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Dental health care workers' attitude towards patients with substance use disorders in medically assisted rehabilitation (MAR)

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ABSTRACT

Objective: To assess knowledge, beliefs and attitudes related to treatment of MAR patients among dentists and dental hygienists. Secondly, to investigate to what extent dental health care professionals' attitudes associate with their treatment experience and beliefs regarding MAR patients.

Material and Method: We conducted a cross-sectional study, involving a census of dental hygienists and dentists in the public dental health care services in Hordaland and Rogaland counties in Norway. Data were collected by electronically administered questionnaires.

Results: The response rate was 187/344, 54% (26% dental hygienists and 74% dentists). A majority of both professional groups did not find it difficult to understand information on oral health and drug use. Although they confirmed familiarity with guidelines on good dental practice, they had received little information about oral health aspects of substance use. Both groups had slightly negative attitudes towards treatment of MAR patients. Beliefs that completion of treatment is often unsuccessful and that information on drug use and oral health is difficult to interpret associated with negative attitudes towards treatment.

Conclusions: The findings suggest that promotion of information to dental care personnel to extend their knowledge and improve their skills regarding oral health aspects of substance use might contribute to positive attitudes and improved utilisation of the free dental care offered to MAR patients.

Introduction

Substance use disorders constitute a great societal challenge and contribute to high morbidity and mortality [1,2]. Alcohol and illicit drug use account for 5.4% of the global burden of disease and contribute 4% to the causes of death [3]. About 10% of those 246 million people globally who confirmed using substances in 2013 have drug dependence or substance use disorder [1–3]. International and national evidence suggests that patients with substance use disorders have higher oral disease burden and more difficulties in obtaining adequate health- and oral health care than the general population [4–9]. Oral health problems vary by type of substance used and are related to poor oral hygiene, malnutrition, high preference for- and consumption of sugar sweetened food and drinks and drug related xerostomia [8,9]. Moreover, substance use is often combined with smoking and alcohol impacting negatively on oral health [5,7,8]. Patients with substance use disorders are burdened with dental anxiety contributing to dental avoidance behaviour [10]. While overdoses and chronic infections such as HIV and hepatitis C infection are frequently focussed in the literature [11], the oral health problems among patients with substance use disorders have rarely been reported. Despite

having a high prevalence of oral problems, people who inject drugs in particular, do not receive adequate professional dental care [4,12,13].

Several major reforms for people with substance use disorders have been implemented in the Norwegian health- and welfare services [14–16]. Back in 2005, patients in rehabilitation for at least three months were entitled to dental treatment sponsored with public financing by the Norwegian government [14–16]. In 2008, dental care provision free of charge was extended to include patients with substance use disorders receiving medically assisted rehabilitation (MAR), including opioid dependency. The intention of the reform was to support this group of patients, facilitate their access to dental care, and thus improve their chances for recovery and healthier lives. Still, the use of health care services among patients receiving MAR in Norway is far from optimal [17]. One potential barrier to care might be that health professionals hold stigmatizing and negative attitudes towards patients with substance use disorders, which in turn diminish the therapeutic alliance.

Evidence suggest that health care professionals, more often than professionals of general psychiatric and specialist addiction service, are reluctant to provide care for patients

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with substance use disorders [18–20]. According to Gilchrist et al [21], health care professionals of eight European countries expressed more negative attitudes towards patients with substance use disorders than towards patients suffering other disorders. Personal characteristics of health care professionals, familiarity with substance use problems, attribution of substance use problems to weakness and relating such problems to lack of personal control have been shown to contribute to negative attitudes among health care professionals [18,22,23]. A recent review of health professionals' attitudes towards patients with substance use disorders revealed that stigmatising and negative attitudes contributed to sub-optimal health care of patients [18]. Attitudes of health care professionals towards patients with substance abuse have been investigated in different disciplines and settings, but there is less evidence from the sector of dental health care services.

This study set out to assess dentists and dental hygienists employed in the Norwegian public dental health care services regarding their experience, knowledge, beliefs and attitudes towards treatment of MAR patients. As dentists and dental hygienists are expected to differ with respect to their treatment experience, they were also expected to differ with respect to their beliefs and attitudes towards treatment of MAR patients. Secondly, this study investigated to what extent dental health care professionals' attitudes associate with their personal characteristics, treatment experience and beliefs regarding MAR patients.

