Dental health behavior and self-reported dental health problems among hospitalized psychiatric patients in Denmark

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The purpose of the present study was to describe dental health behavior and self-reported oral health problems among hospitalized psychiatric patients. Two hundred and forty dentate patients were interviewed with regard to participation in school dental care, dental visiting habits, self-assessment of oral health, dental anxiety, and oral hygiene habits. Dental visiting habits were associated with gender, psychiatric diagnosis, duration of mental disorder, and fear of dental care. Moreover, toothbrushing habits varied with gender, status as inpatient or day-hospital patient, number of admissions, and psychiatric diagnosis. Constant regular dental visits were observed among 31% of the participants, whereas regular toothbrushing was reported by 55%. Compared with reference figures of the general population, these figures reflect a relatively poorer dental health behavior among the study participants. The study underlines the need for specific preventive dental programs, which aim at improving the poor dental health behavior among psychiatric patients. □ *Dental anxiety; dental health; mental disorder; self-assessment*

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Psychiatric disorders affect general behavior; for example, schizophrenia is associated with an impaired level of functioning (1). Altered perception of oral health has also been reported (2), and case reports of self-mutilation among psychiatric patients appear in the dental literature as well (3). In a psychodynamic analysis, Mester (4) suggests that neglect of oral hygiene and poor dental visiting habits among schizophrenic patients should be considered a process of self-mutilation. It has been argued (5), however, that forgetfulness and non-structured everyday life may influence dental care habits in mental patients. Moreover, several studies of psychiatric patients (6–8) have shown a relatively high frequency of non-compliance with oral health practices, which represents a major problem in dental care for hospitalized psychiatric patients.

For instance, a high prevalence of insufficient toothbrushing habits was shown for hospitalized schizophrenic patients (9), and a Dutch survey (10) showed poor dental visiting habits in hospitalized mental patients, despite the offer of dental care in the psychiatric institutions. In a Danish study of homeliving chronic mental patients (11) irregular dental visits were associated with the number of admissions. In general, dental visiting habits may also be related to dental anxiety (12), and it is expected that persons with a personality predisposed to general fear or anxiety would tend to develop dental anxiety (12). Mental patients represent a specific target group, but, unfortunately, data on dental anxiety among psychiatric patients are scarce.

In Scandinavia the current trend within psychiatry is the process of deinstitutionalization. This implies that patients with psychiatric disorders are expected to cope with their oral health problems through self-care. However, data on dental health behavior among psychiatric patients are limited, although essential for proper planning of dental care. Hence, the purpose of the present study was 1) to describe the dental health behavior, self-reported dental anxiety, and perceived dental health problems among psychiatric patients, and 2) to identify potential determinants of dental health behavior.

Study population and methods

The data were collected in 1993 from a population of patients admitted to one psychiatric department at the Copenhagen County Hospital, Glostrup. In this department all inpatients admitted for more than 180 days during the previous 1½ years are offered comprehensive dental care free of charge and individually based recall examinations. Short-term admitted patients are offered emergency dental treatment free of charge. Finally, several long-term day-hospital patients are eligible for a dental care program similar to that of the long-term inpatients. The day-hospital patients are enrolled in the hospital dental program from an assessment of the self-care ability in each individual case.

The research plan was accepted by the Ethical Committee of Copenhagen County, and a written consent was obtained from the participants before examination.

Table 1. The participants distributed by age and gender

Age, years	Female, *n*	Male, *n*	Total, *n*
20–29	20	34	54
30–39	29	36	65
40–49	28	43	71
50–64	19	31	50
Total	96	144	240

The present study population was restricted to the 20- to 64-year age group, and the total target population comprised 306 persons. Of these, 253 patients agreed to participate (82.7% of the persons selected). The most frequent reasons for non-participation were fear of dental care and delusions. Eleven persons were excluded from the analyses owing to edentulousness, and the mental state of two persons made an interview impossible. All in all, the final study population consisted of 240 dentate psychiatric patients. This population is described by age and gender in Table 1 and on the basis of duration of mental disorder, number of admissions, length of stay, psychiatric diagnosis, and admission status in Table 2. The personality disorders were dominated by persons presenting a borderline disorder. Furthermore, the term 'other psychiatric diagnosis' covers various diagnoses, including dementia, neurosis, alcoholism, and drug abuse, none of which represents more than 3% of the final study population. The category 'no diagnosis' is also included in the term and covers 6% of the study group.

