Health status and utilisation of the healthcare system by homeless and non-homeless people in Vienna

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What is known about this topic

- Homeless people suffer from psychological and physical stress associated with poor living conditions.
- There is a lack of studies that compare the health status of homeless and non-homeless populations.

What this paper adds

- Homeless individuals were more likely to complain of ill health and consult a general practitioner.
- Homeless individuals were more likely to have chronic bronchitis and psychiatric disorders, the latter being most common.
- Homeless people were heavier smokers and less likely to have their own teeth.

Abstract

This case–control study describes the health situation, internal and external resources, and utilisation of healthcare facilities by a marginalised population consisting of homeless people in Vienna, Austria, compared with a non-homeless control population. Among the homeless group, participants lived in halfway houses (70%) or permanent housing (30%) in Vienna. Personal interviews were conducted in July 2010 with 66 homeless individuals, and their data were compared with data from non-homeless subjects from the Austrian Health Interview Survey using conditional logistic regression. Compared with the control group, homeless persons suffered more often from chronic diseases ($P < 0.001$) and rated their health considerably lower than the comparison group ($P < 0.001$). Homeless people suffered significantly more often from psychiatric disorders, respiratory diseases, hypertension ($P < 0.001$), digestive system diseases ($P = 0.002$) and heart diseases ($P = 0.015$) in comparison with the control group. Additionally, among homeless and non-homeless individuals, the former more often consulted a general practitioner in a period of 28 days ($P = 0.002$). A significantly greater proportion of homeless people did not have any teeth ($P = 0.024$) and smoked significantly more ($P = 0.002$). The results demonstrate deficits in the areas of health, health behaviour, and individual and social resources of homeless people, even though homeless people seek medical care at a higher rate than controls. Continuing health promotion projects for this high-risk group and the strengthening of social resources are recommended.

Keywords: chronic disease, health situation, health status, homeless persons, utilisation of healthcare facilities

Introduction

Homeless people are a special target group in public health because international analyses show that homelessness is associated with poor health (Völlm *et al.* 2004a,b). Besides physical deficits, psychological diseases are more prevalent in homeless people (Sal-ize *et al.* 2001). Such disorders may be a result of homelessness, but it has also been known for many years that persons with mental health problems have an increased risk of becoming homeless (Susser *et al.* 1993, Mojtabai 2005). Furthermore, homeless people often face significant barriers to medical support (Kushel *et al.* 2001).

In the context of healthcare, the circumstances of homeless people have to be considered. The loss of

housing is followed by the loss of security and stability, which are replaced by psychological and physical stress associated with poor living conditions, fear of the future and financial needs (Löffler *et al.* 2005, Stehling 2008). Oftentimes, homeless people find new homes in emergency shelters, but loss of privacy and ongoing homelessness may cause a change in character and emotional expression and a distorted health-related self-image. The understanding of health is reduced to the fulfilment of life-sustaining needs (Trabert 1999). Disease and resulting restrictions are often not perceived as such, but are integrated into everyday life (Essendorfer 2007).

The aforementioned factors create a breeding ground for health deficits that put the health of homeless people at risk (Völlm *et al.* 2004a,b). This fringe group shows a higher risk of chronic diseases and multimorbidity than the general population (Gelberg *et al.* 1990, Trevena *et al.* 2001). At the same time, their access to regular outpatient and inpatient care is hampered (Wright & Tompkins 2006). Possible reasons for this are stigmatisation, shame, isolation and fear of bureaucratic hurdles (Bunce 2000). Other reasons for failing to seek medical care are a lack of knowledge about legal requirements, fear of having to pay for treatments and not recognising their own poor health status and the need to consult a doctor (Trabert 1997, Gelberg *et al.* 2000, Löffler *et al.* 2005).

Concerning health insurance coverage, Austrian nationals who are homeless and have health insurance are entitled to healthcare in the same way as other insured citizens. In practice, however, access often breaks down because of multiple barriers. For non-Austrian nationals, access to healthcare depends on their legal residence and insurance status within Austria. Emergency care is provided to all people in need, regardless of their insurance status or residence permit.