Material and Methods

This study is based on a cross-sectional, electronically administered questionnaire survey conducted among dentists and dental hygienists employed in the public dental health care services in Hordaland and Rogaland counties in Norway during 2018. A census of 344 dentists and dental hygienists received an electronic version of the questionnaire containing 28 questions together with an introductory letter explaining the purpose of the study. Participation was anonymous and voluntary, and the submission of a completed questionnaire was implied as an informed consent. Ethical approval was granted by the Norwegian Centre for Research Data (NO 59417). NORSTAT (www.Norstat.no) was responsible for the distribution of the questionnaire and the data collection.

Measures

Throughout the questionnaire, all questions referred to patients in medically assisted rehabilitation (MAR). The concept of MAR was explained in the beginning of the questionnaire. Dentists and dental hygienists were asked about their professional status (dental hygienists vs dentists), gender, age, knowledge of guidelines for good dental care, work experience and frequency of experience with MAR patients (1= every week or more often – 5= never).

The primary outcome, 'attitudes towards working with patients in MAR' was operationalised according to the recommendations by Fishbein and Ajzen [24] and assessed by 7 items, for example 'treating MAR patients in public dental health care services is very challenging' .Responses were indicated on a seven-point scale ranging from (1) strongly agree to (7) strongly disagree. A sum score attitude scale was constructed with a range of actual scores from 11 (most negative attitudes) to 42 (most positive attitudes). Chronbach's alpha of the attitude scale was 0.61.

Beliefs about the frequency of treatment not completed was assessed using a five graded response scale ranging from (1) very often to (5) never. Beliefs about interpretability of information was assessed by a statement ("It is difficult to understand information on drug use and oral health") using 5 response alternatives ranging from (1) totally agree to (5) totally disagree. Beliefs about frequency of provision of periodontal treatment was assessed using 5 response options ranging from (1) very often to (5) very seldom. Treatment experience with MAR patients was assessed by asking "During your worktime as a dentist or dental hygienist –how often have you had MAR patients for treatment" and using a scale ranging from (1) weekly or more often to (5) seldom. Amount of information about illicit drug use and oral health was assessed on a scale ranging from (1) nothing to (5) very much. Knowledge of guidelines of good oral practice was measured as yes/no. Dentists' and dental hygienists' opinion about treatment needs of MAR patients was assessed as "How often do you think that the following treatments are provided to MAR patients- acute, preventive treatment, dental filling therapy, crowns and bridges, implants, periodontal treatment, treatment with general anesthesia". Each item was assessed on 4-point scale ranging from (1) very often to (4) very seldom. Each item was dichotomised into (1) often (including the original categories very often and often) and (2) seldom (including the original categories seldom, very seldom).

Statistical analysis

Data were analysed using SPSS version 25.0 (IBM Corp. Released 2013, IBM SPSS Statistics for Windows, Armonk; IBM Corp). We used Chi square tests to compare dentists and dental hygienists regarding categorical background variables and attribution beliefs, and also in the bivariate analyses of associations between independent variables and the final attitude outcome variable. Cronbach's alpha was used to assess internal consistency reliability of the 7-item attitude scale and one-way ANOVA to look for differences between professional groups with respect to the attitude scale. We used linear multiple regression analysis to associate attitude scores with background factors and attribution beliefs. Professional group (dentist/dental hygienist) was forced into the regression model. In a first step, age, gender, years of working experience and professional group was added into the regression model. Attribution beliefs in terms of difficulty with interpretation, frequency of not completed treatment and frequency of provision of periodontal treatment were added in a second step. In the multiple regression model, the effect of each independent variable is adjusted for the possibility of distorting influence from other independent

Table 1. Dental health care workers' background data according to type of profession.

	Dental hygienist % (n)	Dentist % (n)	Total sample % (n)
Gender			
Male	4.8 (2)	20.5 (24)	16.6 (27)
Female	95.2 (40)	79.5 (93)[*]	83.4 (136)
Age category			
20–41	45.2 (19)	51.3 (60)	49.7 (80)
42–66	54.8 (23)	48.7 (57)	50.3 (81)
Work experience			
Less than 1 year	10.3 (4)	1.7 (2)	3.8 (6)
1–5 year	15.4 (6)	20.5 (24)	19.2 (30)
6–20 year	35.9 (14)	46.2 (54)	43.6 (68)
More than 20 year	38.5 (15)	31.6 (37)	33.3 (52)

Chi-square. ***$p < .001$. The total number in the different categories does not add to 187 due to missing values.

variables in the model. The effect of each independent variable in terms of standardised regression coefficients betas was tested for statistical significance by means of F test. The coefficient of determination R squared expresses the fraction of variance in the outcome variable accounted for by the independent variables included in the regression model.

