misuse and mental illness, they are also poor and have no economic resources of their own apart from perhaps a low sickness or old-age pension (Finne, 2003). Probably the most important actor for the homeless, as regards obtaining enough money to eat for the day, finance trial/attempt-apartments and institutions, and expensive misuse treatments, is the social services. Without contact with a social services administrator, it is basically impossible for a homeless person to obtain financial help and hence escape homelessness. Since a large number of homeless people have substance misuse problems and are physically or mentally ill, many of them also have contact with the health service, often in the form of emergency hospital care. Because of their major health problems, it is impossible for many homeless people to get well without contact with the health service. Many also have contact with various voluntary organisations and others who support homeless people. Sometimes, voluntary organisations can identify and help homeless people who otherwise might not be identified by the social services and health service. Cooperation between voluntary organisations and the social services can vary across Sweden (Nordfeltd, 1999). The various actors often cooperate successfully. In urban areas, many people are involved in helping the homeless (Beijer, 1996, 1997, 2001; Nordfeltd, 1999). There is in certain cases a risk of the help being counterproductive if the homeless person is not actively encouraged to contact a social services administrator to apply for financial support (Beijer, 2001). It is therefore very important that these actors cooperate so that homeless people can obtain the help to which they are entitled.

Cutbacks implemented in the public sector, in the social services and health service, also affect homeless people (Halldin, 2000). In such a scenario, fewer homeless people can have treatment for their substance misuse (Beijer 2003; Socialstyrelsen 2004).

1.6 GENDER PERSPECTIVE

Employing a gender perspective implies, first and foremost, that results in studies containing both genders are presented and analysed for men and women separately, without bias towards either. That is, unless the purpose is to perform a feminist analysis of the material, to clarify the position of women in relation to men. A common problem in the presentation of results in scientific studies where both men and women are included has been to report the results for the whole group together - not least in the medical literature (Hammarström, Hovelius, Wijma, 2004; Karlsson, 1999). Research into women's issues has questioned the gender neutrality and objectivity that have been characteristics of medical research (Bexell et al, 1985). There has been opposition from the positivistic dominant medical academia against research based on a gender perspective (Hammarström, Hovelius, Wijma, 2004). Many studies of health among the homeless, for example, have examined far fewer women than men resulting in the reported findings for the whole group being basically only for men. The man is the norm. In these studies, the results of women disappear (Robertson & Winkleby; Wamala & Lynch, 2002). However, adopting a gender perspective in medical and public health research is a new area where the researcher is aware of the previously existing order, that the man was the norm, and of the fact that research had not reflected women's health and life (Hammarström, 2002).

Adopting a gender perspective is not only a matter of showing results from men and women, but also to see, compare and analyse the differences between them, in some respects to view the two genders' varying living conditions. In this thesis, we can compare homeless men with homeless women.

While epidemiological cohort studies reveal a great deal about men's and women's living conditions, they can not tell us everything (Jackson, 2003). All methods have their limitations. As this is a doctoral thesis consisting mainly of epidemiological studies, it does not give the entire picture of homeless men and women's health, but it goes some way towards doing so.

In three articles in this thesis, the results are clearly presented for both men and women (Papers II, III, IV). The first article, however, is all about men. Can this article also be approached from a gender perspective? And in two articles (Papers II and III), and partly in one (Paper IV), there are comparisons also drawn between homeless men and men in the population, and between homeless women and women in the population. To

complicate matters, the concept of gender research also includes, especially in field of social science and in the feminist tradition, discussions of power, and the balance of power in society, which include the scientific paradigm Critical Theory (Guba, 1990). It is well known that women earn less than men, have less influence in society and receive, in many cases, worse health care (Gunnarsson & Schlytter, 1999; Vetenskaps-rådet, 2004; Wamala & Lynch, 2000). When talking about adopting a gender perspective, i.e. comparing the two sexes, this will be seen as entirely logical, but comparing different groups within the same sex may be difficult to link to a gender perspective. Yet it is also a way of conducting gender research and adopting a gender perspective, because it takes into account the balance of power, the conditions of the biological sexes and their social role in different situations, including social class, socioeconomic position, housing situation and race/ethnicity (Dominelli, 1997; Gunnarsson 1993; Schulz & Mullings, 2006; Wamala & Lynch, 2000) Comparing homeless men with men in the population and homeless women with women in the population gives us an idea of homeless men's living conditions and power in relation to men in the population, and homeless women's living conditions and power in the society in relation to women in the population.

1.6.1 The gender perspective in homelessness

Both men and women are in a vulnerable situation as homeless people. The word "homeless" was basically synonymous with "homeless, alcoholic, middle-aged men" throughout the twentieth century. The "new" homelessness, a concept that emerged in the US during the 1980s and which also included women, children, migrants, the mentally ill and wage-earners began to be discussed among researchers (Järvinen, 1995). The fact that women have to a large extent been invisible also reflects society's interventions throughout the twentieth century as regards homeless women in Sweden (Beijer, 1998). The needs of women were often subordinate to interventions directed at homeless men. Both regarding homelessness and in relation to society in general, women were often forced to live on men's terms. They were, for example, expected to share homeless shelters with men when there were no shelters exclusively for women (ibid.). This subordinate status of women persists even today, even though the situation and the interventions for homeless women have improved slightly. A case in point is when the Stockholm social services, who started an Agency for Homeless Men in 1964, took the initiative to start a Section for Homeless Women in 1994.