There are many studies focusing on the health of homeless people. However, most of the published studies are not comparative, and many are published in languages other than English (Kobashi *et al.* 2001, van Laere & Buster 2001, Völlm *et al.* 2004a,b), making it difficult to draw overall conclusions. Furthermore, the focus of these studies has been mainly on psychiatric diseases (Fazel *et al.* 2008).

Studies from Germany have shown that more than 90% of homeless people suffer from conditions requiring medical care (Trabert 1997). The main health concerns were hypertension (53%), consequences of violence (50%), chronic obstructive pulmonary disease (48%), skin diseases and acute infections (50%), liver diseases (30%), kidney diseases (25%) and gastrointestinal diseases (20%) (Trabert 1997). The morbidity of homeless people in 10 of 13 diseases

under consideration in these studies was increased by a factor of two compared to people with health insurance (G. Locher, PhD dissertation, unpublished work). Dermatological diseases, infections, injuries and musculoskeletal disorders were the main reasons for the exploration of easily accessible healthcare services (Fichter & Quadflieg 2001, Doering *et al.* 2002). Another study showed that more than 85% of homeless people were in need of medical treatment, while more than 40% suffered from at least three chronic diseases (Egen 1998).

Researchers in Munich found that the lifetime prevalence of psychiatric disorders matching any diagnostic and statistical manual of mental disorders-IV axis I diagnosis was 95% among homeless men, while the prevalence at the time of the study was 74% (Salize *et al.* 2002). Another German study reported that addiction disorders were the most common diagnosis, with 64% of subjects presenting with alcohol dependence syndrome or harmful use and 62% with somatic problems or disorders (Völlm *et al.* 2004a,b). According to a systematic review and meta-regression analysis of data from western countries, the most common was 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 prevalence of alcohol dependence has been shown to have increased over recent decades (Fazel *et al.* 2008). Other research has found that the psychiatric morbidity of formerly homeless men was only slightly lower than that of currently homeless men (Schnabel & Hurrelmann 1999).

Varying methodologies in previous studies make it difficult to make comparative evaluations of research findings on the health situation of homeless people. Therefore, this work attempts to comprehensively analyse the most common disorders of homeless people and to make comparisons with a group of non-homeless people. The goal of this comparative study is to determine specific parameters (Klimont *et al.* 2006) of disease prevalence, health behaviour and utilisation of the healthcare system by homeless men and women in Vienna.

Methods

Before we conducted the interviews, the participants were informed orally and informed consent was obtained from the subjects. There was no requirement for ethical approval.

Data were collected from a group of homeless persons who were interviewed for the study and a

group of non-homeless controls from a national survey, matched by age and sex with two controls to each case. The size of the study was limited by the number of homeless people who could be recruited during the time scheduled for the interviews. There were no exclusion criteria.

Homeless participants were interviewed between 23 June and 23 July 2010. They were recruited up to 2 weeks before the interviews through newsletters posted on the walls of their accommodation or they were asked directly by the interviewers when they visited the institutions to conduct the interviews. Participants either lived in transitional supported accommodation, where a rehabilitative approach is used and the period of stay is intended to be short term, or in residential care for the homeless which is long-term accommodation (normally more than 1 year). According to the ETHOS Typology on Homelessness and Housing Exclusion, individuals in both types of accommodation are included in the conceptual category 'houseless' (Amore *et al.* 2011).

The total costs for accommodation and health insurance are sponsored by the public welfare system in Austria.