In a structured interview the participants were asked about participation in school dental care, dental visiting habits in adult life, perceived oral health problems, dental anxiety, and oral hygiene habits. Responses that seemed to be influenced by delusions or distortion of reality were recorded as missing. Hence, none of the questions were answered by all 240 participants. Most of the questions were identical to those used in a national survey of dental health and dental health behavior (13) and have also been applied to a survey of homeliving psychiatric patients (11). In the analysis of the data the following conceptual definitions were used. Constant regular dental visits were considered when the participants had made regular dental visits, at least once a year, through adult life since they left school. Regular dental visits were defined as the patient having visited a dentist at least three times within the previous 3 years. With regard to oral hygiene habits, regular toothbrushing implied brushing at least twice a day, whereas neglect of toothbrushing was considered if brushing was forgotten several times a week or in periods. As to anxiety with regard to dental care, severe anxiety was defined as the participants stating that they had never visited a dentist because of anxiety for dental care.

Table 2. Percentages and number of participants on the basis of duration of mental disorder, number of admissions, length of stay, psychiatric diagnosis, and admission status

Variable	%	*n*
Duration of mental disorder		
0 year	15	36
1–3 years	19	46
4–10 years	26	62
More than 10 years	40	96
No. of admissions		
1–4	39	94
5–10	27	64
More than 10	34	82
Length of stay		
0–6 months	55	132
More than 6 months	45	108
Psychiatric diagnosis		
Schizophrenia	37	89
Affective psychosis	8	20
Reactive psychosis	15	35
Personality disorders	18	42
Other diagnosis	22	54
Admission status		
Inpatients	52	126
Day-hospital patients	48	114

Moderate anxiety was considered in case the respondent confirmed that he/she often canceled dental appointments because of anxiety for dental care, whereas low anxiety implied anxiety for dental care without any influence on dental visits.

The following data were obtained from the participants' medical records: age, gender, duration of mental disorder (defined as the number of years since the first recorded admission to a psychiatric ward), psychiatric diagnosis according to ICD-8, number of admissions to a psychiatric ward, and duration of present admission as inpatient (or as day-hospital patient). Finally, information about participation in the hospital dental program was obtained from the hospital dental records. Participation in the program was defined as an individual having received at least one dental examination and subsequent treatment at the hospital dental clinic during the past 2 years.

The data were processed by means of SAS version 6.04. The chi-square test was used to compare proportions of two or more groups of categoric variables. Whenever the expected value in at least one cell in a contingency table was less than five, Fisher's exact test was applied.

Logistic linear regression (14, 15) was performed to control confounding and to analyze the possible influence of psychiatric disorders on the binary dependent variables: constant regular dental visits, regular dental visits, regular toothbrushing, and neglect of toothbrushing. The multiple logistic regression analysis implies a logit transformation and is reported by means

Table 3. Percentages of participants in different age groups with various oral health habits

	Age, years				
	20–29 ($n = 54$)	30–39 ($n = 65$)	40–49 ($n = 71$)	50–64 ($n = 50$)	Total ($n = 240$)
Constant regular dental visits	37	34	28	26	31
Regular dental visits	59	63	71	48	62
Dental visits within the previous year	83	78	77	67	77
Participation in hospital dental care	50	23	32	30	33
Anxiety for dental care	41	35	43	35	39
Regular toothbrushing	57	51	58	56	55
Neglect of toothbrushing	42	31	37	31	35

Table 4. Percentages of psychiatric patients with various oral health habits in relation to psychiatric diagnosis