Results

Table 1 depicts dental health care workers' background factors according to professional status. In total, 187 dental health care workers (26% dental hygienists and 74% dentists) participated in the present study. The overall response rate was 54% (187/344). Non-response analyses revealed that the gender and age distribution of dental hygienists and dentists who responded to this survey corresponded with the distribution of those invited to participate (i.e. the census of dentists and dental hygienists in the two counties). The majority of both dental hygienists (95%) and dentists (80%) were females, whereas 55% of dental hygienists versus 49% of dentists belonged to the older age group (42-66 years). Corresponding figures for those who reported work experience less than one year were 10% and 2%.

Table 2 depicts the frequency distribution of dental health care professionals' beliefs regarding treatment of MAR patients. A higher portion of dental hygienists than dentists (32% vs 12%, $p < .01$) confirmed that they were not familiar with the 2011 guidelines for good dental practice in the dental health care services. Around one-third of both dental hygienists (29%) and dentists (33%) reported that they very often experienced challenges with treatment adherence and completion of treatments among MAR patients. About 3% dental hygienists and 4% dentists totally agreed that it is difficult to interpret information about drug use and oral health. A total of 16% of dental hygienists versus 1% of dentists ($p < .001$) reported no experience with treatment of MAR patients.

Table 3 depicts dental health professionals' opinion about the treatment need of MAR patients. Majorities of both professional groups reported that MAR patients needed acute dental treatment, preventive dental care, crowns and bridges and periodontal treatment. More dental hygienists than

dentists reported that MAR patients often needed treatment under general anaesthesia (52% versus 28%, $p < .05$).

Table 4 depicts the mean distribution of seven beliefs included in the attitudinal sum score regarding treatment of MAR patients and the total attitude sum scores according to professional status. On average, both dental hygienists and dentists agreed that treatment of MAR patients is suitable, difficult, demanding, challenging, time consuming and difficult due to missing appointments. The two professional groups did not agree nor disagree that treatment of MAR patients is difficult due to communication problems. Dental hygienists agreed to a lesser extent than dentists that *treatment of MAR patients is demanding* (2.4 vs 1.8, $p < .001$) and that *treatment of MAR patients is challenging* (2.7 vs 2.1, $p < .05$). Dental hygienists were slightly more negative (i.e. had a lower score) with respect to their total attitude towards treatment of MAR patients compared to dentists. This difference was not statistically significant.

Table 5 depicts the results from linear regression where attitudes towards dental treatment of patients in MAR were regressed on dental health care workers' socio-demographic and personal characteristics. In the first step, background factors in terms of sex, age, work experience and professional status were added accounting for 3.6% of the variance in attitude scores (R^2 0.036, Sign. F change: 0.356). The extended model added beliefs about MAR patients' completion of treatment, health care professionals' treatment experience, frequency of periodontal treatment provision and interpretability of information in a second step and increased the explained variance to R^2 0.199, Sign F change 0.000). Beliefs about the frequency of not completed treatment for MAR patients was the strongest covariate with a standardised beta of 0.31, $p < .001$), followed in descending order by beliefs about frequency of periodontal treatment provision (beta 0.21, $p < .05$) and interpretability of information (beta 0.18, $p < .05$).

Discussion

This study is among the first to examine knowledge of and attitudes towards treatment of MAR patients focussing dental health care professionals employed in the Norwegian public dental health care services. Although dental hygienists and dentists differed with respect to background factors, such as length of education and direct treatment experience with MAR patients, they were similar regarding information received on this topic, familiarity with good dental practice guidelines and with respect to their total attitude scores. A majority of both professional groups disagreed that it is difficult to understand information about drug use and oral health and confirmed that they were familiar with the guidelines regarding good dental practice. In contrast, they admitted to have received little or moderate amount of information about illicit drug use and oral health. The present findings indicate that both groups of dental health care workers had slightly negative attitudes towards treatment of MAR patients. Dental hygienists were less negative than dentists with respect to beliefs that treatment of MAR patients is

Table 2. Attributes of dental health care workers regarding treatment of MAR patients according to professional status.