Being a woman and homeless in Sweden has been studied by several researchers (Beijer 1998; Hanström, 1991; Rosengren, 2003; Thörn, 2004). Since men were previously the norm for homeless people, as if men enjoyed some exclusive right to be beggars and tramps or be otherwise marginalised in society, the contrasts are much greater when women become homeless. The woman is the one who has traditionally taken care of the home and the children. According to Hanström (1991), in her thesis on substance-abusing homeless women, the home is of much greater significance for women than for men. But it may be more complicated than that. According to Thörn's thesis (2004) about homeless women, to have a home is also about power, the right of privacy, to keep out and to invite. To have a home is also important for homeless men, the right to have what everyone else has (Beijer, 2004). Often, women have cohabited with men prior to eventually seeking help for their predicament (Beijer, 1998). The subordinate status of homeless women compared to men has also led to them being the subject of physical and sexual abuse, often by those closest to them, i.e. their homeless boyfriends (Beijer, 1998). Physical and sexual abuse also cause physical and mental suffering, but there are also studies indicating that the subordinate status of homeless women has also led to them being encouraged by their boyfriends to become drug addicts and via hypodermic syringes fall more easily victim to diseases such as HIV (Epele, 2002). Both women and men may have children and both men and women miss their children, but the shame of not managing to be a good mother seems to be much greater for homeless women (Hanström, 1991).

Similar to other research, research into homelessness has had the man as the norm. It still seems as though women just "tag along" in the studied homeless research groups, are referred to as "sub-groups" or their numbers are so small that the results are not worth mentioning. One researcher who recognised the needs of both homeless men and homeless women at an early stage was Gunnar Inghe, a pioneer in this field, who also performed a study on homeless women in the early 1960s (Inghe, 1962b).

Where it is possible to make present-day comparisons between homeless men and women in Sweden, we can see that as a rule, men are on average older than women, are more often alcohol misusers and are homeless for longer. On the other hand, more women than men are drug misusers, have mental problems (Finne, 2003; Socialstyrelsen, 2006) and experience a greater degree of physical and mental ill-health, (Burström et al, 2007; Halldin et al, 2001).

As regards their chances of exiting homelessness, there seems to be a difference between the sexes. Despite that more women than men have mental problems they have better chances of exiting homelessness. A follow-up of 800 homeless people who had lived in shelters in Denmark shows that women who have mental problems or are alcohol misusers find it easier to get out of homelessness and revert to a normal housing situation (Christensen & Vinther, 2005).

2 AIMS OF THE THESIS

The main objective of the thesis is to study the association between homelessness and health in a gender perspective. A sub-aim is to study the association between homelessness and mortality, cause of death, and utilization of care.

The key research questions are:

- How does the disease panorama of homeless men and women compare to that of men and women in the rest of the population?
- Are there any gender and age differences as regards physical and mental illnesses, including care for alcohol and drug misuse among homeless people?
- Is there a relationship between mortality, alcohol/drugs and homelessness?
- Are there any gender differences in mortality and causes of death among homeless people?
- What is the life situation of a vulnerable group of homeless men with mental problems five years after an intervention?

3 MATERIALS AND METHODS

3.1 STUDY DESIGN AND MATERIALS

In this thesis, groups of people identified as homeless have been followed over time in different registers with regard to morbidity and mortality. Paper I is a five-year follow-up study of 82 homeless men whom an outreach group from the Stockholm social services met on the streets and at shelters in 1996 and whom they helped to get to hospital, come into contact with a social services administrator and even acquire temporary accommodation. The outreach group's task was to seek out and help those who seemed to have some kind of mental problem, with or without alcoholism and drug addiction, who were finding it difficult to utilise the social help systems available to them. The group of men was a particularly vulnerable group from the homeless population, the majority of whom, at the baseline, were either living at a shelter or sleeping rough, and 55% of whom had been homeless for more than five years. At follow-up, five years later in 2001, the men were traced via the tax authorities and the social services (outreach groups and administrators) with the aim of conducting a personal interview with them. The men were also traced in hospital inpatient registers, death and cause of death registers, and in social services registers.

Papers II and III are epidemiological cohort studies of the consumption of hospital inpatient care for physical diseases and injuries (Paper II) and the risk of having mental disorders, including alcoholism and drug addiction, among those who were in hospital (Paper III), comprising 1 704 people (20% women) who were documented as homeless during 1996 and known to the Stockholm social services. All the men and half the women were receiving help from social services homeless people's unit, but in order to increase the proportion of women in the cohort, the study also included women who on at least one occasion in 1996 had visited the City of Stockholm's Women's Hostel (Hvilan). The women from the hostel did not differ significantly from other women in the homeless population or in this study's cohort other than the fact that they were slightly older (mean±SD age: 40±11) than the women from the Social Welfare Office for the homeless (37±12 years). One fifth (20 %) of the women at the hostel (39 out of 192 women) were also known to the Social Welfare Office for the Homeless. It is common for homeless women and men to stay the night at a hostel/shelter now and then. An earlier study of women at the hostel showed that one fifth (19%) only stayed there for a total of just *one* night in total over the survey period of two years (1995-

1996) and a quarter (24%) had stayed there between 2-9 nights at the shelter (Beijer, 1998). The inpatient data for the homeless group, between 1996 and 2002, for physical diseases (Paper II), and mental illnesses, including alcohol and drug problem (Paper III), was compared to an age-matched control group consisting of 5 000 people (25% women) from the general population.

