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## ORAL HEALTH HYGIENE STATUS AND FACTORS RELATED TO ORAL HEALTH OF SOLDIERS OF BANGLADESH ARMY ATTENDED MOBILE DRESSING STATION (MDS), KHAGRACHARI CANTONMENT

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### ABSTRACT

**Background:** Oral health is the state of the mouth, oral cavity, teeth and oro-facial structures that enables individuals to perform essential functions like eating, breathing and speaking, and encompasses psychosocial dimensions such as self-confidence, well-being and the ability to work without pain, discomfort and embarrassment. The aim of this study was to assess oral health hygiene status and to bring into focus the factors related to oral health of the soldiers serving in Bangladesh Army and also to find out the factors related to behavior, the oral health status and socio demographic status among them.

**Methods:** A cross-sectional study was conducted among 108 purposively selected soldiers of Bangladesh Army who attended Mobile Dressing Station (MDS), Khagrachari Cantonment during the period of August to September 2022. Data were collected by face to face interview using a semi-structured questionnaire and by check list reviewing medical documents.

**Results:** The Mean ( $\pm$ SD) age of the participants was 32.50( $\pm$ 2.08) years and ages of them were between 20-45 years. Among the participants, 78.70% were married, 54.62% and 45.38% were SSC and HSC qualified respectively. Maximum participants (76%) used to brush their teeth in the morning. 86% participants used tooth paste and 11.12% participants used tooth powder as cleaning materials. Usually 48% visited dental clinic for gum bleeding. 71% of the participants had no bad habits of affecting the oral health except 15% were with a habit of smoking. Among 46% participants with abnormal gingival colour, had the habit of taking gul (6.9%), some participants (9.35%) with the habit of smoking were found with bleeding gum. A remarkable number of respondents (6.24%) with gum swelling had the habit of taking gul. Among all, 44% of the participants had swelling of gum. 43% of participants had abnormal gingival colour and 5% had gingival ulceration.

**Conclusion:** Lack of personal and oral health awareness among the soldiers lead to various types of oral disease which needs to exhilarate for a healthy life.

**Keywords:** Oral hygiene, oral care, cleaning aids, tooth and gingival status.

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## INTRODUCTION

Oral health refers to the health of the teeth, gums, and the entire oral-facial system that allows us to smile, speak and chew. The condition of the mouth, mouth cavity, teeth and associated structures are included on it.<sup>1</sup> It is calculated that, nearly 3.5 billion people are affected by diseases and sufficient services facilities are mostly not available in low and middle-income countries to prevent and treat oral health related complaints.<sup>2</sup> 80 percent or more of total population of Bangladesh are suffering from single or more oral and dental diseases.<sup>3</sup> Among the diseases, more common are dental caries, periodontitis, gingivitis, pulpitis, alveolar abscess etc. Dental cysts and carcinoma of the oral cavity are also found in Bangladesh. Ignorance regarding oral hygiene comparatively more common among the peoples of rural areas.<sup>4,5</sup> Those rural peoples are habituated to clean their teeth at morning by using sticks of neem tree, ashes etc.

In our country, many peoples like to chew betel leaf and betel nut but they don't know its harmful effects. But it is very essential to acquire knowledge regarding harmful consequences of betel leaf on oro-dental system and also in human body. Jarda, khoer, tamakpata (Tobacco leaf) are the components need to mix with betel leaf for eating. Betel nuts and lime are also used along with betel leaf to make it tasty. The several components of betel leaf have their own effects on human body. Among those betel nut is most harmful. Saricolin is present in betel nut which acts as like as the nicotine in cigarette and irritates the mucosal layer of mouth and aggravates the respiratory movement.<sup>6</sup> The mucosal cells of betel nut are also slightly shrunked by betel nut containing chemical Tannins.<sup>6-8</sup> Alkaloid in the betel nut are metabolized by lime which is also used with betel leaf. After chewing of betel leaf