	Schizophrenia ($n = 89$)	Affective psychosis ($n = 19$)	Personality disorders ($n = 42$)	Reactive psychosis ($n = 34$)	Others ($n = 51$)
Constant regular dental visits	31	70	23	29	24
Regular dental visits	70	79	67	50	44
Dental visits within the previous year	81	84	86	71	65
Participation in hospital dental care	47	25	36	20	20
Dental anxiety	47	42	48	26	41
Low	24	26	17	17	20
Moderate	10	5	17	—	2
Severe	3	11	14	9	19
Regular toothbrushing	42	75	52	77	58
Neglect of toothbrushing	39	42	39	31	27

of regression coefficients. Hence, the regression coefficients (b) can be interpreted as the log (odds ratio), and the odds ratio may be calculated from exp(b). All continuous variables in the multivariate analyses were dichotomized into dummy variables to facilitate the interpretation of the results and to make the calculation of the odds ratio possible. In the statistical evaluation of the estimated regression coefficients the Wald statistics (chi-square) were used.

Results

During childhood nearly 90% of the study group had participated in public school dental care, 4% had had regular dental care from private practitioners, whereas 6% had received irregular or no dental care.

Women more often made constant regular dental visits than men (41% versus 22%) ($P < 0.01$), and regular toothbrushing was reported by 67% of the women, compared with 48% among the men ($P < 0.01$). Furthermore, participation in the hospital dental program varied with age group ($P < 0.05$) (Table 3). As to psychiatric diagnosis (Table 4), significant differences were found for constant regular dental visits ($P < 0.01$), regular dental visits ($P < 0.01$), participation in hospital dental care ($P < 0.01$), and regular toothbrushing ($P < 0.01$). Moreover, 80% of the patients with admission exceeding 1 month had visited a dentist within the previous year versus 61% of the patients admitted for less than 1 month ($P < 0.05$). A total of 46% of the inpatients reported neglect of toothbrushing, whereas the corresponding figure among day-hospital patients was 25% ($P < 0.001$).

Participants with schizophrenia showed a lower frequency of severe dental anxiety than the other participants ($P < 0.05$) (Table 4). No interrelationships between self-reported oral health and the mental disorder variables were observed. However, troubles with teeth or gums during lifetime and actual symptoms from teeth or gums were reported more often by women than by men ($P < 0.05$), as troubles with teeth or gums during lifetime were associated with age ($P < 0.05$) (Table 5).

The outcome of the multivariate analyses is presented in Table 6. The odds ratio of constant regular dental visits among patients with affective psychosis was 2.4 when compared with schizophrenic patients. Almost the same odds ratios (2.0 and 2.1) were found for patients with a mental disorder for 1–3 years and less

Table 5. Percentages of participants in different age groups who reported various symptoms from teeth or gums

	Age, years				
	20–29 ($n = 54$)	30–39 ($n = 65$)	40–49 ($n = 71$)	50–64 ($n = 50$)	Total ($n = 240$)
Much or great troubles with teeth or gums during lifetime	21	24	35	47	31
Present symptoms from teeth or gums	28	17	17	11	18
Symptoms from teeth or gums within the past year	45	39	41	36	41
Perceived need for dental treatment	47	41	46	48	45

than 1 year as compared with participants who had had a mental disorder for more than 10 years. Compared with the reference group regular dental visits were 1.6 times more frequent among participants with a personality disorder. With regard to regular toothbrushing the odds ratio was 1.9 among persons with affective psychosis, 2.1 in case of reactive psychosis, and 1.6 for other diagnoses. The figures for neglect of toothbrushing were 0.56 in patients with 1–4 admissions compared with patients with more than 10 admissions and 0.62 among day-hospital patients compared with inpatients.

Discussion

From a statistical point of view, the present study population was not representative of hospitalized psychiatric patients in Denmark. The population served by this psychiatric department is characterized by the highest frequency of regular dental visitors in Denmark (87%) (13), and hospital dental programs like the one found at this hospital have only been established in one-third of the psychiatric departments in the country (16).

The data were collected by means of interviews, and overreporting has traditionally to be assumed with regard to dental visiting habits and oral hygiene habits. All participants were affected by a psychiatric disorder that may influence perception and communication. The interviewer was familiar with interviews of psychiatric patients, and the interviews should therefore provide valid data. However, the interviewer was well known to many participants, which may have led to exposure suspicion bias and previous opinion bias (17).