Paper IV is a mortality study of 2 285 people (23% women) who were documented as homeless at some time during the period 1995-1997. Even here, all the men and half the women were receiving help from the homeless unit and in order to increase the proportion of women in the cohort, the study also included women who on at least one occasion in 1995-1996 had visited the City of Stockholm's Women's Hostel (Hvilan). The follow-up of mortality and causes of death is valid up to and including 2005.

3.2 DATA COLLECTION

Baseline data on the 82 homeless men followed up in Paper I, has been documented in a study (Beijer, 1997) and information has been collected both from the Stockholm social services outreach group, which had contact with the men during 1996, and from the men's social services administrator. Following up a very vulnerable selected group of homeless men, most of whom had some form of mental illness, after five years is difficult and complicated, especially when the aim is to conduct personal interviews with as many of the men as possible. The men were traced during the follow-up year (2001) via the tax authorities, the social services outreach group and social services administrators. I myself, together with a social worker, tried to come into personal contact with the men. One fifth of them (16 men) had died (Table II). Regarding some of the survivors, the social services administrator advised against personal contact as they were by that time suffering from serious mental illness and were now receiving inpatient psychiatric care and treatment. Personal contact was successful with about 20 of the men, three of whom did not turn up to the interview. The men were interviewed (with a tape recorder) at various shelters in Stockholm, in the social services offices, in cafés or at treatment facilities somewhere in Sweden. About 50 of the social services administrators who were still working with the surviving men were also interviewed (by telephone and questionnaire). The interview form for the men contained semi-structured questions and the questionnaire circulated to social services administrators contained both structured and semi-structured questions. The interviews covered issues

such as their current housing situation, their housing situation over the last five years and contacts with the authorities and health service (Beijer, 2003). In total, the housing situation for 52 out of 61 men who were still alive and in Sweden could be identified at follow-up (Table II). More details of the institutional housing situation between 1996 and 2001 for three-quarters of the men who were still homeless could be obtained from internal social services registers (Figure II, page 11). Data regarding health conditions (diagnoses) and health care utilisation (number of days in care and hospital admissions, in-patient data 1985-2000) were collected from the Hospital Discharge Register maintained by the Centre for Epidemiology at the National Board of Health and Welfare, which includes information on all individual discharges, including the date of admission and discharge and a principal discharge diagnosis, coded according to the International Classification of Diseases (ICD-8, ICD-9, and ICD-10).

Table II. Situation of the 82 men at the follow-up in 2001, in number.

	Died	Emigrated	Lived and in Sweden
Still homeless			46
Not homeless			6
Unknown situation			9
Total	16	5	61

The cohorts in Papers II, III and IV have been put together, using their individual social security numbers, from social services journals and consist of people who were documented as homeless at the Unit for Homeless People (all the men and about half the women) and at the Stockholm City Hostel for Homeless Women (Hvilan) during the period 1996-1997. The cohort in Paper IV covers the entire sample population, 2 285 people (23% women), who were homeless at some point during the period 1995-1997. Papers II and III include those in the sample population who were homeless during 1996, 1 704 (20% women). These have been compared to an age- and gender-matched control group drawn from the general population consisting of 5 000 people. In Papers II, III and IV, records were matched with databases maintained by Statistics Sweden, from which data about citizenship, income for the year 1996, and marital status could be collected for the homeless group. Information on citizenship, income for 1996, and marital status for men and women in the Swedish general population was also collected from Statistics Sweden.

Data on healthcare consumption (inpatient data 1996–2002 for Papers II and III, and inpatient data 1985-2005 for Paper IV) and health status (diagnoses) were collected from the Hospital Discharge Register maintained by the Centre for Epidemiology, National Board of Health and Welfare. This data contains information on all individual discharges, including dates of admission and discharge and the principal discharge diagnoses, coded in accordance with the International Classification of Diseases (ICD). To give a description of the characteristics of the different age groups at death, in Paper IV, information on all psychiatric inpatient care, including alcohol and drug treatment, was included. Hospital care consumed after the entry of observation and until death, was also included.

In Papers II and III, the data contains ICD-9 and ICD-10 codes, but follows the chapter division of ICD-10. Paper II also features the concept of alcohol-related physical injuries comprising the diagnoses ICD-10: E24.4, G31.2, G62.1, G72.1, I42.6, K29.2, K70, K86, T51. Paper II includes people who were admitted to hospital care for physical diseases or injuries, according to principal diagnoses. Paper III includes people who were admitted to hospital care for mental diseases, including alcohol and drugs, according to principal and secondary diagnoses. Both principal and secondary diagnoses were included in this paper for measuring prevalence and relative risk (RR) in order to reach all alcohol and drug diagnoses that sometimes are found in secondary diagnoses. When measuring prevalence of hospital days, only principal diagnoses were used.

