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Oral health among a group of homeless
individuals from dental professional's and
patient's perspective

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To my family

“In order truly to help someone else, I must understand more than he/she but certainly first and foremost understand what he/she understands. If I do not that, then my greater understanding does not help him/her at all. If I nevertheless want to assert my greater understanding, then it is because I am vain or proud, then basically instead of benefit him/her I really want to be admired by him/her. But all true helping begins with a humbling. The helper must first humble himself/herself under the person he/she wants to help and thereby understand that to help is not to dominate but to serve, that to help is not to be the most dominating but the most patient, that to help is a willingness for the time being to put up with being in the wrong and not understanding what the other understands”

Sören Kierkegaard, Danish philosopher 1813-1855

ABSTRACT

The homeless are a vulnerable group in society. They are frail, in poor general health and tend to have difficulty expressing expectations and needs. While poor oral health is clearly an added burden for people who struggle daily to survive under miserable living conditions, there are also many barriers to dental care. Little is known about the views of the homeless themselves on dental health, their perceived need, their attitudes to dental care and their expectations of encounters with dental personnel. Some quantitative studies concerning special groups, care program and one study of oral health needs of homeless in US have been published.

There are currently approximately 17 800 homeless people in Sweden, of whom 3 900 are in Stockholm. The overall aim was to describe the oral status of a sample of homeless adults, to analyse their perceptions of oral health and the consequences to focus on adequate dental care for the homeless. Both quantitative and qualitative research methods were applied.

In Paper I, the study population comprised 147 homeless individuals. All subjects underwent oral examination, including registration of periodontal status and caries data. The results showed that homeless had fewer remaining teeth than the general population. Heavy plaque accumulation will also have an effect on caries progression, expressed in this study as high DMFT (Decayed-Missing-Filled Teeth) values. Loss of teeth is likely to create dental and chewing problems.

In Paper II, the perceptions of homeless people concerning their oral health and perceived consequences of dental treatment were analysed. Open, tape-recorded interviews were conducted in conversational style. A phenomenological-hermeneutical method was used to analyse the subjects' stories. All narratives revealed expressions of loss as well as recovery in the informants' life-world. Both aspects highlight the fact that being homeless means loss not only of a permanent residence but also of many values and similarly, oral health was described and interpreted in terms of loss and recovery.

In Paper III sentences related to the homeless individual as a person, the underlying meanings of what the text talked about, were interpreted as codes and subthemes labelled as two themes, "Struggle to retain integrity" and "Need for freedom without responsibility". In sentences related to the homeless individual as a patient in dental care, the underlying meanings of what the text said were likewise interpreted in codes and subthemes labelled as two themes "Meeting the patient where he/she is" and "Future dental care". The interviewees changed to a patient perspective when they were specifically talking about the interaction with the dentist, and they mirrored what made them feel comfortable or uncomfortable in the meeting. Future dental care was discussed with different feelings. Ordinary regular dental contact could be seen as one way back to normal life.

In Paper IV 147 subjects were interviewed in accordance with a specially designed structured interview covering attitudes to oral health. The age range was from 22-77 years, 100 males and 37 females. 93.8% considered that the teeth are important, 86.3% experienced pain or soreness of the teeth. 92.5% reported chewing difficulties due to pain, 68.4% subjects expressed

embarrassment about the appearance of their teeth, 93.8% refrained from dental treatment due to economical reasons, 73.3% had not received dental treatment for their complaints and fear of dental treatment was confirmed by 70.5%, 74% subjects reported dry mouth, 67.4% had no toothbrush.

Keywords: Dental Status, homeless adults, dental care, substance abuse, dignity, phenomenology, content analysis, questionnaire, attitudes.

ORIGINAL PAPERS

This thesis is based on the following original papers, which are referred to in the text by their Roman numerals (I-IV)

- I** De Palma P., Frithiof L., Persson L., Klinge B., Halldin J., Beijer U. Oral health of homeless adults in Stockholm, Sweden *Acta Odontol Scand* 2005; 63:50-55.
- II** De Palma P., Nordenram G. The perceptions of homeless people in Stockholm, Sweden concerning their oral health and perceived consequences of dental treatment: a qualitative study *Spec Care Dentist*. 2005; 25:289-95.
- III** De Palma P., Nordenram G., Ekman S-L. The encounter in dental care as interpreted by homeless individuals
Submitted
- IV** De Palma P, Frithiof L, Persson L, Näsström K, Falahat, Klinge B. Attitudes and expectations related to self reported substance abuse and some radiological findings among homeless persons in Sweden.
In manuscript

The Papers have been printed with the kind permission of the respective journals.

ABBREVIATIONS

ANOVA	Analysis of variance
BW	BiteWing
CVD	Cardiovascular Disease
DCA	Dental Care Act
DMFT	Decayed-Missing-Filled-Teeth
GBI	Gingival Bleeding Index
DPR	Dental Panoramic Radiograph
HMCA	Health and Medical Care Act
HPM	HållPunkt Maria
NDIS	The National Dental Insurance Scheme
PI	Plaque Index
PPD	Probing Pocket Depth
SFS	The Swedish Code of Statutes (Svensk författningssamling)
SRC	The Swedish Research Council
SSA	The Social Services Act
SSO	The Social Insurance Office
SoS	The Swedish National Board of Health and Welfare (Socialstyrelsen)
SOSFS	The Swedish National Board of Health and Welfare Code of Statutes (Socialstyrelsens författningssamling)
SOU	Official Reports of the Swedish Government (Statens Offentliga Utredningar)

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INTRODUCTION

Historical background

The Swedish Medical Regulations from 1668 stipulated that a person wishing to perform dental care had to have a certificate of training. In 1813 the Swedish Collegium Medicum became the certifying authority, and established the professional category of "dentist". In 1855, a Swedish dentist; Simon Bensow (1828-1918) was awarded a government grant to travel abroad to study dental care for patients who could not afford to pay. He proposed the establishment of an institution of dental education, offering dental care for the destitute, and his proposal was implemented. As early as 1865, a dental surgery clinic was established at the initiative of the Swedish Dental Association in the City of Stockholm, offering free treatment for the impoverished and the ill, carried out by dentists in training

The Stockholm Institution of Dental Training opened in 1898. Fair to the 1900s, the majority of the Swedish population had little or no access to professional dental care, even as there was a veritable epidemic of tooth decay. The problem was not only that dental care was in short supply; it was so costly that few had the financial resources to demand it (Lindblom, 2004). Today, more that a century later, homeless and other vulnerable people had similar problem and the same needs and its why, one hundred years later, we had to open a dental clinic for patients who could not afford to pay; the clinic for the homeless of Stockholm, Hållpunkten (HPM).

In 1924 a parliamentary resolution was put forward regarding how suitable dental care for all, at a reasonable cost, could be achieved. The parliament adopted a decision in 1938 after many investigations that dental care should also be included in the welfare reform.

There was also to be dental care for certain individuals in correctional institutions.

Financing was based on a cooperative model between the state, county councils and municipalities.(SOU, 1928, SOU, 1948).

National Dental Insurance

According to the National Dental Insurance Scheme that came into being for adults in 1974, the county councils have the overall responsibility for providing access for citizens to dental care at reasonable cost (SOU, 1972). This brought down the cost of dental care for the patients considerably and they began to ask for more extensive and expensive treatments. Thanks to National Dental Insurance Scheme, dentists were also increasingly able to carry out treatments for long-term oral health. The scheme also stipulated that treatment should be performed in consent with the patient, and the dentists were obliged to inform their patients about their oral health (SOU 1972, RFFS 1998.).

In the 1980s there was a gradual deterioration of National Dental Insurance Scheme, as the remuneration from the National Insurance Office declined. In 1999 a new decision was adopted (SFS, 1998), by which the cost of dental care and the right to open a dental practice were unregulated as before 1974. There is a special dental care subsidy for defined groups of patients with special dental care needs as it relates to general health factors with the same high-cost protection as for outpatient health care (SEK 900 per year in 2006). In 2002 a reform known as "65+" was introduced, with a high-cost subsidy for dental prosthetics (bridges and implants) for individuals over the age of 65 (SOU, 2002).

