Patterns of dental service use among homeless people using a targeted service

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Abstract

Objective: The objective of this study was to describe the patterns of dental service use among homeless people using a targeted dental service from 1992 to 2001.

Method: A case-note review of a selection of patients (n = 204) was undertaken using a pre-designed data abstraction form.

Results: For those presenting at their first contact, 40 percent (n = 68) expressed need in relation to oral pain and disease/tissue damage, and 28 percent (n = 33) in relation to dental checking and oral prophylaxis. Most homeless people had normative need for dental treatment (93 percent: n = 153). The dental service was delivered using a mix of outreach and fixed site clinics, with 75 percent (n = 153) of all first contacts made at outreach clinics. The targeted service was moderately successful at getting people to attend the fixed site service for continuing care, with 51 percent (n = 87) attending for subsequent visits. Location of first contact with the targeted dental service did not predict subsequent attendance. Those who did attend for further care tended to have normative needs for periodontal disease and dental decay and have their presenting complaint met. Only 23 percent (n = 46) of people completed a treatment plan, over a mean of 8.2 (standard deviation ± 9.4) visits. No factors appeared to predict completion of treatment.

Conclusions: While the small sample limits the findings in this study, it is hypothesized that the presence of the dental service promoted uptake of dental care. Flexible attendance tended to result in multiple visits and delayed outcomes, which themselves could have acted as barriers to care.

Introduction

An abundance of research indicates that homeless people have poorer mental and physical health, and die younger than their housed counterparts (1-5). In the UK, studies of the oral health of homeless people suggest that oral health is poor; treatment needs are high but patient-assessed need for dental care is low (6-8). A study of homeless people in Northern Ireland indicated that oral health was a source of decreased oral health-related quality of life (8). Poor living conditions, inadequate nutrition, stress, substance use, poor hygiene, and accidents all pose serious risks to the physical and mental health of single homeless people (9). Relatively minor conditions are made worse because of problems accessing health care and inadequate facilities for self-care (9,10). In the UK, a survey undertaken among a wide range of agencies providing services to homeless people concluded that access to dental services was worse than access to general medical services (4). The authors suggested that the barriers homeless people face in accessing dental care were related to the general scarcity of National Health Service (NHS) dental resources rather than to factors relating to homelessness. Low levels of patient-assessed need for dental care, lack of awareness of available services, anxiety about dental treatment, and negative attitudes of the dental staff are suggested to be key barriers for homeless people accessing dental care in the UK (11).

Research on the delivery of health care and effectiveness of health care to homeless people is patchy and descriptive rather than evaluative (10). There are very few reports on the delivery of dental care to homeless people and their patterns of dental service use. Some anecdotal evidence suggests that homeless people are unreliable attenders and do not complete treatment (6,7,11), although 60 percent of attenders using a mobile dental service in Glasgow were reported to attend for continuing care (12).

From 1992 to 2001, a targeted dental service for homeless people offering a mixture of fixed site and outreach clinics was provided in three southeast London boroughs. The fixed site clinic offered a full range of free dental treatment and was staffed by a dentist and a dental nurse. It was located in an open access day center catering for homeless people. This location facilitated dental attenders to access other social and housing services provided by the center. The fixed site service was supplemented by outreach clinics with 12 day centers and hostels across the three boroughs. Because of limited facilities, the outreach clinics involved free dental examinations and advice, treatment planning without radiographs, and arrangements for free future dental care. The outreach clinics were staffed by the same dentist and dental nurse who provided dental care at the fixed site service. The aim of the present study was to describe the patterns of dental service use among homeless people who used this targeted service.

Materials and methods

Sample

The names of 2,041 patients who had made contact with the dental service at either the fixed site or at outreach clinics over 9 years (1992-2001) were included in a paper-based file. A 10 percent random sample was obtained (n = 204), and the full patient record for each member of the sample was retrieved. This was carried out to minimize the influences of seasonal and personnel changes, and changes in day center and hostel provision that had occurred over the period. Eighteen records were found to be either missing or incomplete, and 18 additional records were randomly chosen to ensure a sample of 204 case notes. An inherent weakness of a retrospective case-note review is the problems of missing data, which must be acknowledged as a limitation in the present study.