	Dental hygienist % (n)	Dentist % (n)	Total sample % (n)
Beliefs that treatments are not completed			
Very often	28.6 (10)	33.0 (37)	32.6 (47)
Often	31.4 (11)	36.7 (40)	35.4 (51)
Sometimes	31.4 (11)	24.8 (27)	26.4 (38)
Seldom	0.0 (0)	3.7 (4)	2.8 (4)
Never	8.6 (3)	0.9 (1)	2.8 (4)
Beliefs about interpretability			
–it is difficult to understand information on drug use and oral health			
Totally agree	2.8 (1)	3.7 (4)	3.4 (5)
Agree	13.9 (5)	5.5 (6)	7.6 (11)
Neither nor	41.7 (15)	45.0 (49)	44.1 (64)
Disagree	41.7 (15)	37.6 (41)	38.6 (56)
Totally disagree	0.0 (0)	8.3 (9)	6.2 (9)
Amount of information received			
Nothing	5.6 (2)	2.7 (3)	3.4 (5)
Little	41.7 (15)	27.3 (30)	30.8 (45)
Moderate	44.4 (16)	55.5 (61)	52.7 (77)
A lot	8.3 (3)	10.0 (11)	9.6 (14)
Very much	0.0 (0)	4.5 (5)	3.4 (5)
Knowledge of guidelines 2011			
Yes	68.4 (26)	88.5 (100)	84.4 (126)
No	31.6 (12)	11.5 (13)*	16.6 (25)
Beliefs about frequency of periodontal treatment			
Very often	0.0 (0)	3.1 (3)	2.4 (3)
Often	29.6 (8)	30.2 (29)	30.1 (37)
Seldom	48.1 (13)	51.0 (49)	50.4 (62)
Very seldom	22.2 (6)	15.6 (15)	17.1 (21)
Treatment experience			
Every week or more often	2.6 (1)	26.5 (30)	20.5 (31)
Every month but not weekly	21.1 (8)	49.6 (56)	42.4 (64)
Every year but not monthly	39.5 (15)	21.2 (24)	25.8 (39)
More seldom than yearly	21.1 (8)	1.8 (2)	6.6 (10)
Never	15.8 (6)	0.9 (1)**	4.6 (7)

Chi-square. ***p < .001 The total number in the different categories does not add to 187 due to missing values

Table 3. Opinion about the *treatment needs* of MAR patients according to professional status.

	Dental hygienists Often % (n)	Seldom % (n)	Dentists Often %(n)	Seldom % (n)
Acute	89.7 (26)	10.3 (3)	97.0 (98)	3.0 (3)
Preventive treatment	69.0 (20)	31.0 (9)	79.2 (80)	20.8 (21)
Dental filling therapy	79.3 (23)	20.7 (6)	100 (100)	0 (0)**
Crowns and bridges	58.6 (17)	41.4 (12)	62.4 (63)	37.6)
Implants	27.6 (8)	72.4 (21)	28.7 (29)	72.12 (72)
Periodontal treatment	62.1 (18)	37.9 (11)	64.4 (65)	35.6 (36)
Treatment with general anaesthesia	51.7 (15)	48.3 (14)	27.7 (28)	72.3 (73)*

Chi-square. ***p < .001,*p < .05.

Table 4. Beliefs and attitudes of dentists and dental hygienists towards treatment of MAR patients in the public dental health care services.

To treat MAR patients is:	Dental hygienist M (sd)[range]	Dentist M (sd)[range]	p Value
suitable	2.2 (1.5)[1-7]	2.4 (1.5)[1-7]	.665
Difficult	3.2 (1.8)[1-7]	3.3 (1.8)[-7]	.832
Demanding	2.4 (1.6)[1-7]	1.8 (10)[1-7]	.010
Challenging	2.7 (1.8)[1-7]	2.1 (1.1){1-7}	.050
Time-consuming, that is necessary to use in other categories of patients	3.9 (1.9)[1-7]	3.5(1.8)[1-7]	.219
Difficult due to missing appointments	2.2 (1.5)[1-7]	1.8 (1.0)[1-7]	.162
Difficult due to communicating problems with MAR patients	4.1 (1.9)[1-7]	4.3 (1.6)[1-7]	.645
Total attitude (low score negative attitude-high score positive attitudes)	24.3 (7.5)[11-42]	22.4 (5.6)[11-42]	.156

Mean, standard deviation (sd) and range (strongly agree (1)- strongly disagree (7)).

demanding and challenging. Beliefs that completion of treatment is often unsuccessful, and that it is difficult to understand information about illicit drug use and oral health associated with negative attitudes towards patients in MAR. The findings suggest that information to dental care personnel to extend their knowledge and increase their organisational support to improve their skills and self-efficacy might contribute to positive attitudes towards treatment of this group of patients in the public dental health care services [25].