Acts and statutes

The 1982 Health and Medical Care Act (SFS, 1982) describes the objectives and requirements for the health and medical care sector, and the responsibilities of the

county councils. Article 2 states that the objective of health and medical care is good health for all citizens, and care for all on equal terms, with respect for human equality and dignity. Patients with the greatest need of care are to be given priority. Article 2 of the Dental Care Act (SFS, 1985) also states that the objective of dental care is good oral health and dental care for all citizens on equal terms. However, the Dental Care Act does not contain the statement that care is to be given with respect for human equality and dignity and that those with the greatest need of care are to be given priority, as does the Health and Medical Care Act. This makes it difficult for people with great needs and limited financial means to demand the right to their dental care.

There is, however, legislation to protect the needs of the most vulnerable members of society, who do not have sufficient means to satisfy their most basic needs: the Social Services Act (SFS, 2001). It is stipulated that the state social services are to promote the financial and social security, quality of living conditions of the citizens, on the basis of democracy and solidarity taking consideration of each person's responsibility for his or her own social situation and the social services are to focus on liberating and developing the inherent resources of individuals and groups. The work of the social services is to be based on the integrity of each individual and his or her right to self-determination.

The idea underpinning the 1974 *National Dental Insurance Scheme* was to make dental care available to all citizens at reasonable cost (SFS, 1985). Many homeless persons are unable to handle their own dental needs and have not the ability to plead for their rights in society.

Homelessness

Homelessness is a complex phenomenon, with many contributing and interwoven causes and consequences, both at a general level in society and at individual level. Although homelessness is far from a modern condition, debate both internationally and in Sweden over the past ten years has drawn attention to homelessness and living outdoors (Swärd, 1999, Ratner et al., 2004). There are currently approximately 17 800 homeless people in Sweden, about 0.1% of the population. There are some 3 900 homeless people in Stockholm (The Swedish National Board of Health and Welfare, 2001) and it is estimated that about 10 per cent of them do not have a bed to sleep in.

Definition of a homeless person

The chosen definition for homelessness was given by the Swedish National Board of Health and Welfare in the national survey of 1993: "A homeless person is one who has no residence, owned or rented, and who is not living under stable dwelling conditions and therefore has to rely on temporary alternatives or rough living. Also included among the homeless are subjects living in institutions or shelters without any dwelling arranged upon discharge" (The National Board of Health and Welfare, 1993).

This definition has been scrutinised by sociologist Ingrid Sahlin (1992). She claims that the definition is ambiguous, allowing two main interpretations, according to use: one focuses mainly on a person's asocial behaviour and lack of integration into society whereas the other is related to physical and legal definitions of living conditions.

Sahlin is critical of the first interpretation because definitions which focus on asocial aspects tend to be circular, confirming the inbuilt prejudices in the definition.

A preconceived attitude that the homeless have social problems, are addicts and criminals (Sahlin 1992) leads to outreach efforts directed to more or less official congregating places for the homeless, such as shelters. With this approach, according to

Sahlin, no account is taken of those people without a home who are physically spread throughout the community and are not in contact with shelters, the authorities or the health services.

The dental problem of the homeless has not received a great deal of attention in Swedish dental research and there are only a few published scientific studies of the general health of the homeless. However, homelessness has been the subject of many reports and debate articles in the mass media.

STUDIES OF GENERAL HEALTH OF HOMELESS

Swedish studies of general health of the homeless

During the 1990s homelessness in Sweden was documented on a national basis by The National Board of Health and Welfare in 1993 and 1999 (Follow up and Evaluation by The Swedish National Board of Health and Welfare 1993, 1999).

In these investigations caregivers, mainly personnel from social services, nursing and non-profit organisations were questioned about their contacts with the homeless and answered questions about *i.a.* mental problems/mental illness and addictions among the homeless.

One conclusion from the national documentation in 1999 (SOS 1999 report) according to the responses of caregivers, was that physical, mental and addiction problems increased with the duration of homelessness. In the study of homelessness “The City of Stockholm” (Finne, 1999), there are important insights into the development of homelessness over time in the capital city. However, this documentation does not disclose the reasons underlying homelessness, or the subjective experiences in the process of becoming homeless. Caregivers may have some limited impressions of mental illness and addiction in a homeless person.

However, for more detailed knowledge of the overall disease condition and treatment needs, not least with respect to their physical condition, homeless people must undergo medical examination and be interviewed. The first known paper exploring homelessness was “Men in 1912” (Alfvén). In Table 1 some additional relevant Swedish papers, books and reports are presented.

Table 1 Swedish studies on general health of the homeless

Author, reference	Published in	Title	Principal findings
Alfvén A	1913; 3:97-126 Social tidskrift (In Swedish)	Hostels and Shelters for men In Stockholm. Some of the capital's worst plague spots	Participating observation, evaluated the social safety net
Inge G, Inge MB	1967 Book (In Swedish)	The incomplete state of the welfare state	Evaluation of the welfare system
Norman J	1979 Social medicinsk information (In Swedish)	Sociomedical studies of homeless men in Stockholm	Followed up 4500 individuals living in shelters, found a higher mortality rate
Borg S	1978 Acta Psychiatr Scan suppl. (In Swedish).	Homeless men. A clinical and social study with special reference to alcohol abuse	95% had alcohol-related problems and serious physical disease
Åsander H	1980 Acta Psychiatr Scan suppl. (In Swedish)	A field Investigation of homeless men in Stockholm. A socio-psychiatric and clinical follow-up study	Psychotic conditions were common in the group, as was a higher prevalence somatic disease
Stenberg L, Svanström L, Åhs S	1989Book (In Swedish)	Destitute individual in the welfare state	The new homelessness, younger homeless people, medical care not accessible to the homeless
Ågren G, Berglund E, Franér P	1994 FoU Stockholms stad (In Swedish)	The homeless of Stockholm	Survey of the homeless
Halldin J, Eklöf L, Lundberg C, Åhs S	2001 International Journal of Mental Health	Mental Health Problems Among Homeless People in Sweden	Large proportion of mentally ill among the homeless, medical care not accessible to the homeless
Halldin J, De Palma P, Beijer U, Frithiof L, Persson L et al.	2001 Report in the form of a book (In Swedish)	A clinical pilot study of 35 homeless people in Stockholm	Drew attention to the poor oral health and poor general health

International studies of general health of the homeless

Homelessness is a global phenomenon. Studies published during the last ten years have covered cities in *i.a.* USA, Canada, Europe and Australia. In Denmark, several researchers, including Merete Nordentoft (1997), have studied mental illness in the homeless.

Because the definition of homelessness varies from study to study, it is difficult, and sometimes impossible, to compare the prevalence of homelessness in different parts of the world, between different countries and between different capital cities.

A list of the most recent scientific publications from 2000 to December 2006 concerning homelessness, health and mental health is presented in Table 2.

Table 2 International studies of general health of the homeless

Author, country	Published in	Title	Principal findings
Curtis AB et al. Atlanta, USA	Int J Tuberc Lung Dis 2000; 4:308-313	Analysis of Mycobacterium tuberculosis transmission patterns in a homeless shelter outbreak	TB cases were confirmed and on the basis of the high rate of infection in the homeless population, routine screening should be considered.
Morell-Bellai T, Goering PN, Boydell KM Ontario, Canada	Issues Ment Nurs 2000; 21:581-604	Becoming and remaining homeless: a qualitative investigation.	People both become and remain homeless due to a combination of macro level factors and personal vulnerability
Dickey B Cambridge, USA	Har Rev Psychiatry 2000; 8:241-250	Review of programs for persons who are homeless and mentally ill	Investigates and analyses the different programs for homeless and seeks more research in this field
Hwang S, USA	CMAJ 2001; 23:229-233	Homelessness and health	Homeless people face significant barriers that impair their access to health care
Rosencheck R, Morrisey J, Lam J et al. USA	Health Serv Res 2001; 36:691-710	Service and community: social capital, service systems integration, and outcomes among homeless persons with severe mental illness.	Housing affordability predicated exit from homelessness
Ng AT, McQuiston HL, New York USA	Psychiatr Pract 2004; 10:95-105	Outreach to the homeless: craft, science, and future implications.	An examination of issues such as financing, access to housing, interaction with other professions and working conditions
Morris RI, Strong L., San Diego USA	J Sch Nurs 2004;20:221-227	The impact of homelessness on the health of families	There is a need for preventive approaches to alleviate homelessness and its attendant health problems.
Ruefli T, Rogers SJ New York, USA	Harm Reduct J 2004; 26:1-8	How do drug users define their progress in harm reduction programs? Qualitative research to develop user-generated outcomes	Harm reduction and other programs serving active drug users should not rely on institutionalized, provider-defined solutions to problems in living faced by their clients.
de Vicente A, Munoz M, Perez-Santos E, Santos-Olmo AB, Madrid, Spain.	J Trauma Strees 2004; 17:439-443	Emotional disclosure in homeless people: a pilot study.	Examined the effects of an emotional disclosure protocol on a group of 8 homeless people, using a single-group design
Desai MM, Rosenheck RA Connecticut, USA	Am J Psychiatry. 2004; 161:2287-94.	HIV testing and receipt of test results among homeless persons with serious mental illness.	The majority of homeless clients enrolled in an intensive case management program were not tested for HIV during the 3-month Among those tested, however, nearly 90% reported receiving their results