The homeless participants were interviewed using the standardised Austrian Health Interview Survey (AT-HIS) and the World Health Organization's Quality of Life assessment (the 26-item WHOQOL-BREF, which was part of the AT-HIS) (Freidl & Raml 2004, Skevington *et al.* 2004). The homeless group was interviewed face to face by two persons trained according to the AT-HIS manual. Before the study began, the instruments were pretested with four homeless people. Data for the non-homeless control group were taken from an existing general health survey. The Austrian Health Survey was a structured door-to-door interview on behalf of the Austrian Federal Ministry of Health with 15,000 randomly selected people. The survey took place from March 2006 to February 2007. Corresponding data for the non-homeless subgroup were also derived from the AT-HIS 2006/2007 including the WHOQOL-BREF (The WHOQOL Group 1998). Furthermore, we analysed different health behaviours such as nicotine, alcohol and drug consumption, physical activity levels and dietary habits. Additional questions focused on sociodemographics and their health service utilisation. Quality of life was assessed via the 26-item WHOQOL-BREF questionnaire (Skevington *et al.* 2004). Participants were asked to rate their life satisfaction during the last 2 weeks. The WHOQOL-BREF measures four domains: physical health (pain and discomfort, mobility, sleep and rest), psychological health (positive and negative feelings, thinking, learn-

ing, memory and concentration, self-esteem, bodily image and appearance), social relationships (personal relations, social support, and sexual activity) and environment (including financial resources and home environment) (World Health Organization 1996).

The AT-HIS included variables such as self-rated health, chronic diseases (e.g. diabetes, hypertension, depression) within the last 12 months, and self-rated mood within the last 4 weeks. Estimating the prevalence of chronic diseases was one of the objectives of this study, and these included digestive system/ stomach and intestinal ulcers, heart disease/heart attacks, psychiatric disorders/chronic anxiety and depression, respiratory disorders/chronic bronchitis and emphysema, hypertension/high blood pressure, stroke, cancer and diabetes.

Statistical analyses

Conditional logistic regression was used to compare variables between cases and controls taking the matching into account. This analysis was performed in SPSS by using the procedure for Cox regression (IBM SPSS 2012). In the first step of the analysis, univariate regression models were fitted to analyse differences in individual variables between the homeless cases and their matched controls. In the second step, a model was constructed including all variables that were significant in the univariate comparisons. A forward selection stepwise procedure was applied to create the multivariate model.

Results

There were 66 homeless cases (35 males, 31 females) and 132 non-homeless controls (two for each homeless case) matched by age and sex. In each group, 53% were men and 47% were women. The age ranged from 20 to 74 years, and more than 75% of the respondents were older than 45. Among the homeless group, participants lived in halfway houses with a rehabilitative approach (70%) or permanent housing in Vienna (30%). The proportion of men in both types of housing was 53%.

Univariate regression analyses

Tables 1–3 show the results of the univariate regression models. Compared to the non-homeless controls, homeless individuals rated their subjective health as less good, reported more restrictions in their life due to health problems and suffered more often from chronic diseases, especially digestive, heart, and respiratory diseases and psychiatric disorders. Additionally, a

Table 1 Conditional logistic regression analyses of physical health using univariate comparisons

Variable	Cases (*n* = 66)	Controls (*n* = 132)	P	Odds ratio (95% CI)
Subjective health status				
Very bad (%)	1	12	**<0.001**	
Bad (%)	6	14	0.181	0.21 (0.02–2.06)
Middle (%)	25	39	0.070	0.13 (0.01–1.18)
Good (%)	37	29	**0.013**	0.06 (0.01–0.56)
Very good (%)	31	6	**<0.001**	0.01 (0.00–0.15)
Restricted in their daily life due to health problems				
A lot (%)	12	32	**<0.001**	
A little (%)	24	38	0.113	0.45 (0.17–1.21)
Not at all (%)	64	30	**<0.001**	0.13 (0.05–0.34)
Chronic disease (%)	71	39	**<0.001**	0.16 (0.07–0.37)
Digestive system/stomach and intestinal ulcers (%)	18	3	**0.002**	0.17 (0.05–0.52)
Heart disease/heart attacks (%)	11	2	**0.015**	0.14 (0.03–0.69)
Psychiatric disorders/chronic anxiety and depression (%)	44	11	**<0.001**	0.15 (0.06–0.34)
Respiratory disorders/chronic bronchitis and emphysema (%)	36	4	**<0.001**	0.05 (0.01–0.11)
Hypertension/high blood pressure (%)	33	27	0.297	0.70 (0.35–1.38)
Stroke (%)	9	4	0.131	0.37 (0.10–1.34)
Cancer (%)	6	2	0.171	0.30 (0.05–1.69)
Diabetes (%)	11	8	0.572	0.73 (0.25–2.15)
Dental problems				
No teeth (%)	39	9	**<0.001**	
Partial denture (%)	17	42	**<0.001**	0.10 (0.04–0.28)
All own teeth (%)	44	49	**0.002**	0.20 (0.07–0.56)