Data abstraction

A data abstract form was developed to allow consistent abstraction of data from the case notes. The literature review identified key variables that were known to predict use of dental services among homeless people, and these were used to derive the data abstraction sheet. It was hypothesized that service use would be influenced by predisposing variables, enabling variables, and factors related to need (13-16).

Predisposing variables collected were age, gender, ethnicity, social support (13,15), and homelessness (4,16-19). Some case notes were missing age data (n = 3) and ethnicity data (n = 55). Three broad categories of homelessness were used in the study. "Rough sleepers" were defined as people with no permanent or temporary residence "who sleep on the street from very late at night to the early hours" (20). "Hostel and night shelter dwellers" were defined as homeless people who resided in hostels and night shelters and other forms of temporary accommodation for homeless people. "Rehoused" homeless people were defined as those who had experience of homelessness but were now residing in a permanent residence, although still in contact and accessing social and housing support services for homeless people. Social support is defined as being part of a network and having real social ties (18) and has been identified as an important predictor of health-service use in homeless people (16,19). The case notes did not record details of patients' social contacts. Instead, the "next of kin" or "significant other" to be contacted in case of emergency was used as a proxy indicator for access to social support. Experience of mental health and substance use were included as predisposing factors as they are hypothesized to affect the predisposition to service use in homeless populations (4,16). As drug use was not consistently recorded, it was not included as a predisposing substance-use factor. Enabling variables collected were related to contact with medical and dental services (13,15,16). Receipt of public benefits was included as it has been suggested they affect enabling factors for service use in homeless populations (16). Factors relating to need that were included were presence of a health issue impacting on the delivery of dental care, patients' expressed need (presenting complaint at the first contact with the dental service), and evaluated need (pretreatment dental need) variables (15,16). The patients' expressed need was derived from the case notes, although in n = 19 case notes a presenting complaint was not declared. Table 1 presents a summary of the variables collected.

This case-note review was undertaken as part of the audit and reporting mechanisms to the commissioning health authority. Research ethics approval was not sought; however, the Declaration of Helsinki (21), in relation to research ethics and data protection protocols, was adhered to. All data were anonymized and abstracted directly onto a passwordprotected computer. After input, each data file was compared against the original case note to check for errors. SPSS program (version 16; SPSS, Inc., Chicago, IL, USA) was used to analyze the data.

Data analysis

Descriptive and summary analyses were produced for each variable. Bivariate analyses were then conducted assessing the

Predisposing variables	Enabling variables	Factors related to need	Outcome of expression of need variables
Demographic variables	Contact with medical and dental services variables	Need variables: health status	Pattern of dental service use variables
Age in years Gender Ethnicity	Registration with a general medical practitioner and general dental practitioner in the last 6 months	Medical condition that impacts on delivery of dental care or support needs	First contact location Type of attendance pattern Location where care was received Number of visits Support needs
Social variables		Expressed need and pretreatment need	Changes in oral health status
Contact with next of kin or significant other Communication difficulties Homelessness	Homelessness	Expressed need Reason for first contact with service Pretreatment need	Items of treatment received Oral health status change Outcomes of care
Housing status Alcohol use Mental health problems	Claiming benefits		Referrals Presenting complaint met Treatment complete

Table 1 Variables Collected during the Case-Note Review

relationship between service use and the overall outcomes of care (presenting complaint met and treatment completed). Presenting complaint met was defined as the patient receiving the treatment requested during the course of treatment. Treatment completed was defined as completion of the patient's treatment plan as determined by the dentist. The case notes, which were missing data in relation to age and ethnicity, were excluded for the analysis exploring the effect of predisposing variables on service use. The level of statistical significance was set at 0.05.