Table 2 (Continued) International studies of general health of the homeless			
Author, country	Published in	Title	Principal findings
Desai MM, Rosenheck RA Connecticut, USA	Am J Psychiatry. 2004; 161:2287-94.	HIV testing and receipt of test results among homeless persons with serious mental illness.	The majority of homeless clients enrolled in an intensive case management program were not tested for HIV during the 3-month period after program entry. Among those tested, however, nearly 90% reported receiving their results
Herrman H, Evert H, arvey C, Gureje O, Pinzone T, Gordon I. Melbourne, Australia	Aust N Z J Psychiatry. 2004;38:965-74.	Disability and service use among homeless people living with psychotic disorders.	An unexpectedly high prevalence of people living with psychotic disorders may reflect a concentration of vulnerable people in the shrinking marginal housing supply in the inner city areas
D'Souza L, Garcia J. Leeds, UK	Child Care Health Dev. 2004; 30:599-611	Improving services for disadvantaged childbearing women.	They found limited evidence of effective and promising interventions for childbearing women from minority ethnic groups, women experiencing domestic violence, women with mental health illness and HIV infected women
Mares AS, Kaspro WJ, Rosenheck RA. Connecticut, USA	Ment Health Serv Res. 2004; 6:199-211.	Outcomes of supported housing for homeless veterans with psychiatric and substance abuse problems.	Prior residential treatment appears to have little effect on treatment outcomes among formerly homeless veterans placed into permanent supported housing programs providing indirect support for the direct placement supported housing model.
Buck DS, Monteiro FM, Kneuper S, Rochon D, Clark DL, Melillo A, Volk RJ. Houston and San Francisco, USA	BMC Med Educ. 2005; 10:5: 2	Design and validation of the health professionals' attitudes toward the homeless inventory (HPATHI)	Extreme group comparisons suggested that experience with the homeless rather than medical training itself, could affect health care professionals' attitudes toward the homeless. This could have implications for the evaluation of medical school curricula.
Skie DJ, Brown K, Cooper TW, Hoffman-Roberts H, Mussa HR, Elliott AC.	J Infect. 2006 Oct 26	Prospective comparison of methicillin-susceptible and methicillin-resistant community-associated Staphylococcus aureus infections in hospitalized patient	The majority of patients hospitalized with community-associated S. aureus infections were due to MRSA, most of which involved an SSTI. African-American race, recent antibiotics and past homeless status predicted infection with MRSA; however, no clinical profile could reliably exclude MRSA. Clinicians should be aware of the increasing prevalence of CA-MRSA
Sahajian F, Vanhems P, Bailly F, Fabry J, Trepo C, Sepetjan M. France.	Eur J Public Health. 2006 Oct 26;	Screening campaign of hepatitis C among underprivileged people consulting in health centres of Lyon area, France.	Wide acceptance of screening, high prevalence of anti-HCV antibodies (much higher than in the French population in general), a high proportion of positive cases unknown beforehand, and satisfactory follow-up of seropositive patients are all factors which support the need for a screening campaign targeting HCV infection in underprivileged persons living in France
Savage CL, Lindsell CJ, Gillespie GL, Dempsey A, Lee RJ, Corbin A. Cincinnati, USA	J Community Health Nurs. 2006 Winter; 23:225-34	Health care needs of homeless adults at a nurse-managed clinic.	A total of 110 participants of these, 61% reported that, they used the ED as a source of health care. The most frequent medical diagnoses reported were substance use disorders, depression, back pain, hypertension, and asthma.

In the Baltic States and Russia, tuberculosis is a growing problem and a considerable number of cases are caused by resistant strains of bacteria (Rutqvist *et al.* 2000). The proximity of Sweden to these countries means that there should be extra awareness that tubercular infections, MRSA and other diseases, might reappear in Sweden, among risk groups such as the homeless.

Mental illness may be both a reason for and also a consequence of homelessness in Sweden

as well as in other countries. Mental illnesses reported to be more common among homeless people than in a general population are schizophrenia, alcohol/drug abuse and depressive states. In Copenhagen, Preben Brandt and co-workers have worked for many years as social psychiatrists in order to help homeless people, referred to as “tramps,” with serious mental illness of a psychotic nature, (Pilely and Brandt 1998). In Sweden, the role of the closure of institutions for the mentally ill has been discussed as an explanation for in the high prevalence of mental illness among the homeless.

ORAL HEALTH OF THE HOMELESS

Homeless people are not usually included in epidemiological investigations, because it is difficult to contact them by post or telephone to arrange an appointment. I have not found any previous Swedish investigations of the oral and dental health of the homeless. Nor are there many studies from other countries, and few of the ones that do exist are sufficiently detailed to provide a clear picture of the prevailing conditions (Table 3).

A literature search did not disclose any international interventional studies that could be used for conclusions about appropriate methods of delivery of dental services to the homeless, or for planning of dental care tailored to meet the special needs of the homeless.

An American study of 1500 mentally ill homeless people (Rosencheck, 1997) disclosed that the homeless people themselves more frequently perceived a need for dental treatment and medical services than the medical and nursing staff thought. The professionals gave higher priority to treatment of mental illness and drug/substance abuse

For a successful outcome, the conditions under which care and treatment of the homeless are provided must be laid down in cooperation with the homeless themselves and be seen as acceptable for them.

Table 3 Studies of oral status of the homeless from 1984 to December 2006

Author, country	Published in	Title	Principal findings
Jago JD, Sternberg GS, Westerman B. Brisbane,Australia	Aust Dent J. 1984;29:184-8.	Oral health status of homeless men in Brisbane	29% were completely edentulous; the mean number of extracted teeth was 15.4 with a monotonic increase in tooth loss with increasing age
Gelberg L, Linn LS, Rosenberg DJ. Los Angeles,USA	Spec Care Dentist. 1988; 8:167-72.	Dental health of homeless adults	Homeless adults more dental diseases as well as a lower use of dental services than the general population. On the basis of these findings, more accessible dental services need to be designed for the homeless population.
Pizem P, Massicotte P, Vincent JR, Barolet RY. Montreal, Canada	J Can Dent Assoc. 1994; 60:1061-5.	The state of oral and dental health of the homeless and vagrant population of Montreal	The authors hypothesized that homeless people would prefer to be treated in the hostels and shelters where they sleep. But 65% of the subjects indicated that they would prefer to see a private dentist of their choice. 35% wished to receive dental treatment in the hostels they presently frequent.
Bolden AJ, Kaste LM. Iowa, USA.	J Public Health Dent. 1995; 55:28-33.	Considerations in establishing a dental program for the homeless.	The diversity of the homeless population in combination with the variation of space and medical resources at different shelter sites dictates flexibility in the development of programs to address the oral health needs of the homeless
Kaste LM, Bolden AJ. Bethesda, USA.(38)	J Public Health Dent. 1995; 55:34-6.	Dental caries in homeless adults in Boston	Demonstrate a high need for preventive and restorative dental therapy.
Blackmore T, Williams SA, Prendergast MJ, ope JE.Leeds ,UK.(39)	Community Dent Health. 1995; 12:04-9	The dental health of single male hostel dwellers in Leeds.	Confirmed a high level of normative need despite a low level of perceived need, but the majority of men failed to attend. Appropriate provision of dental care is discussed and recommendations made for future developments.
Clarke M, Locker D, Murray H, Payne B. Toronto, Canada (40)	Can J Public Health. 1996; 87:261-3.	The oral health of disadvantaged adolescents in North York, Ontario	Clinically, high rates of periodontal disease, dental decay and urgent treatment needs were detected
Gibson G, Rosenheck R, Tullner JB, Grimes RM, Seibyl CL, Rivera-Torres A, Goodman HS, Nunn ME.Texas, USA	J Public Health Dent. 2003; 63:30-37.	A national survey of the oral health status of homeless veterans	As expected, the homeless veterans exhibited poor oral health, but it was not different from domiciled veterans enrolled in substance addiction programs. Lifestyle choices, such as heavy drinking and smoking, may contribute more to poor oral health than living conditions.
King TB, Gibson G. Texas, USA	Spec Care Dentist. 2003; 23:143-147.	Oral health needs and access to dental care of homeless adults in the United States	This article reviews the oral health needs of people who are homeless as reported in literature, barriers to receiving dental care, and methods used to deliver dental care to this population
Luo Y, McGrath C. Faculty of Dentistry, niversity of Hong Kong, Hong Kong.	Spec Care Dentist 2006 Jul-Aug; 26	Oral health status of homeless people in Hong Kong.	More than 90% had evidence of caries experience; most (75%) were related to untreated caries. The mean DMFT score was 9.0.Periodontal disease was highly prevalent, with 96% having periodontal pockets. The dental problems most frequently reported by the homeless were: bleeding gums or drifting teeth (62%), dental pain (52%) and tooth trauma (38%). More than 70% of the study's participants perceived a need for dental care.