CI, confidence interval; SD, standard deviation.
Bold value indicates <0.05 = significant; <0.01 = very significant; <0.001 = extremely significant.

Table 2 Conditional logistic regression analyses of psychological health and medical care using univariate comparisons

Variable	Cases (*n* = 66)	Controls (*n* = 132)	P	Odds ratio (95% CI)
WHO-QOL				
Physical health, mean (SD)	15 (3.1)	17 (3.1)	**<0.001**	0.79 (0.70–0.89)
Psychological health, mean (SD)	15 (3.4)	16 (2.7)	**0.006**	0.86 (0.78–0.96)
Social relationships, mean (SD)	13 (3.4)	16 (3.2)	**<0.001**	0.78 (0.70–0.87)
Environment, mean (SD)	15 (2.8)	16 (2.3)	0.162	0.92 (0.81–1.04)
Psychological health				
Depressed				
A lot (%)	23	8	**0.009**	
A little (%)	23	19	0.092	0.42 (0.15–1.15)
Not at all (%)	54	73	**0.003**	0.25 (0.10–0.62)
Apathetic				
A lot (%)	38	8	**<0.001**	
A little (%)	23	38	**<0.001**	0.13 (0.05–0.34)
Not at all (%)	39	54	**<0.001**	0.14 (0.06–0.37)
Exhausted				
A lot (%)	44	19	**0.001**	
A little (%)	27	55	**<0.001**	0.21 (0.09–0.46)
Not at all (%)	29	26	0.108	0.47 (0.19–1.18)
Medical treatment				
General practitioner within the last year (%)	83	75	0.186	1.68 (0.78–3.62)
Number of visits of the general practitioner within the past 28 days, mean (SD)	1.2 (1.3)	0.5 (1.0)	**0.002**	1.55 (1.18–2.05)
Inpatient hospital stay during the last year (%)	36	14	**0.001**	3.74 (1.76–7.96)

CI, confidence interval; SD, standard deviation; WHO-QOL, World Health Organization's Quality of Life.
Bold value indicates <0.05 = significant; <0.01 = very significant; <0.001 = extremely significant.

Table 3 Conditional logistic regression analyses of health behaviour using univariate comparisons

Variable	Cases (*n* = 66)	Controls (*n* = 132)	*P*	Odds ratio (95% CI)
Smoking behaviour				
More than 100 cigarettes in life (%)	91	62	**<0.001**	0.14 (0.05–0.40)
Number of cigarettes per day, mean (SD)	24 (14.1)	7 (12.4)	**<0.001**	1.09 (1.06–1.12)
Current smoking behaviour				
Smoke regularly (%)	83	33	<0.001	
Smoke occasionally (%)	5	2	0.641	1.58 (0.23–10.77)
Non-smoker (%)	12	65	<0.001	0.07 (0.02–0.18)
Alcohol consumption				
Alcohol: number of days per month, mean (SD)	10 (12.5)	7 (8.7)	**0.042**	1.03 (1.00–1.07)
Alcohol consumption on the day before (%)	32	27	0.492	0.79 (0.41–1.55)
Alcohol in the morning (%)	25	5	**<0.001**	0.13 (0.04–0.39)
Feelings of guilt because of alcohol consumption (%)	35	10	**<0.001**	0.17 (0.07–0.41)
Desire to reduce alcohol consumption (%)	50	9	**<0.001**	0.09 (0.04–0.23)