Results

Predisposing variables

The mean age of the sample (n = 201) was $39.2 \pm$ standard deviation (SD) 3.0 with 80 percent (n = 162) aged between 25 and 54 years. There were 180 men and 24 women included in the sample. Ninety percent of the attenders (n = 184) lived in postcodes located in the three London boroughs, with 89 percent living within 2 miles of the fixed site center. Ethnicity data were available for 162 case notes, of these 77 percent (n = 125) described themselves as either White Irish (n = 30) or White British (n = 95). For social support, 30 percent (n = 62) of the case notes indicated that the patient could not identify a "next of kin" or "significant other" to call in case of emergency. Just over a third of the sample was rough sleeping (n = 69), 40 percent (n = 55) had been rehoused into a permanent residence.

The prevalence of self-reported mental-health problems was 22 percent (n = 45), alcohol use was 38 percent (n = 78).

Enabling variables

Fifty percent of patients (n = 102) were registered with a general medical practitioner, with rough sleepers being the group least likely to be registered [chi-square = 21.04; degree of freedom (d.f.) = 4, P < 0.001]. Prior to contact with the targeted dental service, only 4 percent (n = 9) of the sample had been registered with a general dental practitioner. Almost all patients were claiming public benefits (n = 200), which made them eligible for free NHS dental care.

Expressed need

Over 40 percent (n = 68) presented with problems relating to pain (28 percent: n = 57), swelling and infection (5 percent: n = 10), and trauma (1 percent: n = 1). An additional 5 percent (n = 13) presented with problems relating to bleeding gums and lost restorations (8 percent: n = 16). Twenty-eight percent presented requesting a check up (n = 22) and oral prophylaxis (5 percent: n = 11). The expressed need variables were combined to give two variables: attendance for dental checking and prophylaxis, and attendance for disease and tissue damage (22). Attendance for dental checking and prophylaxis (chi-square = 0.130, d.f. = 1, P = 0.137), and attendance for disease and tissue damage (chi-square = 2.216, d.f. = 1, P = 0.137) did not predict subsequent attendance.

Evaluated need

Pretreatment need was determined from the treatment plans prepared and discussed with the patient at the first contact

Table 2 Proportion and Frequency* of Patients Requiring Dental Treatment (n = 193)

		Proportions
Dental condition requiring treatment	Frequency	(%)
Dental decay (includes decayed and recurrent decayed teeth)	144	71
Root surface decay	16	8
Total restorative need (includes decayed, recurrent decayed teeth, and root lesions)	144	71
Periodontal disease including gingivitis	123	60
Spaces and gaps	78	38
Oral surgery conditions	9	4
Oral medicine conditions	7	3
No further intervention required	15	7

* People may be included in more than one category. Proportions have been rounded.

visit with the service. Table 2 reports the proportion of the people requiring treatment in each variable for each dental condition. Treatment needs were extensive and reflect the high mean number of decayed teeth in the sample, with 71 percent (n = 144) of people requiring treatment for dental decay, recurrent decay, and root caries. Older groups tended to present with prosthetic needs (chi-square for trends = 28.15, d.f. = 1, P < 0.001). Overall, 93 percent (n = 193) of the sample had at least one item of pretreatment need requiring continuing dental care.

Pattern of dental service use

All first contact visits were made on a drop-in basis to either the fixed site or outreach clinics. Three quarters of all first contacts was made at outreach clinics (n = 153). There was no difference in site of attendance by age, gender, ethnicity, or housing status. Out of the 204 people who made first contact with the dental service, 189 were judged to be in need of further care; 19 (9 percent) people were referred to local NHS dentists because they were being rehoused or had expressed a wish to attend a local NHS dentist.