AIMS

The overall aim was to describe the oral status of a sample of homeless adults, to analyse their perceptions of oral health and the consequences to focus on adequate dental care for the homeless.

Paper I To investigate and describe the oral status of homeless adults in Stockholm.

Paper II To gain the perceptions of homeless people concerning their oral health and perceived consequences of dental treatment.

Paper III To illustrate homeless people's subjective definitions of dental care in the encounter between themselves, professionals and society.

Paper IV As a continuation of a recent report, to investigate oral health related attitudes and expectations among the homeless in Stockholm, Sweden.

METHODS

Design of the studies

This thesis is based on four studies, referred to in the text by Roman numerals (I-IV), and relies on a combination of quantitative and qualitative data collection and analysis.

The data were collected through questionnaires, clinical examinations and interviews.

A design overview of Papers I-IV is provided in Table 5.

Table 5: Overview of studies I-IV

Paper	Published	Design	Data collection	Analysis method	Conclusion
I	2005	Quantitative	Clinical examination	Descriptive Statistic	This study shows the deplorable oral status of a sample of homeless adults in particularly with respect to caries, periodontal disease and teeth missing
II	2005	Qualitative	Interview	Phenomenological-hermeneutic method The analyses process has four steps: sense of the whole, meaning unit, expressed unit, transformed unit, synthesis	The homeless people interviewed in this study strongly associate oral health with human dignity
III	Submitted	Qualitative	Interview	Content analysis The analysis process was performed in four steps: whole meaning, codes, sub themes and themes	In the encounter between the homeless individual and the dentist, the dentist's understanding and knowledge about the vulnerable situation of homelessness is necessary. The patient must be met where she or he is and with respect for the person she or he is.
IV	Manuscript	Quantitative	Questionnaire	Descriptive statistics	Teeth were reported to be important by our subjects, whose the main expectations from treatment were improve chewing ability and improved appearance.

Paper I

Paper I is a quantitative study and focuses on oral health including clinical examination. Clinical findings were assessed using defined and validated variables and analysed using statistical analysis. The clinical data in Paper I consisted of probing pocket depth (PPD), Gingival Bleeding Index (GBI), the presence of dental plaque recorded at 4 sites on each tooth, in addition caries and fillings were registered

Paper II

Paper II is a qualitative study where in-depth interviews were conducted by one author (PDP) with 8 homeless individuals. An implicit interview guide was created as an agenda for the conversations, covering such aspects as lifestyle, family ties, social factors, drug abuse, opinions and values about dental care, experience of dental care, and expectations of dental care after the encounter with the dental care team. During the interview, the subjects were given the opportunity of raising questions.

The interviews took place in a pleasant and quiet room and were tape-recorded

Paper III

Paper III, is a qualitative study with analysis of the in-depth interviews from paper II using a qualitative content analysis method. The subjects were encouraged to describe their perceptions of the issue in the context of their daily lives. The qualitative content analysis method was chosen to discriminate what the text talks about as well as the underlying meanings of what the text says about the topic that is studied, the encounter in dental care. To capture this internal perspective, the researcher interpreted and analysed the texts of the subjects' interviews in a series of steps, eventually disclosing from the narratives their interpretations of the encounter in dental care.

Paper IV

Paper IV is a quantitative study where the participants were asked, prior to the clinical examination presented in paper I, to answer questions in a standard health form concerning general health problems and present medication, and a specially designed, structured interview to obtain information on the oral health, oral problems, oral hygiene habits, dental treatment fears, drug abuse, tobacco smoking and social conditions. Furthermore, a radiographic examination was performed as a pre-treatment diagnostic tool in order to identify possibly infectious sites and other pathological changes.

Sample

Paper I and IV

The material in Papers *I* and *IV* comprised 147 individuals, with an age range of 22–77 years: 110 men, age range 25-70 years and 37 women, age range 22-77 years.

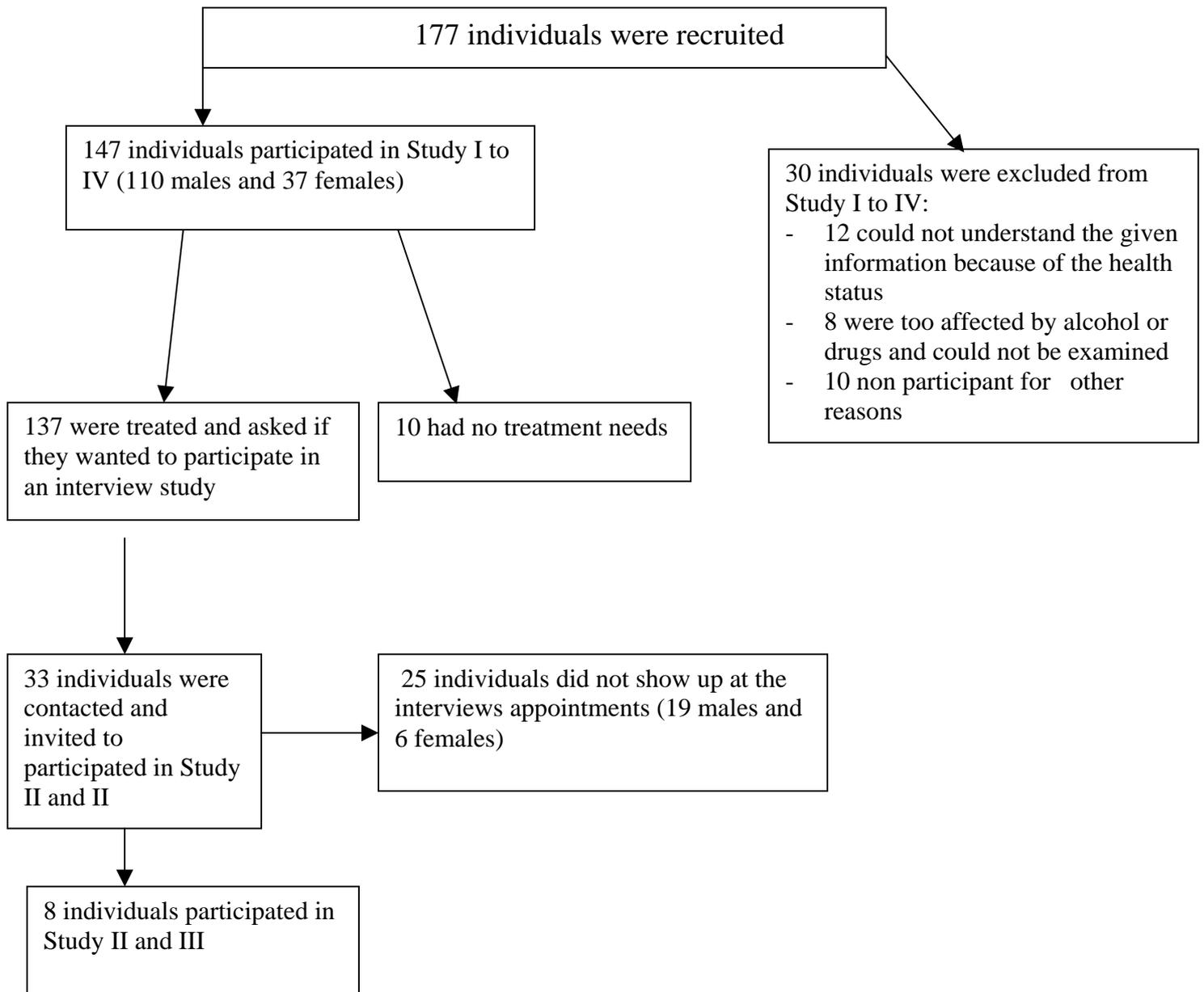
32 subjects were examined at St. Göran's Hospital by two of the authors and 115 were examined by the principal author at the Institution of Odontology, Karolinska Institution or at HPM (Hållpunkt Maria).