A comparison of the present data with similar studies of the general population (13, 18) indicates a somewhat lower frequency of psychiatric patients with constant regular dental visits. The difference was most pronounced in the younger age groups. The proportion of constant regular dental visitors among psychiatric patients in the 20- to 29-year age group was only 37%, versus 77% in the general population, which shows that psychiatric disorders may have an important influence on the level of regular dental visiting habits. As to regular dental visits, the figures for psychiatric patients were almost two-thirds the reference figures of the general population (13) in the 20- to 29-year and 30- to 39-year age groups, whereas the older age groups presented frequencies almost like those of the general population. Regular toothbrushing was also reported by psychiatric patients at a ratio of two-thirds compared with the general population (13, 18).

Dental anxiety in general was reported at the same level as in the general population (19). Severe and moderate anxiety seemed to be more frequent, but firm conclusions cannot be drawn because of the differences in study methods.

The present data of self-reported dental health problems differ slightly from the findings in a previous study of psychiatric patients (11). However, the differences seem to be explained by a variation in age distribution.

In the multivariate analyses schizophrenia was chosen as the reference group with regard to psychiatric diagnosis. This diagnosis represents a rather well-defined clinical psychiatric syndrome according to the diagnostic tradition of Scandinavian psychiatry (20) and is in general considered to influence general behavior the most. The analyses showed that patients with affective psychoses more often claimed constant regular dental visits. This pattern may be explained by the episodic nature of many affective psychoses (21), since the course of this disease will enable dental visits during healthy periods. Patients with experience of mental disease for less than 3 years more often had constant regular dental visits than participants with a duration of psychiatric disorder of more than 10 years, and this may indicate an effect of chronicity of psychiatric disease on dental visiting habits. Participants with personality disorders made regular dental visits more often than schizophrenic patients, which may be due to the less severe symptoms involved in these disorders. Moreover, patients in the category 'other diagnosis' had less regular dental visits, which also corresponds to a lower rate of participation in the hospital dental program. The data do not confirm previous findings of associations between regular dental visits, affective psychosis, and the number of admissions (11), although both studies were conducted in the same area. However, the hospital dental program in the area was modified as a consequence of the findings in the previous study. Except for

Table 6. Logistic regression of dental visiting habits and toothbrushing habits in psychiatric patients. The regression coefficients represents the log odds ratio

Variable	Constant regular dental visits ($n = 231$)	Regular dental visits ($n = 227$)	Regular toothbrushing ($n = 236$)	Neglect of toothbrushing ($n = 228$)
Length of stay				
Less than 6 month	0.026	0.16	−0.087	−0.17
More than 6 months				
No. of admissions				
1–4	−0.45	−0.22	−0.013	−0.59*
5–10	−0.26	−0.058	−0.29	−0.19
More than 10				
Duration of mental disorder				
Less than 1 year	0.76*	0.23	−0.22	0.63
1–3 years	0.69*	−0.16	−0.025	0.024
4–10 years	0.26	−0.013	−0.082	0.19
More than 10 years				
Psychiatric diagnosis				
Affective psychosis	0.87**	0.28	0.65*	0.14
Personality disorder	−0.24	0.50*	−0.23	0.35
Reactive psychosis	−0.40	−0.45	0.76**	−0.13
Other diagnosis	−0.17	−0.52	0.47*	−0.35
Schizophrenia				
Age				
20–29 years	−0.31	−0.11	−0.28	−0.22
30–39 years	−0.20	−0.011	0.23	0.30
40–49 years	0.22	−0.49	−0.14	−0.17
50–64 years				
Sex				
Male	− 0.52**	−0.34*	−0.30*	−0.092
Female				
Admission status				
Day-hospital patient	0.24	−0.047	0.28	−0.48*
Inpatient				
Dental anxiety				
Yes	−0.44*	−0.34*	0.12	0.094

* $P < 0.05$; ** $P < 0.01$.

personality disorders, all diagnostic groups more often had regular toothbrushing than the schizophrenic patients. This might indicate that symptoms of schizophrenia and personality disorders are the most influential as far as toothbrushing habits are concerned. Finally, neglect of toothbrushing was affected by admission status and the number of admissions, observations that may be ascribed to the change in living conditions and everyday life.