In order to follow morbidity, in Paper III, in relation to hospitalisation for alcohol and drug misuse (ICD 9: 291–292, 303, 304–305X, ICD 10: F10-19), and according to principal and secondary diagnoses during 1996-2002, the homeless men and women and men and women in the controls were subdivided into two risk groups, drugs and alcohol. Those who had at some point been hospitalised for drug problems were included in the “drugs group” (49 per cent of that group had also been hospitalised for alcohol). Those who at some point had been hospitalised for alcohol, but had *not* been hospitalised for drugs, were included in the “alcohol group”. Of those hospitalised, the risk group includes most of the homeless group (78% of the women, and 91% of the men), but not so many of the controls (18% of the women and 52% of the men).

In Paper IV, a comparison was also drawn between homeless people and people the general population who had undergone inpatient care for an alcohol-related diagnosis in 1995 in Stockholm County.

Data on deaths in Papers II, III and IV, and cause of death in Paper IV was collected from the Cause of Death Register, maintained by the Centre for Epidemiology, National Board of Health and Welfare.

3.3 ETHICAL CONSIDERATIONS

Studying the lives and health of homeless people quite clearly has ethical connotations. First of all, the group comprises vulnerable people, many of whom are addicted to alcohol and/or drugs or are mentally ill. Secondly, it is difficult to come into contact with the group, since most of them have no fixed abode. Some research into the group is nevertheless necessary in order to put men and women living in such a vulnerable situation in the spotlight and thereby be able to give them the help they need. Otherwise, there is a risk that shortcomings that exist in society, that society do not wish to see, will not be rectified. Based on this reasoning, the large-scale cohort and register studies in Papers II, III and IV are easiest to justify. The five-year, more individual follow-up of the 82 homeless men in Paper I is a more sensitive issue, however, since the information did not reach all of them and they therefore did not have the chance to agree to or reject participation. Despite this, it is important to increase the amount of knowledge we have on the lives and health of extremely vulnerable homeless people and research that follows up results of social interventions is particularly meaningful. The projects have been approved by the Research Ethics Committee at KI.

3.4 STATISTICAL METHODS

To estimate the mortality rate for the whole group, different age groups, and different risk groups in Paper I, Standard Mortality Rate (SMR) analyses were used, with a confidence interval (95% CI). The material was age-standardised against the general population of men in Stockholm in 2000. The material was divided into the average number of people in the 10-year age groups during the monitoring period. A Cox's proportional hazards model was used to analyse the differences in death risk between

those who had been homeless for 5 years or more at the baseline and those who had been homeless less than 5 years at the baseline. Age was used as the time scale.

In Paper II and III, data is presented as prevalence and risks. The risk for the homeless group, men and women, of being hospitalised (Paper II), and having various diseases (Paper II and III), in relation to the control group, were measured in relative risk (RR) and with a 95% confidence interval, based on person-years (PY), taking into account the number of deaths throughout the period. Employing a Poisson regression model by chi2-calculation, we analysed how much of the inpatient care can be explained by income, citizenship and marital status within the homeless group.

In Paper IV, the mortality rate was estimated for the whole group with regard to gender and age, and a comparison was made with the total population. Risk of death was calculated for the risk indicators alcohol and drug problems, mental illness and immigration from other countries. A special comparison was made with people who have undergone inpatient treatment for an alcohol-related diagnosis during 1995 in Stockholm. Information concerning these people has been taken from the patient registry, which covers all inpatient episodes in Stockholm hospitals. The material was age-standardised against the general population of men and women in Stockholm in 2000. The material was divided into the average number of people in the five-year age groups during the monitoring period (the average number of people at the beginning and at the end of the follow-up period) except 18-19-year-olds who formed a separate group (there were no people under the age of 18), and 75-92-years-olds who also formed their own group (when there were too few people in the various five-year age groups). The year 2000 was chosen because it lies roughly in the middle of the follow-up period. The age-standardised number of deaths was calculated per unit of time and compared with the number of deaths per population age 18-92 years (general population) in Stockholm County (SMR). Bivariate analysis with Cox-regression (relative hazards) was first calculated for the various background variables (risk indicators). Inpatient data for psychiatric diagnoses, for alcohol diagnoses, and inpatient data for drug diagnoses, citizenship and sex were used as background factors. Analyses with and without controls for age were performed. Those controlled for age can be considered to be the most reliable.