CI, confidence interval; SD, standard deviation.
Bold value indicates <0.05 = significant; <0.01 = very significant; <0.001 = extremely significant.

significantly greater proportion of homeless people did not have any teeth (Table 1). Homeless individuals had also visited their general practitioner more often in the past 28 days and were admitted to the hospital more frequently (Table 2). Moreover, the results showed that homeless subjects in Austria rated their quality of life concerning physical and psychological health and their social relationships as less good than did non-homeless subjects, and they reported themselves to be more depressed, apathetic and exhausted than the non-homeless controls (Table 2). Regression analyses showed that homeless individuals had worse health behaviour overall than the matched control subjects: they smoked more (in the past as well as at the time of the interview), consumed more alcohol per month, drank alcohol in the morning more often, had the desire to reduce their alcohol consumption and felt guilty because of their drinking behaviour (Table 3).

Multivariate regression analyses

Those variables that were significant in the univariate comparisons were included in the multivariate regression analyses: (i) subjective health status, (ii) restriction in their daily life due to health problems, (iii) chronic diseases of the digestive system, (iv) heart disease/heart attacks, (v) psychiatric disorders, (vi) respiratory disorders, (vii) dental problems, (viii) number of visits to the general practitioner within the past 28 days, (ix) inpatient hospital stay during the last year, (x) WHOQOL physical health, (xi) WHOQOL psychological health, (xii) WHOQOL social relationships, (xiii) depressed, (xiv) apathetic, (xv) exhausted, (xvi) number of cigarettes per day and (xvii) number of days alcohol was consumed in the past 28 days. Only quantitative variables of health behaviour were selected.

Table 4 Conditional logistic regression analyses using multivariate comparisons

Variable	Cases (*n* = 66)	Controls (*n* = 132)	*P*	Odds ratio (95% CI)
Respiratory disorders/chronic bronchitis and emphysema (%)	36	4	**0.008**	0.01 (0.00–0.30)
Inpatient hospital stay during the last year (%)	36	14	0.086	4.47 (0.81–24.71)
Dental problems				
No teeth (%)	39	9	**0.024**	
Partial denture (%)	17	42	0.386	2.01 (0.41–9.81)
All own teeth (%)	44	49	**0.043**	0.08 (0.01–0.92)
WHOQOL social relationships, mean (SD)	13 (3.4)	16 (3.2)	0.081	0.81 (0.64–1.03)
Apathetic				
A lot (%)	38	8	0.100	
A little (%)	23	38	0.051	0.13 (0.02–1.01)
Not at all (%)	39	54	0.053	0.12 (0.01–1.03)
Number of cigarettes per day, mean (SD)	24 (14.1)	7 (12.4)	**0.002**	1.09 (1.04–1.16)

CI, confidence interval; SD, standard deviation; WHOQOL, World Health Organization's Quality of Life.
Bold value indicates <0.05 = significant; <0.01 = very significant; <0.001 = extremely significant.

Results of the multivariate regression analyses are shown in Table 4. The final model included the following variables: respiratory disorders (chronic bronchitis and emphysema), inpatient hospital stay during the last year, dental problems, quality of life regarding social relationships, being apathetic and number of cigarettes per day. The results showed that homeless individuals suffered significantly more often from respiratory disorders, were more likely not to have teeth and smoked significantly more.

Discussion

The aim of this study was to identify how homeless people rate their subjective health, their rates of utilisation of healthcare services and the prevalence of health problems in comparison with non-homeless individuals. We found that homeless persons had more chronic diseases compared with non-homeless persons and that their ratings of subjective health were lower.

In another study on health risks of extremely disadvantaged persons (Kroll *et al.* 1986), 28% of homeless people suffered from a chronic disease and 18% described their health as poor or very poor. Our study showed significantly higher values: more homeless suffered from a chronic illness ($P < 0.001$) and also homeless individuals rated their subjective health as less good ($P < 0.001$). One explanation for this could be the use of face-to-face interviews in our study, which may have allowed respondents to answer more precisely than in a paper-and-pencil questionnaire.

