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Dental health in Dutch drug addicts

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Abstract – The aim of this study was to describe the dental health status of a group of Dutch 20–40-yr-old drug addicts ($n=121$) and to compare the results on DMFS with data of an age-comparable sample of the general adult population in the Netherlands ($n=1532$). Mean DMFT of the addicted group was 16.9. ANOVA showed that the mean DMFS of the addicted group differed statistically significantly from the DMFS of the general population of the same age (=52.1 versus 38.9). Statistically significant differences in DMFS were also found between the various age groups. The percentage of addicted subjects with more than cervical plaque on one or more teeth was 76.5%, 82.4% and 88.2% in the three youngest age groups. In almost all addicted subjects, bleeding of the gingiva was present. Only 36% had visited the dentist less than a year ago and 18% brushed their teeth less than once a day. It is concluded that there is a large gap in dental health status and behavior between drug addicts and the general population. Dental care as an integral part of the care for drug addicts is advocated.

Key words: dental caries; drug addicts; dental health behavior; public dental health

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Addiction to drugs is a persistent hazard in modern society, causing serious social and medical problems. Drug addicts have poorer health, i.e. the prevalence of such diseases as endocarditis (1) and hepatitis B (2) is higher. Furthermore, a high percentage of drug addicts are HIV-seropositive. In Amsterdam, for instance, 30% of the intravenous drug users are HIV-seropositive (3). Addicts also have poorer dental health. Several studies of dental health status pointed out that caries prevalence in drug addicts is higher (4–6) and periodontal health is poorer (7) than in non-addicted comparable groups. The aim of this study was to describe the dental health status of drug addicts in the Netherlands. Additional information on drug and alcohol use, dental attendance, oral hygiene and sugar consumption among drug addicts was collected. In a separate analysis the data on DMFS and its components in

the addicted group were compared with the data on the general adult population in the Netherlands.

Material and methods

In the Netherlands there are about 22,000 people addicted to hard drugs. In general, drug users are referred to the Dental Clinic of the Jellinek Centre in Amsterdam for dental treatment. Both intra-mural and extra-mural patients are treated. Thirty-four percent are referred by departments of the Jellinek Centre, 46% by other drug departments in Amsterdam and 20% by institutions in other cities in the Netherlands. During a period of 5 months; 226 new patients were referred to the Dental Clinic of the Jellinek Centre. Because the investigators were present only 2 days a week, 146 new patients participated in the study. To compare the examined group with a na-

tional dental survey, it was decided to include only addicts 20–40 years of age. For this reason 25 of the 146 patients were excluded. Prior to the oral examination, subjects filled in a questionnaire about demographic data, their general health, nutritional habits, oral hygiene habits, dental habits and drug and alcohol abuse.

A quarter (24%) of the subjects were women, 76% were men. Twenty-three percent had received higher education, 23% middle, and 55% lower education; 15% were between 20 and 24 yr old, 29% between 25 and 29, 28% between 30 and 34, and 28% between 35 and 40; the mean age was 30.5 (sd=5.3).

Twenty-one percent were foreign and 79% were Dutch; 63% were of Dutch cultural origin. Ten percent used only alcohol, 90% used drugs. The drug addicts were all polydrug users, but principally used heroin (83%) and cocaine (83%).

Table 1. Percentage of subjects with no or only cervical plaque and the percentage of subjects with plaque on more than one third of at least one tooth surface per age group ($n=121$)

Age	% plaque 0 – one third	% plaque >one third
20–24	23.5	76.5
25–29	17.6	82.4
30–34	11.8	88.2
35–40	25.0	75.0
total	18.8	81.2

Table 2. Percentage of subjects with bleeding gingiva at one or more elements per age group ($n=121$)

Age	% bleeding
20–24	100.0
25–29	97.1
30–34	97.1
35–40	97.0
total	97.5

Table 3. Mean DMFT and sd per age group ($n=121$)

	\bar{x}	sd
20–24	13.7	4.9
25–29	16.3	5.2
30–34	17.3	4.3
35–40	18.8	4.9
total	16.9	5.0

Clinical examinations were carried out by two previously calibrated dentists. Registration of missing teeth, cavities (caries lesions with dentinal involvement) and fillings were recorded at tooth surface level (8). Scoring was primarily based on visual inspection. Only in doubtful situations was probing allowed. No radiographs were taken. The amount of plaque was recorded using the OHI-S

(9). The OHI-S scores of 0 and 1 were afterwards combined to a single score (0), indicating the absence of plaque or only cervical plaque, and the OHI-S scores of 2 and 3 were combined in a single score (1), indicating the presence of plaque on more than one third of the tooth surface. Gingival bleeding upon gentle probing (10) was assessed separately at buccal and lingual sites of the same six teeth as for OHI-S scores (0=no bleeding; 1=bleeding). It was decided not to measure pocket depth because this treatment appeared to be too painful in this group of patients.