According to the findings, all chronic psychiatric patients should be offered a dental examination during admission, and a special offer of preventive dental care to homeliving chronic psychiatric patients should be included in sectorized psychiatric services. Furthermore, dental health education, especially aimed at schizophrenic patients and patients with personality disorders, should be an integral part of ADL training (activity of daily life-training) in psychiatric care. This implies that the nursing staff of the psychiatric wards needs proper training in preventive dental care.

To conclude, this study indicated a relatively lower level of both dental visits and regular toothbrushing habits among psychiatric patients than in the general population of the area. Moreover, the nature of the mental disorder had an impact on oral health habits. Development and evaluation of specific preventive dental programs aimed at supporting self-care practices in oral health still represent a major challenge in dental care for psychiatric patients.

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References

1. Clark DB. Dental care for the psychiatric patient: chronic schizophrenia. J Can Dent Assoc 1992;58:912–14, 916, 919–20.
2. Davidson MJ, Peters DD. Dental treatment responsibility for the delusional patient. Gen Dent 1990;38:143–6.
3. Paterson AJ, Stewart F, Tulloch EN, Hughes AM. Self-inflicted mutilation of the dentition in a schizophrenic patient. Br Dent J 1992;173:314–6.
4. Mester R. The psychodynamics of the dental pathology of chronic schizophrenic patients. Isr J Psychiatry Relat Sci 1982;19:255–61.

5. Aukland S, Aga H. Daily reminding of toothbrushing. Efficiency among schizophrenic patients (in Norwegian). NFH Bull 1982; 9:15–22.
6. Baunøe J-H. Dental status, treatment needs and possibilities in 385 chronic psychiatric patients. NFH Bull 1980;7:5–20.
7. Barnes GP, Allen EH, Parker WA, Lyon TC, Armentrout W, Cole JS. Dental treatment needs among hospitalized adult mental patients. Spec Care Dent 1988;8:173–7.
8. Siksna A, Bengtsson F, Gutmark B, Levin A, Lönneberg K. Chronic patients in a mental hospital. Nord J Psychiatry 1991; 45:75–80.
9. Klinge V. Facilitating oral hygiene in patients with chronic schizophrenia. J Am Dent Assoc 1979;99:644–5.
10. ter Horst G. Dental care in psychiatric hospitals in the Netherlands. Spec Care Dent 1992;12:63–6.
11. Hede B, Petersen PE. Self-assessment of dental health among Danish non-institutionalized psychiatric patients. Spec Care Dent 1992;12:33–6.
12. Moore R. The phenomenon of dental fear. Studies in clinical diagnosis, measurement and treatment [thesis]. Århus: Royal Dental College, 1991.
13. Kirkegaard E, Borgnakke WS, Grönbæk L. Oral health status, dental treatment need, and dental care habits in a representative sample of the adult Danish population [thesis]. Copenhagen and Aarhus: Royal Dental College, 1986.
14. Altman DG. Practical statistics for medical research. London: Chapman & Hall, 1991.
15. Stanish WM, Sall JP. The CATMOD procedure. In: SAS Institute. SAS/STAT Guide for personal computers. Version 6 ed. Cary: SAS Institute, 1987.
16. Hede B, Petersen PE. Dental care services for mental patients in Denmark (in Danish). Tandlaegebladet 1988;92:601–3.
17. Arnbjerg D. Bias in oral epidemiology (in Danish with an English summary) [thesis]. Aarhus: Royal Dental College, 1990.
18. Petersen PE. Dental health behaviour among 25–44-year-old Danes. Scand J Prim Health Care 1986;4:51–7.
19. Moore R, Birn H, Brødsgaard I, Kirkegaard E, Scheutz F. Prevalence and perceptions of dental anxiety among Danish adults. Community Dent Oral Epidemiol 1993;21:292–6.
20. Kendell RE. The role of diagnosis in psychiatry. Oxford: Blackwell Scientific Publications, 1975.
21. Friedlander AH, Birch NJ. Dental conditions in patients with bipolar disorder on long-term lithium maintenance therapy. Spec Care Dent 1990;10:148–51.

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