The 147 individuals were asked to answer questions in a standard health form and a special designed, structured interview prior to clinical examination.

For *Papers II and III*, thirty-three subjects were recruited from the original group of 147 participants from the above study. They were invited to participate in an interview study. The participants ultimately comprised 6 men and 2 women, aged between 47 and 63 years.

The sampling is presented in figure 1.

Fig 1 Flowchart for sampling- in Papers I to IV



ANALYSIS

Statistical analysis

In *Papers I and IV* the results were analysed using a two-way analysis of variance (ANOVA) with repeated measures of two factors. Data were expressed as medians and interquartile ranges (IR). Statistical significance was accepted at the probability level $p=0.05$

Phenomenological-hermeneutical analysis

The interviews in *Paper II* were analysed using the phenomenological-hermeneutic method inspired by Giorgi (1985). The essence of the phenomenon is disclosed through the researcher's reflection and intuition. The essence contributes to deeper understanding of the reality as it emerges from the interviews. Giorgi has developed an analysis method in several steps. Initially the researcher grasps the sense of the whole. Then meaning units focused on the phenomenon being investigated are discriminated. These units, in the subjects' everyday expressions, are transformed into the researcher's language, with special reference to the phenomenon being investigated. Finally the transformed meaning units are synthesised into a consistent statement of the structure of the phenomenon.

Qualitative content analysis

In *Paper III* the topics in the interviews concerning life as a homeless person, drug use, family and dental history were analysed for content, with special references to descriptive answers to give a clear and distinct background description of the culture and characteristics of the participants.

The verbatim transcripts were analysed using qualitative content analysis inspired by the method of Graneheim and Lundman (2004) to achieve credible findings in the narratives that could influence the respondent's meeting with dental care from his/her

life-world. The interviews were read one at a time, and then analysed together as a setup and notes made regarding topics arising from the texts in open coding. Questions asked about each text were “What is it about? What does it stand for? What does it mean?”

The content became either manifest when it analysed what the text said or latent with interpretation of the underlying meaning, what the text talked about.

ETHICAL CONSIDERATIONS

Research is important and necessary for the development of both knowledge and society. Society and its inhabitants have the right to demand highly valid research on significant important issues. However, the inhabitants also have the right to protection of their privacy and integrity (The Swedish Research Council, SRC). SRC: s: ethical rules were followed in this dissertation with respect to the requirements of information, consent, confidentiality and utility.

All participants were adequately informed, verbally and in writing, about the aims and methods and they were at liberty to abstain from participation in this study and were free to withdraw their consent to participate at any time.

All studies were approved by the local ethics committee at Huddinge University Hospital.

All patients gave their informed consent before inclusion and the study complied with the Helsinki Declaration.

RESULTS

Paper I

147 individuals ranging in age from 22 to 77 years underwent clinical examination. The median number of teeth was 18.0 and the number of teeth decreased with increasing age. In the oldest group 8 individuals were edentulous. GBI, PI and calculus were high (72-100%) and the number of molars decreased significantly with increasing age. The median DMFT was high: 27.0, and in the age group 20-29 DMFT was significantly higher in women than in men ($p < 0.01$).

In addition, 7 of the 8 edentulous subjects did not have prostheses.

Oral mucosa lesions i.e. ulcerations, white and red patches were common.

Although the homeless adults had relatively few remaining teeth, their periodontal health was better than expected considering the oral hygiene status. Despite the furcation involvement in many molars, tooth mobility was not common in the sample maybe because teeth with doubtful prognoses had been extracted and only those with reasonable prognosis were maintained.

Considering the fact that the median latest dental appointment was 5.0. years ago, and most commonly comprised extractions or temporary fillings, most crown and bridgework present at the initial examination probably predated the homelessness of the subject. This was supported by the condition of the prosthetic work

Paper II

The analysis revealed that the interviewee and drugs were the central theme of all the narratives. Drugs were the central focus of their lives and facts such as duration, drug habit,

price, quality and doses were given in detail. No interviewees mentioned toothache as a problem.

Loss and recovery of social functions, social competence, self-esteem and self-confidence were often interwoven in the same meaning unit.

Oral function was more often referred to in terms of recovery rather than loss.

Loss of teeth can be perceived as physical loss of a body part, like an amputation. In the narratives, several respondents talked of being made whole again after undergoing dental treatment.

All narratives revealed expressions of loss as well as recovery in the respondents' life-worlds. Both aspects highlighted the fact that being homeless means loss not only of a permanent residence but also of many values and functions. Loss of dignity is sometimes described as loss of face and considering the different themes of oral health; loss of teeth may similarly be equated with loss of human dignity.

Paper III

In the analysis of sentences relating to the homeless individual as a person, the underlying meanings of were interpreted as codes and subthemes and labelled as two themes: "*Struggle to retain integrity*" and "*Need for freedom without responsibility*".

In the analysis of sentences relating to the homeless individual as a patient in dental care, the underlying meanings of the text interpreted in codes and subthemes and labelled as two themes: "*Meeting the patient where (s)he is*" and "*Future dental care*".

Struggle to retain integrity.

Maintaining one's self-respect in a vulnerable life situation is a survival strategy. There was ambivalence in this theme, as this struggle could be handled either by taking responsibility for a problem or by not taking responsibility.

Need for freedom. The need for freedom is a theme that recurred for all the interviewees in different ways. It could be a wish of feeling independent or an egoistical feeling of not taking responsibility.

Other situational sentences in the text about meeting the dentist were analyzed to explore the situation from the homeless person's perspective. The theme "*Meeting the patient where*

(s)he is" became a relevant theme to this part of content analysis of the interaction between the patient and the dentist.

Future dental care. The theme of future dental care included feelings and thoughts of the respondents when they talked about their future dental care.

Paper IV

147 subjects were interviewed in accordance with a specially designed structured interview covering such topic as attitudes to oral health, oral problems, oral hygiene, habits, tobacco habits, and dental treatments fears. The age range was from 22–77 years, median 48.0 years, 100 males and 37 females.

Out of 146 respondents, 93.8% considered that the teeth were important, 86.3% experienced pain or soreness of the teeth. 92.5% reported chewing difficulties due to pain, chewing was a problem for 89%, 68.4% subjects expressed embarrassment about the appearance of their teeth, 93.8% refrained from dental treatment for financial reasons, 73.3% had not received dental treatment for their complaints, and fear of dental treatment was confirmed by 70.5%, 74% subjects reported dry mouth, 67.4% did not own a toothbrush.

91.8% did not have any address or at least a *poste restante* and could not be contacted by phone or by other means, only 17% had completed high school, 92% were drug abusers, 85% were tobacco smokers. The median number of teeth was 18.0. The

median duration of homelessness was 5.0 years, the interval since previous dental treatment varied between 0.5 and 50 years

11.5% of the individuals stated that they were HIV positive, 20.4% reported known CVD, and headache was mentioned by 44.2%.

METHODOLOGICAL CONSIDERATIONS

Scientific perspective

This thesis has two perspectives, the natural science perspective and the humanistic perspective. Qualitative and quantitative strategies should be seen as complementary (Pope and Mays, 2002).

The aim of a quantitative method is to describe, quantify and determine whether or not there is a causal relationship. In order to be able to generalise the results *i.e.* to extrapolate the results with certainty to an entire population, random sampling is used to select the material to be investigated. This makes statistical calculations possible.

The main strength of the quantitative method is reliability and the validity of the method depends on whether the research hypothesis has been correctly formulated.