Consistent with previous studies focussing health care professionals, both dental hygienists and dentists in this

Table 5. Attitudes (lower values indicate negative attitudes) of dentists and dental hygienists towards treatment of patients in MAR regressed on background factors, treatment experience and interpretability of information.

	beta	p Value	beta	p Value
Step 1				
Constant				
Gender	−0.097	.297		
Age	0.092	.583		
Work experience	0.012	.945		
Profession	−0.142	.126		
Step 2				
Gender			−0.070	.420
Age			0.028	.858
Work experience			0.103	.515
Profession			−0.162	.117
Treatment experience			−0.129	.237
Not completed treatment			0.310	.001
Frequency of periodontal treatment provision			0.209	.015
Difficult to understand information			0.176	.042

Model 1: R square: 0.036, R square change 0.036, Sig. F change: 0.356.
Model 2: R Square: 0.199, R square change: 0.163. Sig F change: 0.000.

study presented with negative attitudes towards treatment of MAR patients [21]. However, whereas dental health care workers' attitudes were only slightly negative, attitudes towards illicit drug users of health- and social care professionals have commonly been reported to be strongly negative reflecting poor motivation and unwillingness to provide care for those patients [21,26]. In contrast to most previous studies focussing on attitudes and stigmatization of illicit drug users in general, this study focussed on attitudes towards treatment of MAR patients, which are patients in rehabilitation from addictive disorder. Previous studies have shown that health care professionals hold more stigmatising attitudes towards patients with an active substance use disorder compared to other groups of patients and are more positive towards patients recovering from addictive disorder compared to patients in relapse [27].

Although dentists had more treatment experience with MAR patients than dental hygienists, a majority of both groups reported less frequent treatment experience. This parallels findings regarding frequency of dental attendance of drug addicts in different countries. Thus, previous studies across Europe and US have reported on lower prevalence of dental attendance among people with substance use disorders as compared to the general population [for review see 5,7]. Negative attitudes of dental health care workers towards MAR patients might reflect limited treatment experience in these professional groups although treatment experience was not significantly associated with attitudes in the multiple regression analysis. Previous studies suggest that health professionals with more personal- or work experience with substance abuse report more positive or different attitudes [21]. This is in accordance with the contact hypothesis posing that people who have more contact and experience with a stigmatised condition are more tolerant and have positive attitudes [28]. In spite of reporting less treatment experience, a majority of dental hygienists and dentists reported that MAR patients were often in need of various dental treatments.

Belief that dental treatment was not completed associated with dental health care workers' negative attitudes. Previous studies have shown that negative attitudes of health care personnel may reduce collaboration with patients and lead to a more avoidant approach in the delivery of health care, as well as to less successful treatment outcomes. A previous study confirmed that patients who perceived stigmatisation and discrimination by health care professionals were less likely to complete their treatment [13,29,30]. Whether negative attitudes of dental health care workers are a consequence or a precursor of unsuccessful treatment completion cannot be inferred from the present study due to its cross sectional design.

The present findings should be interpreted considering a number of limitations. Due to its cross-sectional design it is not possible to say anything about cause and effect of the variables included. Moreover, a direct comparison between dental hygienists and dentists regarding their attitudes might be difficult due to the fact that that dentists and dental hygienists do different work, and attitudes towards patients with drug use disorder is recognised to differ per job function [21]. Due to the moderate response rate in this study, the possibility of selection bias could not be overlooked. In accordance with studies focussing general practitioners, the low response rate may be a consequence of lack of time and interest regarding treatment of MAR patients. There is also a possibility that dental health care workers' responses are biased by social desirability. As people with substance use disorders who have been in rehabilitation for at least three months have their dental treatment sponsored by the Norwegian government, it is less likely that dental health care workers admit negative attitudes towards treatment of this patient group.

Conclusion

Dental health care workers' experience related to problems with interpretation of information and incomplete treatment provision associated with negative attitudes towards treatment of MAR patients. The findings suggest that promotion of information to dental care personnel to extend their knowledge and improve their skills regarding oral health aspects of substance use might contribute to positive attitudes and improved utilisation of the free dental care offered to MAR patients.

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