One of every five patients was blindly re-examined by a second examiner. No systematic differences between the examiners were found. The Cohen's kappa values varied between 0.48 and 0.90.

Using analysis of variance of power-transformed caries data, the effects of age, education and study population (addicts or the general population) were tested.

Results

Dental health behaviour – Eighteen percent of the subjects brushed their teeth less than once a day, 32% brushed once a day, 50% twice a day or more. For 36% the last visit to the dentist had been less than a year ago, for one-quarter it was more than 5 yr ago. Sugar consumption was high (more than 5 times a day a sweet drink, a candy and a sweet snack) for 37% of the respondents. Almost half of the respondents suffered occasionally from toothache. In the past, 83% had sometimes or often suffered from toothache. When in pain, more than one-third did not go to a dentist; but 30% took alcohol for pain, 34% (also) took drugs and 38% (also) took analgesics. Seventy percent said they were afraid of dental

treatment. Most mentioned reasons for their visit to the dental clinic were pain (37%), decayed teeth (19%), a control visit (13%) and aesthetics (12%).

Dental health – The percentages of subjects with no or only cervical plaque and the percentage of subjects with plaque on more than one third of at least one tooth surface are presented in Table 1. In Table 2 the percentages of subjects with bleeding gingiva at one or more teeth are presented. Mean DMFT score was 16.9 (sd=5.0). DMFT score per age group is given in Table 3. In Table 4 the DMFS and component scores (DS, MS and FS) of the addicted group (JEL) are compared with data of the Dutch national dental survey (DDS) (11).

Analysis of variance showed that the mean DMFS score was significantly higher in the addicted subjects (DMFS-JEL) than in the general population (DMFS-DDS) ($F(1,1649)=24.89$, $P=0.0001$). The differences between the mean DMFS scores of the various age groups were statistically significant as well ($F(3,1647)=120.09$, $P=0.0001$). No statistically significant differences were found between the three educational levels ($F(2,1648)=0.68$, $P=0.5073$). The total amount of explained variance by the three independent variables was 20%. Table 4 shows that mean DMFS score was higher in the elder age categories in both study populations.

The mean DS score was also significantly higher for the addicted study population than for the general population ($F(1,1649)=375.79$, $P=0.0001$). Mean DS score differed statistically significantly between age groups and educational levels (age: $F(3,1647)=6.19$, $P<0.0004$; education: $F(2,1648)=10.88$, $P<0.0001$). In the addicted sample the youngest age group had a much lower DS score than the older age groups. In the general population this relation was

Table 4. Mean DMFS (sd), DS, MS and FS scores for the addicted sample (JEL) ($n=121$) and the Dutch population (DDS) according to age ($n=1532$)

Age	n JEL	n DDS	Mean DMFS (sd)		Mean DS		Mean MS		Mean FS	
			JEL	DDS	JEL	DDS	JEL	DDS	JEL	DDS
20–24	18	371	28.7 (16.6)	25.1	8.1	2.4	2.1	2.2	18.4	20.6
25–29	35	410	49.6 (23.3)	39.5	20.7	3.3	11.7	7.2	17.1	29.0
30–34	34	467	53.0 (22.1)	43.3	17.6	3.3	17.6	11.5	17.9	28.6
35–40	34	284	65.4 (21.3)	48.7	21.5	2.8	27.2	16.4	16.8	29.5
Total	121	1532	52.1 (24.1)	38.9	18.3	3.0	16.4	9.0	17.4	26.9

not so clear (Table 4). In both study populations subjects with the highest education had the lowest DS score.

The differences in mean MS score between the two study populations were somewhat smaller, but still statistically significant ($F(1,1649)=19.64, P=0.0001$). Differences between age groups and educational levels were also statistically significant: age: $F(3,1647)=95.18, P=0.0001$; education ($F(2,1648)=28.81, P=0.0001$). The amount of explained variance was 18%. In both study populations mean MS score was higher in the elder age groups. Except in the youngest age group of the general population the highest education had the lowest MS score.

