



Research Article

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Oral Health Behaviors and Community Periodontal Index Among Military Staffs in Tehran, Iran

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Abstract

Background: A review of the literature shows that oral health in the military staffs had not been a comprehensive appraisal.

Objective: This study aimed to determine the amount Community periodontal index (CPI) among the most important indicators of oral health behaviors (OHB) and risk factors among the military staff.

Material and Methos: In this cross-sectional descriptive study, 466 subject we recruited by convenience sampling. Tools included a demographic questionnaire and oral health behavior assessment questionnaire. The oral health status was evaluated by DMFT index (decayed, missing, filled tooth) CPI indicators, plaque index (PI) and bleeding index (BI) by examination.

Result: The mean age was about 35±8.26 years old. Among oral health behaviors (OHB) use of dental clinic, dental floss and brushing where the lower rate respectively. The mean of the DMFT index was 10.83, which includes DT=2.97±2.2, MT=2.2 7±3.4and FT = 5.6±3.9. The mean plaque index in subjects has been reported 6.79.

Conclusion: According to the results of the study, the dental health of military staffs in terms of caries and the DMFT index showed extreme levels of disease that needs attention of health policy makers in planning the control and prevention demands.

Keywords: Oral hygiene; Oral health; Dental caries; Dental plaque index, Periodontal index

Background

Oral and dental problems remain as universal problems that require comprehensive approaches [1]. Despite dramatic improvements in oral and dental health on a global scale, are still seeing a lot of problems, especially in poor communities in developing and developed countries [2]. Oral diseases are very common and its effects such as pain and disability have irreparable consequences on public health [3]. Among the diseases, dental caries, periodontal disease, and oral malocclusion are common oral and dental problems [4].

One of threshold detections for epidemiological studies is dental caries [5]. The most common measure of dental caries in permanent teeth is DMF index. D=rotten teeth, F=filled, M=lost to decay. Based on World Health Organization report, DMFT index in 12-year-old children in 188countries was 200 tooth decay 335 filled and 280 missing teeth [6]. According to a study in Iran, the average of this index for individuals in 15 to 19 years old was reported 4.1 (DT=2.7, MT=0.7, FT=0.6) [7].

The World Health Organization has introduced Community Periodontal Index (CPI) index as a diagnostic tool for epidemiological studies. This index evaluates the three criteria including healthy gums, bleeding gums and dental calculus. Based on CPI, 8% of young people have healthy gums, 23% have bleeding and 68% have dental calculus [8].

Most dental visits in Iran are doing to eliminate tooth pain and prevention and check-up examination are not routinely done. As a result, root treatment and tooth restoration are expensive that suppresses pressure on the health care system [9]. In this regard, the military health care system is no exception in this respect.

Objective

A review of the available literature shows that oral health in the military forces had not been a comprehensive review. Since the military environment due to high workload and environmental stress needs full physical and mental health, besides, this class of disorders can severely affect the effectiveness in a military environment. This study sought to determine the amount of DMFT among the most important indicators of oral health behaviors (OHB) and risk factors among the military staff.

Materials and Methods

Population

In a cross-sectional descriptive study was done in winter 2012 and spring 2013. The population in this study was staff of all four military units. Among military forces were selected in central and local positions in Tehran that were dental features. By using cluster random selection, Study population selected from four districts of Tehran and staffs was recruited through coordination with the health category for the examination and then were called out by convenience sampling. The total sample size in this study, were 500 subjects from the ranks of the military forces in Tehran. To calculate the sample size in simple random sampling was used the following formula:

$$n = \frac{n_0}{1 + \frac{n_0}{N}}$$

$$n_0 = \left(\frac{Z_{\alpha}}{r} \times \frac{\sigma}{\mu} \right)^2$$

Also taking into account the 10% loss of study population, 500 subjects were selected.

Inclusion criteria: military people aged 20 to 65 years old, having informed consent to participate in research

Exclusion criteria: People over 65 years and retired military and people with chronic diseases and refractory and chemical disabled veterans, including physical and motor disabled.

Tools

Questionnaire

Tools included a personal history questionnaire and

demographic characteristics and health status assessment form for oral examination. The designed questionnaire was evaluated job background information, knowledge, cultural and economic status and oral and dental health behaviors. Demographic questions, including 11 questions that were about age, gender, marital status, work experience, and education degree. Behavioral questions consisted of 8 questions about toothbrush 8 flossing behaviors and visiting the dentist previous treatment. The designed questionnaire was given to 12 experts in the field of health, 6 dentists and 4 oral and dental health care workers to verify the validity of the questionnaire. Alpha Cronbach of oral and dental health behaviors was 0.86.

Clinical Examination

In this study, the oral health status was evaluated by DMFT 'CPI indicators, plaque index (PI) and bleeding index (BI). After completing the questionnaire by each person, all physical examination was done by a dentist experienced with mirror disposable, sterile CPI probe and sond disposal was on the dental unit. Oral health was examined relating to decayed teeth, missing and filled teeth (DMFT). In this index (INDEX DT), the current Caries and any history of caries (DMFT) were evaluated. Oral and dental health status and health gums were evaluated by 3 indicators: CPI index, bleeding on probe (BI) and modified plaque index (PI) was assessed. 6 teeth index (46, 31, 36, 26, 11, and 16) was selected for examination.