Only 87 out of 170 (51 percent) invited to return to the fixed site center returned for further treatment. Of those who returned for subsequent visits, 71 percent (62/87) had made first contact at an outreach session and 85 percent (74/87) attended on a "drop-in" basis. Attenders were encouraged to use the drop-in clinics. Appointments were only offered to people with special treatment needs, or who required close support in order to attend for their dental appointment. Most users of the "drop-in" clinics came on set day on a regular weekly basis at the beginning of their treatment, but this pattern of attendance became less regular and frequent as treatment continued. The mean number of visits per course of treatment lasted at least 2 months; the mean length

Table 3 The Outcomes of Dental Treatment: Completion of Treatment (n = 204)

Treatment outcome	Frequency	Proportion (%)*
Treatment complete	36	18
Treatment complete (minor outstanding)	8	4
Treatment complete (mainstreamed at first visit)	19	9
Treatment complete (awaiting specialist referral)	2	1
Total treatment complete	65	32
Treatment incomplete (presenting complaint met)	19	9
Treatment incomplete (reason unknown)	113	55
Treatment incomplete (disagreement)	2	1
Treatment incomplete (jail, barred, sectioned)	5	3
Total treatment incomplete	139	68

* Proportions have been rounded.

of time for a course of treatment in months was $3.8 \pm \text{SD } 4.5$. The mean number of courses of treatment was $1.4 \pm \text{SD } 0.7$, although only 31 percent (n = 33) of patients had more than one course of treatment. A course of treatment was deemed to be complete when the treatment plan designed at the first contact had been completed and the patient had no other outstanding treatment needs.

Outcome of care

In a case-note review, it is not possible to assess patients' perspective on the service they received. The outcomes of the service are presented here in terms of the proportions that were referred for further care, had their presenting complaint resolved, and those who completed treatment (Table 3). Ten percent of patients (n = 19) were referred to their local dentists or specialists (n = 2) for further treatment. Accurate data for presenting complaint met were only available for 45 case notes, of these 51 percent (23/45) had their presenting complaint met.

Only 18 percent (36/204) completed treatment as judged by the dentist; a further 4 percent (8/204) required some minor further work and two people had completed primary dental care and were awaiting referral to a specialist. In all, 68 percent of the 204 patients in the sample did not complete treatment.

Neither the fixed site or outreach clinic as a site of first contact (chi-square = 1.615, d.f. = 1, P = 0.204) predicted subsequent attendance. Those who had attended for more than one visit per course (although not necessarily completing treatment) had a tendency to have a treatment need for dental decay (chi-square = 4.850, d.f. = 1, P = 0.025) and periodontal disease (chi-square = 10.2, d.f. = 1, P = 0.001),

and have their presenting complaint met (Fischer's Exact test 0.001) during the course of treatment.

Discussion

The sample in this study drew on homeless people from a variety of housing situations across southeast London and included rough sleepers, a previously underreported group for oral health-service utilization. The sample was representative of homeless people who have used the targeted dental service and is reflective of the pattern of homelessness in London at the time, which is to say mostly White middle-aged men born in the British Isles (23). The use of a retrospective case-note review, the problem of missing data, and the small sample size do however mean that the findings and conclusions must be treated with caution.

It is hypothesized that the presence of the targeted dental service promoted uptake of dental care among homeless people, as prior to the contact with the targeted dental service, only 4 percent (n = 9) of people had a regular source of dental care. The targeted dental service was free, located in places where homeless people congregated, and was organized around the particular needs of homeless people. While almost all homeless people in the study were eligible for free NHS dental care, there were few available local providers, and homeless people are known to be unsure about their entitlement to exempt dental treatment in the UK (6).

The way in which the dental care is organized is an important factor in promoting health-care utilization (13,14). A high proportion of people using the dental service were able to attend via the "drop-in" clinical sessions. Flexible modes of delivery and use of mobiles and outreach clinics have been suggested as ways of improving access to health care for homeless people (4,10,11).

The service was less successful with getting people to attend the fixed site for subsequent care, although this has also been the experience of other providers of dental care to homeless people in the UK (11). Kippen *et al.* report greater continuity of care by placing a mobile clinic at a day center, although they neither give figures in relation to the numbers who completed treatment nor report the outcomes of dental care (12). In the present study, the reasons why people discontinued their care are unknown. In the case of the outreach clinics, it is possible that users may have been more likely to reattend if they had active treatment at their first contact visit, although in the present study the location of the first contact visit did not predict subsequent attendance.