4 MAIN FINDINGS

4.1 PAPER I. MORTALITY, MENTAL DISORDERS AND ADDICTION: A 5-YEAR FOLLOW-UP OF 82 HOMELESS MEN IN STOCKHOLM

The main findings in this study are the high mortality rate for the whole group (SMR 4.7), compared to other studies of mortality among homeless men. The highest mortality was found in the group where drug addiction was dominant; 46 % had died (SMR 52.6). This may not be so unexpected, as they are a vulnerable population with high-risk substance misuse behaviour, nor that the causes of death for the whole group were alcohol and drug-related. More unexpectedly it was found that in the group with severe psychiatric disorders, such as schizophrenia, none had died. Compared with the others, this group had spent less time in homelessness and had, on average, been in inpatient care for a considerably greater number of days than the other groups taken together. Among the survivors (80% of the whole group), 75% were still homeless at the follow-up. An analysis of the men who were still homeless shows that the number in shelters had more than halved, but the number of men in temporary accommodation in institutions or in nursing homes and institutions with a high capacity to provide social care had increased. These men certainly had a better life, but they were too old and too sick to be active on the housing market. Three quarters of those still homeless had been homeless for more than 10 years at the follow-up. During the follow-up period, half of the men had been in compulsory treatment programmes for people with substance misuse. Among the still homeless, the mental health problems combined with substance use problems had increased from 26 men (56% of 46 men) at the baseline to 34 men (74%) at the follow-up. For 78% of the still homeless men, a more in-depth analysis was made for the whole follow-up period. During the periods when they were not residents in social services founded residential or treatment institutions (exclusive of shelters for homeless), 81% were admitted for hospital inpatient care (primarily for substance-misuse-related problems, but also for mental health problems). This can be compared with the periods when they were residents in these institutions, during which only 19% were hospitalised. An association between the length of homelessness and mortality was found, and there was a strong correlation between excess mortality and substance misuse, especially illicit drug misuse.

4.2 PAPER II. PHYSICAL DISEASES AMONG HOMELESS PEOPLE: GENDER DIFFERENCES AND COMPARISONS WITH THE GENERAL POPULATION

The risk for 1 364 homeless men and 340 women of being hospitalised for physical diseases and injuries was double that of the men and women in the control group from the general population (RR 1.93 for men and 1.96 for women). The proportion was half of the homeless men and women (51%, respectively 50%), and just over one quarter of the men and women in the controls (29%, respectively 27%). Homeless women had a slightly, though not significantly, increased risk compared to homeless men (RR 1.1), but younger homeless women, at the baseline 18-36 years old, had a significantly higher risk (RR 1.6). Among diagnostic categories, the highest prevalence was found in the diagnosis group injury/poisoning (22% of the men and 20% of the women). The highest risk was found for skin diseases (RR 37.0) and concerned homeless women compared to women in the controls. The highest risk for homeless women compared to homeless men, was found in the diagnostic category diseases of blood, including anaemia. The highest risk for homeless men compared to men in the controls was found in skin diseases (RR 9.0), and the highest risk compared to homeless women was found in circulatory disorders (RR 1.1). Looking at the various sub-diagnosis groups, homeless men had highest risk in ischaemic heart diseases (RR 5.4) compared with homeless women, and compared with men in the controls the highest risk was found in hepatitis C (RR 33.5). For homeless women, compared with homeless men, the highest sub-diagnosis were found in diseases of the genital organs/tract, and compared with women in the control, the highest risk was found in viral hepatitis (RR 84.5). New findings, in this study compared to international studies, were also that more women than men had hepatitis C (HCV). Many of the diseases were related to the misuse of alcohol and drugs. Alcohol-related physical injuries and diseases were higher for homeless men compared to homeless women. Both homeless men and women were in very poor physical health, but homeless men had a high prevalence of more traditionally male diseases such as diseases of the circulatory and digestive systems. The homeless women not only had a high prevalence of traditionally female diseases and symptoms, such as those of the genitourinary system, but also of infections, injuries, and diseases in the circulatory, digestive, and respiratory systems. And the homeless women had an even higher prevalence and risk than the homeless men of, for example, malignant neoplasm in the liver, tuberculosis, and diabetes.

4.3 PAPER III: GENDER DIFFERENCES, HOSPITALISATION, AND MENTAL DISORDERS AMONG HOMELESS PEOPLE COMPARED WITH THE GENERAL POPULATION - A COHORT STUDY

Half of the 340 homeless women (52%) and nearly half of the 1 364 homeless men (46%) had mental disorders, including alcohol- and drug-related disorders, according to hospital data during a period of seven years. The corresponding figures for the women and men in the controls were 3% and 4% respectively. Compared with the controls, women and men in the homelessness group consequently ran a very high risk of having psychiatric diseases (RR 20.9 for women and 12.9 for men). Homeless women, compared with homeless men, demonstrated a significantly higher relative risk (RR 1.2), and especially younger women, 18-26 years old at the baseline (RR 2.2).

Among diagnostic categories, the highest prevalence among the homeless was found in the diagnosis group alcohol and illicit drugs (41% of the women and 42% of the men). Homeless women, compared with women in the controls, had nearly an 89 times higher risk of receiving an alcohol and drug diagnosis. Homeless men, compared with men in the controls, had a 22 times higher risk. Compared with homeless men, the highest risk for homeless women was found in schizophrenia (RR 2.8), but women had also a higher risk of personality disorders (RR 2.7). The highest risk for homeless men, but not reaching statistical significance, compared to homeless women, was found in cannabis use (RR 1.4). New findings is that women had a higher risk than men, in using all the other drugs, and statistically significant in central stimulants (RR 1.6) and opioids (RR 1.4). No comparison concerning certain drug diagnoses could be drawn between homeless women and women in the controls, since there were too few cases of women among the controls. A comparison between homeless men and men in the controls, however, shows that the highest risk was found in opioid use (RR 81.7).