Sometimes a research topic cannot be adequately addressed by quantitative methods *e.g.* when a complex or human phenomenon is to be investigated. In order to do justice to human phenomena a shift of perspective is necessary and qualitative methods are needed (Nordenram and Norberg, 1997; Thulesius *et al.*, 2004). Instead of the conventional use of a questionnaire, conducting in-depth interviews with a specially selected group of subjects can disclose other new, different perspectives.

The aim of the qualitative interview and the subsequent analysis is to highlight what is important to a person in a given situation (Strang, 1998). The strength of qualitative methods is validity whereas reliability must be assessed in the context of conditions

prevailing at the time of the interview and can therefore not really be studied as a separate entity (Svensson and Starrin, 1996).

Another key dimension is the difference between deductive and inductive approaches. The deductive approach is theory-driven and research is undertaken with an *a priori* theoretical view. A hypothesis is generated and the aim of the research is to nullify or support the hypothesis. The inductive approach is data-driven, i.e. facts derived from the research are used to generate theory (Fulop, 2001).

Although qualitative analysis does not emphasize numbers of breadth, there is a difference between knowledge drawn from most of a sample and knowledge drawn mainly from a few individuals (Malterud, 1998)

Table 4 Methodological scientific differences * (Modified after Gunnarson R).

	Quantitative methods	Qualitative methods
Approach to knowledge	Empirical-atomistic	Empirical-holistic
Context	Sees the phenomenon being studied in isolation and restricted/contextless (atomism). The more restricted, the easier to study.	Sees the whole picture (<u>holism</u>), in which the context is often of importance.
Historical connections	Seldom interested in historical connections.	Often interested in the connections between past-present-future.
Aims	Tries to <u>describe</u> and preferably also <u>explain</u> a connection, or to prove a hypothesis. Seeks universal rules. (Investigate - measure - explain - predict)	Tries to <u>understand</u> that which is specifically human. (Get close to an obtain insights into human thoughts or behaviour).
Research plan	A fixed research plan that strives to eliminated sources of error in advance. (All data is collected, after which the planned statistical corrections are made).	Is responsive to the data. (How questions are posed to the respondents and how data is collected may have to be altered during the course of the project).
Researcher's role	The researcher is objective and interchangeable.	The researcher has a trusting relationship with the informants and is often not as interchangeable
What is studied	What is studied is that which can be delimited and measured, preferably "objectively".	What is studied is <u>that which is specifically human</u> . <u>Often based on personal experience and the ways in which human beings endow their experience with meaning and significance.</u>
Selection of sample	A representative sample that provides information regarding a larger underlying population. Randomized.	Respondents consciously selected for their knowledge of the phenomenon. Efforts are often made to obtain a spread (for instance old-young, sick for longer or shorter time periods, with and without complications, etc.) Strategic (Purposeful sampling)
Size of sample	Size of sample can be estimated in advance on the basis of statistical information. .	Size of sample / number of individuals involved not determined in advance. The term used in Grounded theory is saturation, which indicates that sufficient material has been collected.
What the collected data includes	Clearly defined variables. Defined on the basis of "operational definitions"	Uses the full diversity of data. Describes essences, themes, patterns, opinions.
Possible results	Possible alternative results determined in advance. Hypothesis testing.	Open about what the results might be Hypothesis generating.
Transferability	The findings from the sample can often be generalized to the larger underlying population.	Seeks recurring patterns, common features. There is some transferability, but not generalizable in the same way as for studies based on an empirical-atomistic approach to knowledge.
Markers of good research quality	<ul style="list-style-type: none"> • Reliability • Validity • Reproducibility 	<ul style="list-style-type: none"> • Awareness of perspective (=preconceptions accounted for and discussed) • Internal logic (=appropriate method of analysis used) • High quality data (= quotations from the informants to support the results, analysis and conclusions). • Legitimacy (=the article makes it possible to understand how the researcher drew his or her conclusions).

Phenomenological Approach

Phenomenological methods were used in study II. The purpose of this method is to illuminate essences and meaning structure of a phenomenon as lived and experienced by subjects.

These methods originated in phenomenological philosophy. Edmund Husserl (1859-1938), a German mathematician and philosopher regarded as the father of modern phenomenology (Bengtsson, 1988), intended to develop a method for the stringent, scientific scrutinising of the givenness of a phenomenon for a consciousness without questioning its origin or existence (Husserl, 1989).

Husserl (1989) implies that man's experience of the world as subjective and culturally meaningful reconnects the experienced phenomenon to the subject's experiencing. He thus connects the perceptual act with the subject, understanding intentionality to be a fundamental concept in phenomenology (ibid.) Hence phenomenology emphasizes the meaning bestowing activity of consciousness, and the individual is seen as the determiner of the meaning of his/hes world. The phenomenological field concerns the world as meant or intended, and the phenomenological task is to investigate how man experiences and constitutes the world as a world. To scrutinise the experienced givenness of an object, the scrutiser works within an attitude of phenomenological reduction, thus bracketing his/ her attitude of the natural world (ibid.). This reduction is not to be understood as minimising but as becoming present to the givenness of a phenomenon and thereby being able to vary it to such an extent that the essence of it appears and can be grasped in its original meaning (Husserl, 1977/1992).

Content Analysis approach

Qualitative Content Analysis was used in study III. When performing Qualitative Content Analysis, a basic decision to be made is whether the analysis should focus on the manifest or the latent content. Manifest analysis refers to the text that describes visible and obvious components. Latent analysis refers to what the text says and deals with the underlying meaning of the text. Both analyses deal with interpretations but they vary in depth and level of abstraction (Graneheim&Lundman 2004).

The trustworthiness of the finding is related to credibility, dependability and transferability (Graneheim&Lundman 2004). Credibility concerns the focus of the research and refers to how well the data and the analysis process addresses the intended focus. Decisions regarding the focus of the study, selection of context, participants and approach used to collect data are critical issues. It is desirable that the narratives are as rich as possible, which requires the participants being willing to talk. Selection of the most suitable meaning units, how well the categories and themes cover the data and that the similarities and differences between the categories were determined correctly are other essential points. Using representative quotations from the text and seeking agreement among co-researchers and experts are ways of dealing with these issues. Another aspect of trustworthiness described by Graneheim&Lundman (2004) is dependability, which deals with the extent to which data changes over time and the researcher adjusts their decisions during the analysis process.

Trustworthiness also includes the question of transferability that refers to the extent to which the finding can be generalised to other setting or groups (Graneheim&Lundman 2004). It seems reasonable that the finding in study III

can be understood, transferred and applied to similar situation in a new context.

To validate the outcome, the analysis was discussed and reflected upon together with the co-authors.

Validity

Validity is defined as determining that the researcher has measured what was intended to be measured (Kvale, 1997). Interviewing individuals whose experience the researcher wishes to learn from should thus provide high validity. According to Kvale (1997), it is important to bear the validity of a study in mind from the very outset and throughout the research process. His view is that it will be contingent on the skill of the research as it develops during the course of the study.

In concrete terms, this implies reflection, interpretation and critical analysis at every stage of a study, from formulation of the objectives and the research questions through the interview, transcription and analysis stages.

Reliability

In quantitative research, high reliability requires the researcher to repeat the same investigation several times, always achieving the same results.

In qualitative research with interviews, reliability cannot be achieved in that sense, since every interview situation is a time of unique interaction between the interviewer and the interviewee. According to Riessman (1993), the interviewer is not the same person after an interview as before it. She also describes every narration as a selective reconstruction of events, pointing out particularly that it is tempting for an interviewee to avoid including painful, traumatic memories in the narration. It is therefore difficult to apply the usual terms of reference regarding

reliability to studies including personal narrations, not least the narrations of the homeless, which are sure to contain painful memories.

Pre-understanding

Pre-understanding is the knowledge we carry with us before we start on a research project and, as a rule, pre-understanding is an important element in the researcher's motivation for undertaking a research task (Malterud, 1998; Marschall and Rossmann, 1999).

In interpretational studies, the researchers themselves can be regarded as research instruments as the interpretation is based on pre-understanding (Nordenram and Norberg, 1998).

Kvale (1997) discusses the risk that the findings from an interview study will be influenced by the subjective values and preconceptions of the researcher. In his view, no one can be completely objective, or free from the problem that subjective values impact on his/her works. As a researcher wanting to interpret the narrations of the homeless interviewees, It was necessary to have some knowledge of the subject, as well as an awareness of the subjective role in the research process, from interviews to analysis and interpretation.