Although the literature indicates that homeless people underutilise medical support (North & Smith 1993, Mielck & Helmert 2006), our results showed that homeless people consulted their general practitioner more often in the past 28 days than non-homeless people. One German study (Fichter & Quadflieg 2001) found that 55%–70% of homeless people were treated as hospital inpatients each year. In our study, however, only 36% had been hospitalised during the previous 12 months. Our results are comparable to those of Freidl and Raml (2004) who showed a rate of 37%. Perhaps the relatively low number of inpatient hospital stays in our study in comparison with other studies about homeless people and in comparison with the general population ($P < 0.086$) is a result of patients having received other medical care from neunerHAUS physicians.

At this point, we would like to emphasise the fact that, in the section under quality of life, the domain environment was not different between the homeless and the non-homeless groups, even though this domain contains aspects directly related to the home environment. This result could possibly be explained by the well-equipped and well-guided institutions for homeless people in Vienna, which offer their services to the needy without bureaucracy.

Previous studies revealed a prevalence of alcohol dependency (64%) (Völlm *et al.* 2004a,b) and panic attacks and anxiety (30%) (Kroll *et al.* 1986) among homeless persons. In this study, we found a prevalence of psychiatric disorders among homeless individuals (44%). Although our results vary somewhat from previous studies, the data show the importance of alcohol problems and mental health problems in general among those who are homeless. One reason why alcohol problems are not one of the main outcomes in our studies may be related to the fact that our subjects were living in transitional housing or permanent residences provided by the welfare system, while individuals in the Mannheim study (Salize *et al.* 2002) were sleeping out of doors or relying on friends for shelter. Furthermore, in almost all types of accommodation used by our participants, the consumption of alcohol was banned. In this study, we show that homeless people smoke a significantly higher number of cigarettes per day than the general population ($P = 0.002$). It is also shown that homeless individuals suffer from chronic bronchitis and emphysema more often, which could be related to high nicotine consumption.

Despite the uniqueness of this study in comparing data from homeless and non-homeless people using the same questionnaire, potential weaknesses should not remain unmentioned. To ensure direct comparability of homeless subjects with the general population, we used the same questions as the Austrian Health Interview Survey; by using the same wording, we followed the highest quality standards for comparison studies. However, the AT-HIS collects information on a limited number of diseases, which in turn limited the comparison analysis.

It should also be mentioned that the self-reporting interview might have led to a selection bias, for instance, the poster text mentioned health, those who self-reported might be the ones with health problems.

Additionally, as our own survey asked about sensitive topics (e.g. drug use) and was not a paper-and-pencil questionnaire, but rather an interview, we cannot exclude the possibility of a social desirability bias, especially among individuals with severe mental disorders, who may lack insight into their illness (Amador *et al.* 1994). Nevertheless, when using the method of personal interviews, the participants were able to ask for clarification, an option that was frequently used. Furthermore, we collected data for twice the number of non-homeless control subjects

for comparison with homeless subjects. This procedure corresponds to high methodological standards. Therefore, we believe that this study serves as a solid starting point for further research and comparative studies on the health status of homeless individuals.

The gender distribution of participants in this study reflects the numbers of male and female volunteers who reported for the interview. This distribution is not a reflection of the current homeless population in Vienna. Generally, more men than women live in these facilities (Schoibl 2009).

Conclusion

Our findings show that homeless people suffer from a variety of chronic conditions. Despite medical care facilities for homeless in some regions of Austria, this population continues to be medically underserved. We know from many studies that barriers to healthcare exist for the homeless. At the same time, our study indicates that homeless people access the healthcare system more often to achieve adequate care when compared with non-homeless people. To improve the health of homeless persons, structural measures are required, such as adequate coverage of basic healthcare needs, equal standards of healthcare for homeless and non-homeless people, co-operation with medical specialists outside the welfare system and training for medical personnel about the particular needs of homeless people. Finally, we concur with Mielck and Helmert (2006) that social inequality should be reduced and improvements to the health prospects of lower status individuals should be sought.

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