An important finding is also that there was no significant risk between the homeless and the controls when alcohol and drug use disorders were controlled for.

4.4 PAPER IV. MORTALITY AND CAUSE OF DEATH AMONG HOMELESS MEN AND WOMEN IN STOCKHOLM, SWEDEN

The study shows that both men (RR 3.1) and women (RR 2.5) in the homelessness cohort had excess mortality compared with men and women in the general population. The mortality rate among men is of the same magnitude as in previous studies of the homeless, while the women have lower excess mortality than in previous studies. The women in our study were on average younger than the men. Surprisingly, no statistically significant difference in mortality was found between male and female homeless. There was a very strong relationship between mortality and earlier hospital care for alcohol or drug problems. The mortality among homeless men and women was strongly related to alcohol and drug addiction. Women had a higher proportion of drug-related mortality than men, especially in age the group 25-44 years. Men had a higher proportion of alcohol-related mortality than women, especially in age group 65< years.

The pattern of causes of death was dominated by cardiovascular disease, violent death, neoplasms and mental illness. More men than women died of tumours, diseases of the circulatory and digestive systems, and in unclear or unknown death. More women than men died of infections, diseases of the respiratory and, genitourinary systems, and in the diagnosis group injury/poisoning/violent death. In a comparison between the homelessness group and individuals in the general population who were admitted for alcohol- and drug-related disorders in the same period, no difference in mortality was found. This indicates that the excess mortality in the homeless group was entirely due to alcohol- and drug-related disorders.

5 DISCUSSION

5.1 PAPER I

This study concerns a selected group of homeless people, who are difficult to reach and difficult to follow-up. The finding that more than half of the men in the illicit drug group had died, was striking and an illustration of the extreme health hazards related to drug misuse (Fugelstad 1997, 2003). That no-one had died in the group with primary psychiatric disorders was unexpected, as other studies of homeless people diagnosed with schizophrenia have shown a high mortality rate (Baridge, Buhrich, Buthler, 2001). The reason for this could be that in our analysis we separated people with substance use problems from this group. In addition, the higher utilisation of hospital care for longer periods by this group in comparison with the other groups may have had some protective effect, as they had spent less time living rough.

The men who were still homeless had received a great deal of support from the social services (treatment, residential institutions accommodation) and the health service (admissions to hospital). However, in general they had remained in various residential institutions for brief periods only. They were discharged in most cases due to substance misuse or because they left the facility voluntarily. This reflects the fact that the healthcare and residential facilities provided were poorly adapted to the special requirements of these groups (Beijer, 2003). During periods when the men were residents at various residential institutions, they received considerably less hospital care. It is obvious that their substance misuse during these periods was reduced, that they sustained fewer physical injuries and illnesses related to their misuse, and that their mental health state improved whilst living in a relatively safe environment. One conclusion may be that the utilisation of health and medical services would be reduced if a larger number of homeless people were staying in adequate residential facilities. The increase in the combination of mental problems and misuse of alcohol or illicit drugs among the men who were still homeless at the follow-up suggests that homelessness over time may aggravate a number of health problems. Despite considerable efforts from the social welfare administration and the healthcare system, the life situation of the majority of the men had not improved to any appreciable extent after 5 years. This suggests that the help and support system is not in line with the needs of this group of homeless people.

5.2 PAPER II

One likely explanation that the diagnostic group ''injury/poisoning'' was particularly prevalent among homeless men and women is the high incidence of alcohol and drug use among homeless people. Substance misuse has a negative effect on both cognition and affect, and furthermore on body control, which in turn increases the risk of accidents and injuries (Gelberg & Leake, 1993; Padgett et al, 1995). The difference, in terms of relative risks (RR), between homeless women and women in the controls in this diagnosis group was larger than the difference between homeless men and men in the controls. The high level of injuries among homeless women can also be the result of the physical abuse homeless women is exposed to. Homeless women face many different kinds of dangers, threats and risks deepened by female subordination in relation to homeless men (Beijer, 1998; Burström et al, 2007; Epele, 2002). The high incidence of alcohol and drug use among homeless people exacerbates ill-health generally, and particular diseases such as, in this study, epilepsy, liver diseases, diseases of the pancreas, and diabetes (Takano et al, 1999; Rehm et al, 2003). Considering gender differences, there was a higher risk for homeless women to be hospitalised compared to homeless men, where younger women (18–36 years old at the baseline) had the highest risk. This points to particularly high vulnerability among young women to the conditions of homelessness. The exceptionally high risk among homeless people of being hospitalised for skin infections, and especially among homeless women, is related to a combination of physical exposure leading to minor and major trauma and the difficulties homeless people experience in maintaining basic standards of personal hygiene (Statigos & Katsambas, 2003). Homeless intravenous drug users also easily contract skin diseases (Finnie & Nicolson, 2002). Furthermore, homeless drug users are at greater risk from poisoning. More homeless women than men, in Stockholm, use drugs, amphetamines and heroin (Finne, 2003; Ågren et al, 1996). This can be one explanation why homeless women are more at risk than homeless men from contracting infections of the skin, of poisoning, and HCV. The very high risk of COPD among homeless women compared to women in the general population indicates that more homeless women are smokers (Pedersen et al, 2008). Alcohol use and smoking are also often linked, but the high risk can also be explained by a higher biological vulnerability among women to the effects of alcohol. Besides the use of alcohol and illicit drugs, homeless people eat fewer meals per day, go without food more often and have a poor nutritional status compared with the population in

general (Wiecha, Dwyer, Dunn-Strohecker, 1991). This could be one reason why the homeless women had a high risk of nutritional anaemia.