GENERAL DISCUSSION

The overall aim was to describe the oral status of a sample of homeless adults, to analyse their perceptions of oral health and the consequences of dental treatment.

Homeless in a modern society

Tosi (1996) indicates how the globalization and internationalization of the economy have resulted in major changes on the labour market. Jobs are lost or moved, workers have to leave their homes and move with their places of

employment. The structure of the family has also changed, and social networks are weaker than in the past. The cumulative effect is that people have become more socially vulnerable, and increasingly large groups run the risks of marginalization or rejection. A new lower class of people who are unemployed and therefore not needed has developed. In the past, society was described as divided vertically into social classes. Today, society is horizontal, and individuals are either included or excluded.

Homelessness is one way in which poverty becomes visible. When there are more and more homeless people on the streets, begging and sleeping in the subways, we become aware of poverty and of the risk of permanent social exclusion.

Opportunities for reintegration decrease for the socially excluded. People find themselves having become impoverished for many different reasons, but once they are in that state, the risk of permanent social exclusion is great.

However, the problem is described in other terms than as related to unemployment, housing shortages, segregation and inequality. Instead, the political message is that homelessness is a small and, most importantly, restricted problem. The homeless are described as a separate group in an otherwise well-functioning society. The socio-political and structural causes of marginalization are denied or silenced, with focus instead on deviant individuals and their behaviour. Housing areas become segregated, and the barriers between them very distinct. The debate ought to be about the rights of the homeless to decent lives, with jobs, housing and health care, including their oral health.

Finding the participants

To reach less-reachable patients is a great challenge (Howe 1999). There are some 3 900 homeless individual in Stockholm and during the project period of five years only 147 came forward for free dental examination

Living with drug abuse problems and as a homeless person, it is hard to keep control of one's everyday life. By definition, the homeless have no fixed abode and cannot be contacted by post or telephone. Therefore, investigations must rely on subjects who can be located in some way. The research group tried to inform as widely as possible about the project with assistance of voluntary organisations, and the medical outreach team and at the shelters. But we can imagine that the need of dental treatment was more frequent than 147 of 3 900 persons.

Impediments to participation

Many homeless people are accustomed to being cross-examined by social workers, policemen and other authorities and avoid such contacts as often as possible. The project offer of free dental examination may have been seen as such an undesired contact.

The mean age of the interviewees was 54 years which means that many of the younger homeless rejected the opportunity to have free dental treatment. Younger drug addicts tend to give full priority to drugs and ignore their oral health and oral appearance, which may explain their failure to come forward for examination. Or they may still have reasonable good oral health and have felt no need of dental care. Many homeless drug addicts succumb at an early age to overdoses, suicide, violence or disease, and 13 of the 147 homeless people died during this project (2000-2006). It follows that it is practically impossible to obtain a random sample of material from the total homeless population in a society.

Dropouts

Of the 137 who accepted and received dental treatment, all were willing to take part in a future interview study when they were asked immediately after completion of their dental treatment. When they were actually contacted a few months later, only 33 could be reached and finally only 8 came for an interview. These 8 were all middle-aged individuals with a long history of both homelessness and drug abuse.

They can be seen as survivors in difficult life situations where many people die young (Wright et al. 2005, O'Connell et al. 2004, O'Connell et al. 2005). The interviewees had a great deal of experiences of living in destitution so they might have been more readily approved for subsidised dental care than younger homeless people who may not yet have such poor oral status or may not yet have totally ignored their dental health because of a chaotic lifestyle. When discussing the findings from the interviews, this selection bias must be kept in mind. This is also an illustration of the difficulties of making, remembering or keeping promises and appointments in an unstructured lifestyle.

It is not possible to generalize to the situation of all the homeless from the results of these studies, owing to the limited number of interviewees, and that the eight individuals interviewed in depth were not randomly selected. Still, relevant analytical generalizations be made on the basis of those studies. Findings from such a study could provide guidance regarding what might be expected in a different situation, if it provides a thoroughly-balanced assessment based on an analysis of similarities and differences between the situations in question (Kvale 1996).

According to Sahlin and Löfstrand (2001), a researcher with a client-oriented perspective who presents individual life stories gives the reader the opportunity to see these stories as if they were a series of pictures. In the case of the present study, such a series might provide insights into the interaction between homeless individuals and their dentists, as well as saying something about this interaction in relation to public authorities.

During the project period of five years, 74 patients disappeared after having completed their dental treatment and 25 patients disappeared before the treatment was finished and never returned. Some disappeared and returned either because of an emergency or because they wanted to complete the original treatment plan after periods of relapse in drug abuse. This pattern of dropouts and missed appointments is also described by Blackmore et al. 1995

Substance abuse and its impact on oral health.

Drugs abuse is associated with many oral health problems as well as behavioural effects that may manifest as depression, anxiety, memory loss and various neuropsychotic disorders.

In some cases drug abuse can result in death with various causes: malignant hyperthermia, internal bleeding, fatal overdosing and allergic reactions. The lifestyle of drug users may contribute to oral health problems and low use of dental services. Drug users therefore comprise a group with special dental needs. They need access to more dental care than most people (McGrath and Chan 2004).

In our material, oral examination showed poor oral health, high prevalence of dental caries, signs of periodontal disease, tooth erosion and soft tissue abnormalities. The considerable plaque accumulation in the absence of preventive

measures and regular conservative dental treatment and, in many cases, drug and substance abuse are major factors contributing to the deplorable oral status of the individuals in our material.

The longstanding and in some cases excessive smoking habits reported in our material may contribute to explaining not only the periodontal conditions but also some of the mucosal and medical problems encountered. In addition, some subjects mentioned that in periods under influence of drugs, their minds were completely focused on the drug and that nothing else was of importance. This kind of finding is also reported by Robinson et al. (2005)

The widespread and highly varied drug abuse among the homeless is high-risk behaviour as far as blood borne infections including HIV and hepatitis B and C are concerned (DePaola 2003) This will influence the outcome of treatment and the welfare of the patient.

Treatment level

As far as we know, very few, probably 3 of the study group of 8, are at present clean (non-abusers), living in ordinary housing and with ordinary jobs. Although there was no way these individuals could have been predicted from the outset, there is no question that the thorough dental treatment was one essential element in their return to an ordinary life, and for them the oral rehabilitation was brought in at the right time and in the right manner. As this successful outcome of dental treatment for a few of the homeless persons could not have been predicted from the outset, dental treatment for the homeless therefore should begin with the hypothesis that all subjects have the potential to return to an ordinary life. But as dental care for the homeless is mostly publicly funded and the relevant population is vulnerable and indigent, the choice of treatment level between "treat it if it

might help" and "don't treat unless you believe it will be likely to help" must be considered (Sharar Huff Ackerson 2003). It is often unclear whether the intervention will succeed, and even if it succeeds it is uncertain how long it will take. There should be interventions with the awareness that there is every possibility that they will fail. The principle of justice according to need would suggest that these people's needs should be met before those of others. To deny them exceptional care condemns them to misery (Howe 1999).

Dental care for the homeless must be adjusted to the individual prerequisites. When the state of homelessness is settled, preventive dental treatment is not an option, but it would be of great value if it could be introduced before a life situation of mental illness, drug abuse and homelessness is established. Regular dental care, though desirable, is not generally possible until the state of homelessness is resolved, and then dental care must be tailored to each patient's life situation. Immediate access to emergency dental care is important in dental care for homeless persons. Dental care with the goal that the individual should be able to chew and have a normal oral appearance are suitable goals to avoid the social stigma that can act as an obstacle to returning to regular life. This kind of treatment evaluation is also suggested by King et al. 2003 who, like Blackmore et al. (1995,) recommend that dental care for the homeless should be offered in special clinics and by specially trained teams (Walpington 2000).

Dental treatment is expensive and homeless individuals are dependent on the social welfare system, which stipulates the least expensive dental treatment, often implying extractions and full or partial dentures instead of periodontal and endodontic treatment, and fillings or crowns. Thus teeth with doubtful prognoses are extracted and only those with reasonable prognosis maintained. This might

explain why the homeless adults in this study have fewer remaining teeth than the general Swedish population (De Palma 2005 a).