Mean FS score was significantly lower (17.4 versus 26.9) for the addicted group ($F(1,1649)=42.93, P=0.0001$). The results for age and education were statistically significant as well (age: $F(3,1647)=14.52, P=0.0001$; education ($F(2,1648)=27.47, P=0.0001$). Eight percent of the score variance was explained by these three variables. Mean FS score was higher in groups with a higher education. The relation between age and filled teeth was less obvious. In the addicted sample mean FS score was a bit lower in the elder age groups. In the general population mean FS score was lowest in the youngest age group.

Discussion

There appears to be a large gap between the dental health behaviour and status of Dutch drug addicts and that of the general population. For instance, in the Dutch dentate population 89% had visited a dentist in the last half year; in the addicted group this was only 36%. A

brushing frequency of less than once a day was found in 18% of the addicted group, and in only 4% of the dentate Dutch population (12). Moreover, OHI-S scores and bleeding scores indicated that the oral hygiene of drug addicts is much worse than that of the general population. In the three youngest age groups the percentage of addicted subjects with more than cervical plaque on one or more teeth are 76.5, 82.4 and 88.2. In the general population these percentages are 30%, 24%, and 21%, respectively. Bleeding of the gingiva is present in almost all addicted subjects and 85% of the general Dutch population of the same age (11).

Furthermore, this study showed that drug addicts have significantly more caries, more missing teeth and fewer fillings than a comparable non-addicted age group.

Comparison of our results with the study results reviewed by SCHEUTZ (13) demonstrates that mean DMFT scores of Dutch addicts are comparable with those of German, Danish and American drug addicts. The mean DMFT score of Dutch addicts is higher than in Italian addicts (16.9 versus 12.9). Italian addicts had on average more missing teeth and fewer teeth filled. No differences in DT-scores were found (6).

It is important to realize that psychoactive drugs mask bodily pain signals. It is at the moment of withdrawal that the addicted patient has the severest dental pain. Therefore, dental treatment should be planned for just before or in the beginning of the withdrawal or therapy. Dental treatment should be integrated in addiction treatment programmes to reduce drug-related harm and to improve re-socialisation of drug addicts.

References

1. AYER WA, CUTRIGHT DE. Dental treatment and heart valve complications in narcotic addicts. *Oral Surg Oral Med Oral Pathol* 1974; 37: 359-63.
2. SCHEUTZ F. Viral hepatitis among parenteral drug addicts attending a Danish addiction clinic. *Scand J Infect Dis* 1983; 15: 139-43.
3. HOEK JAR VAN DEN. *Epidemiology of HIV-infection of intravenous drug users in Amsterdam*. Dissertation. University of Amsterdam, 1990.
4. CARTER EF. Dental implications of narcotic addiction. *Austr Dent J* 1978; 23: 308-10.
5. FRIEDLANDER AH. Dental management of the cocaine addict. *Oral Surg Oral Med Oral Pathol* 1988; 65: 45-8.
6. ANGELILLO IF, GRASSO GM, SAGLIOCCO G, VILLARI P, ERRICO MM. Dental health in a group of drug addicts in Italy. *Community Dent Oral Epidemiol* 1991; 19: 36-7.
7. ROSENSTEIN DI. Effects of long-term addiction to heroin on oral tissues. *J Public Health Dent* 1975; 35: 118-22.
8. KALSBECK H, TRUIN GJ, BURGERSDIJK RCW, HOF MA VAN 'T. Dental caries in Dutch adults. *Community Dent Oral Epidemiol* 1991; 19: 201-4.
9. GREENE JC, VERMILLION JR. The simplified oral hygiene index. *JADA* 1964; 68: 25-31.
10. SAXER UP, TURCONI B, ELSÄSSER C. Patient motivation with the papillary bleeding index. *J Prev Dent* 1977; 4: 20-2.
11. TRUIN GJ, BURGERSDIJK RCW, GROENEVELD A et al. Landelijk epidemiologisch onderzoek tandheelkunde. Deel II. Resultaten klinisch onderzoek. Katholieke Universiteit Nijmegen/TNO, Nijmegen/Leiden, 1988.
12. VISSER RSH, HELING GWJ, HOF MA VAN 'T et al. Landelijk epidemiologisch onderzoek tandheelkunde. Deel III. Resultaten gedragswetenschappelijk onderzoek. Katholieke Universiteit Nijmegen/TNO, Nijmegen/Leiden, 1988.
13. SCHEUTZ F. Dental health in a group of drug addicts attending an addiction-clinic. *Community Dent Oral Epidemiol* 1984; 12: 23-8.