This study reflects major health inequalities between homeless women and women in general and between homeless men and men in general. Particularly worrying is the high level of typically male diseases among homeless women, and the high risk for serious physical diseases among young women. The likelihood of reducing the high morbidity rate among the homeless will remain small unless greater attention is given to the reduction of alcohol and drug use in society in general as well as among the homeless in particular.

5.3 PAPER III

This study confirms that a large proportion of women and men in the homeless population have serious psychiatric problems, including alcohol and drug problems. Surprisingly, compared with other studies, homeless women dominate in all drug diagnoses, apart from cannabis, and younger homeless women (18-36 years old at the baseline) had the highest risk for alcohol disorders compared to homeless men (Lauber, Lay, Rössler, 2006). These gender differences reflect a failure from society to support homeless women and young homeless women in particular. Help is particularly needed for those with severe psychiatric disorders, as in this study, where the prevalence of homeless women diagnosed with schizophrenia, and schizophrenia in combination with alcohol and drug misuse, is triple that among men. It is difficult for the most vulnerable homeless women to obtain help even from special projects for homeless women that directly target the most vulnerable among them (Beijer, 2001). It requires special efforts and methods to reach and help homeless with mental illness (Beijer, 2001; Morse et al, 1996).

New findings in this study are also that more homeless women than men, and nearly three times more women, had been diagnosed with personality/behavioural disorders. Quite clearly, there is a lack of adequate assistance from society for mentally ill homeless women, regardless of whether they use drugs or not. In recent decades, for example, the number of hospital beds in psychiatric care has decreased in Sweden, including those earmarked for women, and outpatient clinics have increased (Halldin,

2000). An outcome of this change is that only the sickest and neediest cases are admitted to hospital, included among these are homeless women and men. For homeless people, it is difficult to have contact with outpatient clinics (Halldin et al, 2001). Many of the homeless, especially those diagnosed with schizophrenia, find it difficult, if not impossible, take their medication in a homelessness situation (Beijer, 1996, 1997; Halldin et al, 2001).

The division of the homeless group and control group into two *risk groups* (Drugs and Alcohol) shows that drug and alcohol addicts spent more days in hospital than those who had no addiction. More importantly, however, when adjustment was made for alcohol- or drug-related disorders, no significantly increased risk was found for the homeless group of being hospitalised for mental disorders in comparison with the control group. In other words, the excess risk for mental illness found among the homeless was entirely related to alcohol and drug misuse.

The division of the homeless group and control group into risk groups also shows that the prevalence of schizophrenia was higher among homeless, drug-addicted women than among homeless male drug addicts, but the number of days in hospital care for schizophrenia was higher among homeless, drug-addicted men.

Treating severe substance addiction is difficult at best. Treating homeless persons represents an even greater challenge, calling for highly specialised services. A literature review of treatment for homeless people identified several promising approaches to treatment for this group (SBU, 2001). It remains a challenge to implement these research-based treatment protocols in practice, however.

5.4 PAPER IV

The most important finding in this study was that the excess mortality among homeless men and women was related to alcohol and drug addiction. The study shows that both men and women in the homelessness cohort had excess mortality compared with the general population. The mortality rate among men was of the same magnitude as in previous studies of the homeless (Alström et al 1975, Babidge 2001; Hibbs 1994; Nordentoft 2003), while the women had lower excess mortality than previous studies (Cheung, 2004; Nordentoft 2003: Stadig 1985). There was no statistically significant difference in mortality between homeless men and women, despite the fact that the women had a lower average age than the men. Women had a higher proportion of drug-related mortality than men, especially among women in the 24-44 age group, whereas men had a high proportion of alcohol-related mortality, especially in the older age groups.

There was a very strong relationship between mortality and earlier treatment for alcohol or drug problems.

The strong link between alcohol misuse and excess mortality was evidenced by a comparison with people in the general population who had been in hospital care because of an alcohol diagnosis in Stockholm during the same period. The comparison shows no increased risk among homeless people who had previously undergone alcohol treatment.

The pattern of causes of death is dominated by cardiovascular disease, violent death, tumour diseases and mental illness. High mortality from cardiovascular disease was expected given the high average age in this population. Seven of the deaths in this group was associated with cardiomyopathy, in all but one case, with alcohol identified as the cause. In several of the deaths from heart disease, the cause of death was poorly documented and not based on reliable post-mortem reports. It is therefore possible that some these deaths may be associated with cardiomyopathy. A previous study by Ågren and Jakobson (1987) has shown that this diagnosis was grossly underestimated in a population of homeless.