Shared responsibility and distributive justice

The responsibility for care of the homeless in Sweden is shared between two systems governed by the Swedish Health and Care Law (HSL) and the Social Service Act (SOL)- The Swedish Dental Care Act (DCA) governs dental care. Management of care according to political decisions has an enormous impact of the lives of individual people and considers the interests of groups of individuals who can be affected by a decision or a policy. But in treatment, all health care professionals have to focus on protecting the autonomy and welfare of each particular patient. There is a tension between the patient-centered perspectives of the practitioners and the business perspective of organizational practice and policy (Ells MacDonald 2002). This situation became obvious in the clinical projects of this study, and inconsistency between belief and action gave rise to moral distress. We felt that it should be possible to reconcile the moral aspects of practice, the vulnerability of patients and staff, and the values expressed in acts, regulations and codes of ethics, and that we must be able to serve our patients, each other and ourselves with respect and dignity.

There is a dilemma for the dentists, who claim that they are unable to deliver effective levels of service and patients have been denied needed care in the same time, as the dentists have to consider the problem how to distribute resources justly. The Swedish Dental Care Act proclaims the need for distributing dental care equitably to the whole population but also states that the dentist is to perform treatment after informed consent with respect of the patient's autonomy. Still, the patient cannot insist on a special treatment. The dentist has to work according to

scientific evidence and proven experience. These dichotomies between the practice in treatment and regulations became very obvious and problematic in dental treatment of homeless people.

According to Ells and MacDonald (2002), transparency about the values that drive policies must help the people to use a shared set of values to guide behaviour within the organization. In this kind of organizational ethics, it is necessary to involve both bioethics and business ethics.

Care managers may pursue cost reduction at the expense of confronting difficult questions about procedural justice and social allocation of resources. They perform a type of administrative financial triage on behalf of society and the taxpayer, deciding whose needs are most compelling and which treatments should be excluded. They are supposed to differentiate between clients with greater and lesser needs, and philosophical dilemmas arise: should distributed resources be based on need or efficiency?

Practitioners are expected to serve as “patient advocates” in providing care and at the same time rationing care within the given resources. This places the practitioner in an ethically dubious role of acting as a double agent, serving both as patient advocate *and* as a guardian of payer resources. Rational treatment versus distributive justice in dental treatment has not been as much discussed as in health care and nursing care (Sharar 2003, Ray 2006, Howe 1999, Mamhidir 2006, Dharamsi 2002, Ells 2002).

There is a tension between the needs to prevent abuse and preserve trust. Clients can be harmed by managed care decisions. The utilization managers in the social service become both economic agents for their clients where difficult decisions

must be made for each client as well as for the whole population of clients that need support from the social welfare system.

Their difficult role has been described as follows: “They generally manage to stay on the road but veer erratically back and forth between two sides of moral obligations (clinical need versus economy)”(Sharar et al. 2003). Asking what is right includes personal feelings of moral justification adhering to the field of humanitarian ethic, not just a business objective of costs."

According to Howe (1999) to reach less-reachable patients is greatest challenge in organizational ethics.

CONCLUSIONS

To obtain adequate dental care for the homeless, regulations and laws must be adapted to their needs and to the available resources in society. To achieve this there must be a set of shared values in society to guide the norms of oral health and it must, of course, include the homeless.

- The homeless in this study had poor oral status, neglected oral diseases, poor chewing ability owing to missing teeth and massive plaque accumulation in comparison with the oral status of the general population

- The homeless people strongly associated oral health with human dignity. Living with other destitute people on the fringes of society erodes human dignity. During rehabilitation, in an effort to return to a decent life, the meaning of oral health becomes significant.

- There are many barriers to dental care, both from the individual him/herself and society. In the encounter between the homeless individual and the dentist, the dentist needs to have a solid understanding and knowledge about the vulnerable situation of the homeless. To be successful with homeless patients' dental care, the patient must be met where (s)he is and with respect for the person (s)he is.

- The homeless in this study reported that their teeth were important to them and their main expectations of dental care were to improve their chewing ability and their oral appearance

- General health was frequently compromised. Serious chronic and multiple diseases were represented. Substance abuse was reported by a majority of subjects and, mortality among the participants far exceeds that of the general population

IMPLICATIONS

From my own clinical experience I knew that, to be acceptable to homeless individual, dental care demands special considerations that are not at hand in traditional population-based dental care. Such knowledge is necessary when planning dental care for the homeless.

The result of the overly fragmented tasks and regulations today is that no one takes responsibility for any of the consequences of these tasks. The tension between the patient-centered perspectives of the practitioners and the business perspective of organizational practice and policy must be surveyed and there must be a set of values and goal for dental care of the homeless that are shared by all those involved.

This demands a revision of laws and regulations so that they are adapted to and usable in dental care for the homeless. Until this is done, dental care for the homeless will remain too administratively complex and demanding for all involved.

Special dental clinics in the neighbourhood of health care centers for the homeless must be established. The goal of such special dental clinics should be that after treatment the patients can be referred to ordinary dental clinics, which demands a network of general dentists who are willing to and capable of treating patients with special needs.

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Appendix I

Examination form

Name

ID

Date

Examiner

ID number

	POCKET				PLAQUE				GBI				Examiner			CARIES				FILLINGS, material, defect			
	m	b	d	l	m	b	d	l	m	b	d	l	CALCI	MOB	FURC	m	o	d	b	l			
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																							16
15																							15
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45																							45
46																							46
47																							47

18 28 38 48

Oral Mucosa:
Prosthetic Appliances
Other finding

Appendix II:

Questionnaire used in Paper IV
Department of Odontology, Karolinska Institution

Homeless study

Questionnaire

IDNr:

Date

Examining dentist

1. How do you feel about your teeth? 1 Are they important to you?
2 Are they not very important?
3 Are they completely unimportant?
4 When was your most recent dentist visit?
5 Do you go regularly)?.....
6 Comments:

2. Please describe what you think of your own oral/dental status (Use the examples below:)

No problems at all (Go on to question 2.5)

2.5)

1 Sometimes problematic **What type of problems?**

2 Often problematic

3 Always unpleasant and/or problematic

2.5 My appearance is embarrassing

1 My teeth don't work properly, **I have trouble chewing**

2 My mouth is often **dry**

3 I often have a **bad taste** in my mouth

Other comments:.....

3. Is your mouth **painful, tender or does it ache?**

1 YES

2 NO (please turn the page!)

3 How long have you had these problems?

4. Do they affect your chewing?

4.1 YES 4.2 NO

5. Do you have trouble falling asleep/sleeping because of them?

5.1 YES 5.2 NO

6. Have you ever been treated for these problems?

6.1 YES (How long ago?)

6.2 NO (Why do you think you have not received treatment?)

7. Would you like to be treated for these problems?

7.1 YES 7.2 NO

8. Would you like to come to the College of Dentistry in Huddinge to get help with your problems? 8.1 YES 8.2 NO

9. What do you think caused your problems?
(Why do you think this happened to you?)

10. How often do you brush your teeth?

- 1 Other aids (which ones)?
- 2 Have no opportunities to brush my teeth
- 3 Have no toothbrush
- 4 Don't think tooth brushing is important

Other comments:.....

11. Smoking

- 1 Never smoker
- 2 Former smoker
- 3 Smoker (How many cigarettes a day?)
- 4 How long have you been a smoker?.....

12. Snuff

- 1 Never used snuff
- 2 Former snuff user
- 3 Snuff user (How much snuff do you take every day?)
- 4 How long have you used snuff?...

13. Drugs Have you used any or all of the following during the last 4 weeks?

- 1. Opiates
- 2. Alcohol
- 3. Amphetamine
- 4. Cannabis
- 5. Benzodiazepines
- 6. Others -----

14. Are you afraid of going to the dentist?

Are you frightened/upset when you are at the dentist?

- 1 YES 2 NO (Go on to question 15)

Comments:

15. Has your fear/upsettedness kept you from going to the dentist?

YES NO

When did your fear start?

Comments:

16. How long have you been homeless?

17. Where did you sleep last night?

18. Where have you been sleeping for the last month?

19. What are your expectations of this treatment?

20. Are you in contact with the social welfare authorities? Who is your liaison officer?

21. How can we reach you if we should need to be in touch?

22. How good is your contact with the social welfare authorities?

Good

Bad

Neutral

Other comments

23. How long did you go to school?

Grades 1-6

Grades 7-9

Upper secondary Scholl

High Scholl

Other

24. If you dropped out of school, what was the reason?

25. Do you have any future plans?

Any other comments:

ORIGINAL PAPERS I-IV