While the "drop-in" clinics allowed flexibility in usage, it did mean that no treatment could last for more than 30 minutes. Patients had to wait all morning for their "drop-in" slot and make extra visits to complete treatment over a greater period of time. Homeless people themselves decided the frequency of their attendances. Paradoxically, while the delivery of the service was flexible, it did lead to inefficient treatment plans. The flexibility of the service itself could have been a barrier to continuity of care. In this study, many of the people attended on a regular day for their treatment and would perhaps have preferred and coped with an appointment rather than a "drop-in" slot.

Fewer than 50 percent of homeless people in the present study had medical conditions that had an impact on their dental care, and most care was readily provided in the primary-care setting as has also been reported elsewhere (24). While the data are not strictly comparable with national UK data, most homeless people presenting to the dental clinic had higher levels of normative dental need compared with their equivalent age group in the housed population (25). Forty percent of those presenting to the targeted dental service expressed need in relation to oral pain, and disease and tissue damage, and 28 percent in relation to dental checking and oral prophylaxis. This challenges the received view that homeless people have a low perception of felt need and are apathetic about their oral health.

It has been suggested that homeless people living in more vulnerable situations such as rough sleepers are less likely to use health care (4). In this study, there was no difference in the way different categories of homeless people used the service in terms of visiting, visits per course, presenting complaint met, and treatment completed. But as the service was targeted at homeless people irrespective of the vulnerability of their condition, it is perhaps not surprising that there was equality of access.

Homeless people need to fulfill a range of basic needs before they can address physical-health needs (10,16). The presence of the dental service at the outreach sessions where these more immediate needs were being addressed could have enabled homeless people to express initial dental needs, as most of the barriers to access had been removed. This might explain why the service was more successful in enabling people to express initial needs rather than at enabling them to continue with care and complete treatment. It is hypothesized that mobile clinics providing a full range of treatment and staffed by dentists and dental nurses might be a better model to promote continuity of care than the simple triage provided in the outreach clinic in the present study. Nevertheless, these outreach clinics were an important first point of contact for homeless people with dentistry.

Limitations of the study

The retrospective nature of the case-note review meant that many factors known to be related to utilization were not recorded. Research in the general literature indicates that mobility, residential history, living conditions and length of time in the community, and social support are important predisposing factors for service use in homeless people (16). These factors along with the extent and nature of the expressed need could have been described in more detail if an a priori recording system had been used. In addition, data recorded from a case-note review must be treated with caution. Entries into a patient's case note will be made using different criteria at different times, with many missing items (26-28). The case notes in this sample were drawn over an 9-year period, and inconsistencies in recording or different approaches to recording data may have occurred. Careful abstracting techniques were used in this study (29,30). The use of a data abstract form and the detail it required removed the abstractor from making decisions about each item of the data and the effect it might have on the overall reporting of outcomes. Bias could have been reduced by using an abstractor who was not familiar with the service.

The description of how the service was used is limited to dental personnel's perception of events. There is no input from patients about service use or whether their perceptions of expressed need were addressed. The data are limited to the perspective of the provider, and achievement or failure is measured solely in normative terms. Patients may have different perspectives on what the successful outcomes of care might be, such as information giving and respect for autonomy, which may be different from those determined by the provider (31).

The homeless people who accessed the dental service may not be representative of all homeless people in the three boroughs, although the sample is reflective of the pattern of homelessness there at the time of the study. It is also a representative sample of homeless people who used the targeted dental service over the 9-year period, and the results are generalizable to that population.

Conclusion

While the presence of the dental service promoted uptake of dental care, there was a trade-off between flexibility of attendance and efficient delivery of a treatment plan. Flexible attendance tended to result in multiple visits and delayed outcomes, which themselves could have acted as barriers to care. The small sample size and missing data inherent in a review of this nature suggest that the results should be treated with caution. It is recommended that future research explore the use of mobile surgeries in promoting continuing care in homeless people.

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