More than half the deaths caused by tumours were linked to alcohol or tobacco use. The mortality rate from mental illness was associated almost exclusively with alcohol and drug addiction or complications thereof. Of the 15 people (3 women) who died

from some HIV-related illness, 11 had previous been in hospital care for drug addiction.

There was a strong difference in causes of death among homeless women and homeless men. Causes of death associated with prolonged alcohol use affect predominantly men, while women have a relatively higher incidence of drug- and tobacco-related causes of death.

An analysis of causes of death in relation to history of misuse also showed a strong dominance of alcohol-and drug-related causes of death. The highest age group also had a high proportion of tobacco-related deaths. Among alcohol-related deaths, those caused by injuries and diseases linked to high long-term alcohol consumption dominate. Among drug-related deaths, there was a higher proportion of poisonings and other violent deaths occurring in connection with acute drug use. One conclusion is that the population was exposed to alcohol over a long period of time. The difference in age between the alcohol and drug-related deaths is very likely to be linked to drug misuse among the homeless which began to occur in the 1970s and 1980s.

Even within the group that did not have an alcohol- or drug-related cause of death, there was a considerable history of hospital care due to an alcohol or drug diagnosis. Even in these cases, it can be assumed that drug use contributed to a deterioration of health. The high rate of mortality among people born in Finland was frequently linked with alcohol-related causes of death which, however, were rare among people born outside the Nordic region.

More men than women died of malignant tumours, diseases of the circulatory and digestive systems, and from an unclear or unknown cause. More women than men died of infections, diseases in the respiratory and genitourinary systems, and from causes listed in the diagnosis group injury/poisoning/violent death. Also the gender-specific differences in mortality are important for the support-system (social service and health care) to be aware of, for preventing a premature death among the homeless.

5. 5 LIMITATIONS AND STRENGTHS

Limitations in Paper I include the small number of subjects, the fact that this group of homeless men was highly selected, and that they, due to prolonged homelessness, were difficult to follow up. The strength is that we never the less managed to follow-up the group, mainly because we were able to link information from different public registers using each individual's unique personal ID number and the help we received from social workers.

In Papers II and III, there are some gender-based differences concerning mean age. The higher mean age for men compared with women is consistent with the survey of approximately 3,000 homeless people in Stockholm in 1996 (Ågren et al, 1997), which helps make the findings of the study generalisable for the entire homeless population. Despite some of the women were staying at a hostel, they don't differ markedly from other homeless women in the homeless population or in the study's cohort other than the fact that they were slightly older than the women from the Social Welfare Office for homeless. Papers II and III measure the prevalence and risk of homeless people receiving hospital care compared to the rest of the population. Paper III also includes secondary diagnoses. Since the homeless have a more complicated disease panorama than the general population, they also have a higher number of secondary diagnoses. This may be a bias in the sense that the health service is more prone to document secondary diagnoses for the homeless compared to those who are not homeless. The fact that homeless people receive more secondary diagnoses, receive more care in hospital and use outpatient clinics less that the rest of the population may mean that there is a risk of the findings indicating too high morbidity rate among the homeless. On the other hand, only the sickest cases are admitted to hospital, regardless of whether the patient is homeless or not, which reflects the higher rate of ill-health among the homeless. Another strength is also that *all* medical care throughout the whole country is registered on an individual level in the patient register.

Paper IV is based on about 2 300 (23% women) out of approximately 3 000 homeless people (22-23% women) in Stockholm, which gives the study a very high degree of generalisability. One limitation in Papers II, III and IV is the lack of data on how long the subjects have been homeless, and what factors triggered their homelessness.

6 CONCLUSIONS

The following conclusions can be drawn from this thesis:

- In a group of 82 homeless, especially vulnerable men with mental problems, a fifth had died after five years, and three-quarters of those still alive were still homeless. Misuse, mental problems and hospital admissions increased among the homeless. There was no connection between mortality and mental illness, although there was a link between mortality and alcohol and drug misuse.
- Homeless men and women ran twice the risk of being admitted to hospital for physical illnesses and injuries compared to men and women in the general population. Younger homeless women ran a significantly higher risk. The most prevalent diagnosis among homeless men and women was injuries/poisoning There were a number of gender-specific diagnoses, where risks were considerably elevated, such as diseases of the genital organs, viral hepatitis, and poisoning among homeless women, and cerebrovascular diseases, diseases of the liver, and concussion among homeless men.
- Homeless men and women ran a 13 and 21 times greater risk of having mental disorders, including alcohol and drug use disorders, compared with the rest of the population. Even here, younger homeless women ran a significantly higher risk. Women ran three times the risk of developing schizophrenia and personality disorders compared to men. The most prevalent diagnosis among homeless men was alcohol addiction, and among homeless women, it was drug addiction. When adjustment was made for alcohol- or drug-related disorders, no significantly increased risk was found for the homeless group of being hospitalised for mental disorders in comparison with the control group. In other words, the excess risk for mental illness found among the homeless was entirely related to alcohol and drug misuse.
- The excess mortality among homeless men and women was also related to alcohol and drug addiction. There was no significant difference in mortality among homeless men and women. More men than women died of malignant tumours, and diseases of the circulatory and digestive systems. More women than men died of infections, diseases of the respiratory and genitourinary systems, poisoning and violent causes.

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