To measure CPI index, teeth were scored as, criteria 0=healthy gums, criteria 1=bleeding from gums, and 2=dental calculus (WHO 1997) were scored. By changing the scoring system, plaque index was scored as, criteria 0= no bleeding, criteria 1=plaque at the gingival margin, and 2=plaque around the teeth. Total scores for both indicators reflect personal score. Also, bleeding index was scored as, 0 =not bleeding and 1 =bleeding. In addition, scores of PI and BI indicators described separately people' health status. PI index were divided into 3 subgroups for statistical analysis: good health (PI score to 4), medium (5 to 9) and low (score 10 to 12). Furthermore, Gingival bleeding index (BI), were classified into low (score of 0 to 2) and high (3 to 6).

Based on the defined threshold by WHO, DMFT was divided into four levels (very low, low, medium and high). (Very low <5, Low: 5 to 8.9, average: 9 to 13.9, much> 13.9).

The data were analyzed using SPSS 16 in descriptive and analytical tests including Pearson correlation. Due to the importance of the issue and the military organization, all confidential information contained in the questionnaires was collected and consent was obtained from participants.

Result

The mean age was about 35±8.26 years old. The work experience was 13±3.45 years. In this study, 88.8% of subjects had a bachelor's degree and lower. 82.7% of participants reported their financial situation low to moderate. Most of military staffs were married. About half of military staffs were in 9 to 14 military ranks that are at moderate one. Also, about half of military staffs were in job positions 9 to 14. The first objective of the study is to

determine a person's dental and oral health habits in elite military staff workers. Table 1 show 33% of daily drinking consumption containing carbohydrates. In the study, 65.2% of the subjects brush

their teeth for at least once a day. Among them, 61.2% of them brush 1 to 2 times. 43.4% had Regular visits to the dentist and 48.8% used regularly dental floss.

Table 1: Oral health behaviors among military staffs.

Answers	Oral health behaviors							
	Daily drinking consumption containing carbohydrates		Daily Teeth brush		Dental flossing daily		Regular visits to the dentist	
	N	%	N	%	N	%	N	%
Yes	165	35.2	326	69.9	244	52.3	217	46.5
No	277	49.2	140	30.1	222	47.7	247	53
No answer	24	15.6	0	0	0	0	2	0.5
Total	466	100	466	100	466	100	466	100

N=number %=percent

DMFT index

According to the study, healthy teeth with DMFT=0 was observed only in 2% of patients. The decay as DT =0 was observed in 10% of subjects. The Mean of DMFT index was 10.83, which

includes DT=2.97±2.2, MT=2.2 7±3.4and FT =5.6±3.9.

In the study population, 38.2% were in medium DMFT and 30% was in the high level (Table 2).

Table2: Categories of the *DMFT level among military staff.

DMFT level	N	%
Very low	44	9.5
Low	106	22.7
Medium	178	38.2
High	136	29.2
Missing value	2	0.4
Total	466	100

*DMF index, D =Rotten teeth, F=filled, M =lost to decay

According to the above table, only 2.6% of the subjects do not need any treatment. In about 90% of them need restorative

treatment, which is indicative of high levels of tooth caries (Table 3).

Table3: Discriptive characteristics of the military staff according to dental treatment.

No need for treatment	N	%
No need for restorative treatment	48	10.3
No need for the prosthetic treatment	2.3	43.6
No need for any treatment	3	2.6

Plaque index

The mean plaque index in subjects has been reported 6.79. Dental plaque (PI >0) was at least in all teeth of subjects' gums. Good health was seen only in 18% among subjects.

According to the Table 4, based on a review of previous studies, subjects were in a favorable position in terms of dental plaque only 17.2%.

The present study examined the correlations between age and DMFT index. According to Pearson correlation test was a significant correlation between age and DMFT index. (P=0.328) This means

that with increasing age, the index will be increased significantly. The correlation between education degree and DMFT index were evaluated that There was no significant relationship between these two variables (p= 0.86).

In this study, there was significant and positive relationship between job position and DMFT that means by increasing the level of service, DMFT index increased. Due to the attitude of people in relation to oral health increases at a higher level of service, it seems that poor health behaviors in high service level will increase DMFT (Table 5).

Table 4: Mean, frequency of plaque index in the military staffs.

Plaque index	%	N
Good	17.2	80
Moderate	64.8	302
Poor	12.4	58
Missing value	5.6	26
Total	100	466
	*M	SD
	6.7	2.4

*M=Mean SD=Standard deviation

Table 5: Significant Correlation coefficient among the variables.

Variables	1	2	3
1. Age	-		
2. *DMFT	0.328**	-	
3. Job position	0.53**	0.133**	-

*DMF index. D = Rotten teeth, F = Filled, M = Lost to decay

Discussion

The aim of this study was to determine the individual oral health behaviors and dental & oral health index among military staffs in Tehran.

Oral Health Behaviors

Main cause of periodontal disease is bacterial plaque and removes it by methods of plaque control, is one of the main ways of periodontal therapy. Reduction of dental plaque is a very important in preventing gum disease and tooth decay as well. As a result, brushing 2 times a day as a hygienic manner was suggested in this study, although 65% reported brushing 2 times a day. Studies have shown significant differences between developing countries such as Iran and developed countries in terms of oral health behaviors. In Italy and Sweden, 92% and 85% of people brush their teeth at least 2 times a day, respectively [1, 10]. In this study, the behavior of regular brushing was 65.2% that is lower than developed countries. According to Pakshir' study, dental & oral health levels in the different age groups are not satisfactory and decrease in consumption of sweets and regular dental visits are needed for the country [11]. In this study, 52% reported regular use of dental floss that is significantly more than other industrialized countries, such as Italy and Sweden. Oral health education is considered less in training of using dental floss and the importance of using it. About Dental examination, results are similar to other studies. For example, in the Koletsi-Kounari' study (2011), 31.7% of Egyptian adults had regular dental visits [12]. Ak Saha' study, 40% of subjects had dental visit once a year and 17% had twice a year [13]. In a study in the German armed forces, the vast majority of these people needed dental treatment [14]. In total about oral health behaviors of military staff were in moderate level that was far from the optimal standards. In other military studies, health behaviors

were not desirable [15].

The next target design of (DMFT) index was teeth decayed, missing and restored factors related to the subjects that the average of the index was 10.83 in which the FT index was higher than others, but this index, we are at a medium level and 30% of military staffs had an unfavorable condition. The mean FT index was higher than other indexes. This index shows the high amount of regenerative therapies in the past. Due to the possibility of the restoration of dental caries and provide X-ray examination is necessary to determine the status of regeneration.

The results of this study in the field of oral health indices (PI, DMFT) showed that almost all the subjects that were a good indicator of the total population (military staffs in Tehran) is suffering from dental diseases. Comparing to oral health in the world map [16] for people with 35-50 years old who make up the bulk of our study. The population of the study showed a severe level of caries and dental disease. Rate of missing teeth in this study is higher than the amount reported in the eastern Mediterranean countries except Morocco and Lebanon, which recently have published some data [3, 6].

The main difference between the subjects in this study with other industrialized countries was in the DMFT. MT Iran is higher than countries such as France and Britain [6, 10], according to the World Health Organization database, oral health status compared to other areas of today's Iran is part of it was not favorable. According to the WHO definition of the threshold of DMFT (very low <5, Low: 5 to 8.9, moderate: 9 to 13.9, much > 13.9), military staffs situation are in moderate group. Although it is far from optimal level [17].

Amongst military forces' studies, Lemon study of studies in the military forces of Finland (2009) showed that tooth trauma

included 14.3% of the total trauma. Most of the cases need to go to the dental clinic and follow-up care [18]. In a study of 300 Army Infantry Malaysia (2011), the prevalence of active caries was 85% and the mean DMFT was 8 ± 5.5 that not estimated medical needs were high but was better than our study. The prevalence of missing teeth was 69%. The prevalence of filled teeth was 56%. 90% needed dental care and 85% restorative treatment and 5% advanced restorative treatment [19].

The plaque index was 77% in the moderate level that shows undesirable situation whereby plaque index in those people. Given that about half of the people they brush their teeth. It seems the undesirable situation of plaque index due to poor oral health was weak and is relevant to Failure to comply with health behaviors. Like the present study, Zajc' survey in soldiers mentioned the role of smoking as a risk factor of gum disease and tooth health and thus need for prevention programs and promote oral health is emphasized in this class [20].

2.6% of Payvaran did not need any dental treatment. In about 90% are needed regenerative therapies that reflect the high rates of caries. Therefore visit and follow-up treatment for the majority of these people is required. Meanwhile, studies have shown that the prevalence and severity of dental disease in situations of armed conflict are a significant impact. The number of dental visits, brushing and feeding of soldiers working in war zones with the rest of the difference is significant [21].

Limitation

Due to the availability of the target population and voluntary participation, the interpretation of results must be done with consideration of these cases. Obviously, the non-volunteer community was probably weak in the motivation and behavior and eventually caries index and oral health has been worse. The study was conducted in Tehran and therefore military staffs in remote border areas likely to have poorer health status, so the results are not generalizable to the entire military forces. Participation in the study was voluntary, and the questionnaires were collected after completion by individuals and reviewed by the investigator.

Conclusion

According to the results of the study, dental health of military staffs in terms of caries and DMFT Index showed extreme levels of disease that needs attention of health policy makers for planning the control and prevention demands. Administrative tasks should be done such as promotion of brushing, flossing and nutrition by reducing carbohydrates in the diet and oral health supplements such as chewing gum and mouthwash chlorhexidine and fluoride.

Authors' Contribution

Fatemeh Rahmati and Maryam Yaghoubi participated in designing the study, statistical analysis, and writing the manuscript. Two authors read and approved the final revision of the manuscript.

Financial Disclosure

There was no conflict of interest.

Conflict of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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