acid juices are secreted from the stomach, which activate the broken alkaloid. The tongue becomes less sensitive by the etheric oil present in betel leaf. In short, betel leaf acts as somewhat stimulant.<sup>7</sup> Any person may suffer from vertigo if he/she takes betel leaf for the first time. The taste of the mouth may be decreased due to regular and excessive eating of betel leaf. Certain changes are observed on teeth and also on oral cavity by taking of betel leaf. Regular eating of betel leaf leads to formation of Tartars at teeth roots and turns to suffering from gum troubles. The gum and adjacent jaws which hold tooth root decay gradually. As such, the teeth turn into unsteady which resulting in early loss of teeth.<sup>8</sup> Besides these, excessive chewing of betel leaf leads to attrition in the enamel. There are evidences of cancer in the mouth which is induced by the habit of taking betel leaf.<sup>7,9,10,13</sup> Some persons are also habituated of taking smokeless tobacco, which include tobacco leaf chewing, dry snuff, moist snuff, Swedish-style snus, betel quid, gutkha, zarda, toombak, khoer etc.<sup>18</sup> Tobacco, nicotine, sweeteners, abrasives, salts, and chemicals are mixed together to make these products. These mixtures contain about 4000 chemicals and 30 or above among those are known carcinogens.<sup>19</sup> Nicotine is discharged 3-4 times more from smokeless tobacco than smoked tobacco. Taking of 30-40 cigarette sticks per day is equivalent to 8-10 chews/dips per day basing on the amount of nicotine.<sup>23</sup> The main categories of smokeless or chewing tobacco-induced oral mucosal soft-tissue lesions reported are: oral squamous cell carcinoma (SCC) and verrucous carcinoma, oral potentially malignant disorders (Leukoplakia, Erythroplakia and Erythroleukoplakia) and tobacco pouch lesion (Tobacco and lime users' lesion, oral submucous fibrosis when mixed with areca nut).<sup>20</sup>

General health and the well-being of all people are significantly depends on oral health and its

associated diseases. It has psycho-social, and economic outcomes which includes low self-confidence, isolation from the society and reduced working and academic capabilities.<sup>12</sup> Growing bodies of evidence indicate that, chronic inflammation, metastatic infection and vascular injury from endotoxins are possible oral cavity-based etiologies of cardiovascular diseases.<sup>21</sup> Pulmonary diseases such as pneumonia, chronic obstructive pulmonary diseases including emphysema, and exacerbations of chronic bronchitis, all involve in the aspiration of bacteria from the oropharynx into the lower respiratory tract.<sup>22</sup>

This study was aimed to assess oral health hygiene status and to bring into focus of the factors related to oral health of the soldiers serving in Bangladesh Army those attended MDS, Khagrachari Cantonment.

## MATERIALS AND METHODS

A cross-sectional study was conducted during the period of August to September 2022, among 108 soldiers of Bangladesh Army attended MDS, Khagrachari Cantonment. The subjects were selected purposively through voluntary participation basing on selection criteria and after taking informed written consent. Data were collected by face to face interview with a semi-structured questionnaire and also by check list reviewing medical documents of the participants. Ethical issue was duly addressed. All collected data were checked and verified thoroughly to reduce inconsistencies and to ensure quality. Statistical Package for Social Science (SPSS) version 20.0 was used for analyzing data and overall findings were presented through appropriate tables and graphs.

## RESULTS

Total 108 soldiers of Bangladesh Army attended MDS, Khagrachari Cantonment were studied.

Table-I: Socio-demographic status of participants (n= 108)

Age (In years)	n(%)	Marital Status		Educational Status		Living Status	
		Married n(%)	Unmarried n(%)	SSC n(%)	HSC n(%)	Snk Line n(%)	Family Qtr n(%)
20-24	12(11.11)	01(0.92)	11(10.18)	03(2.78)	09(8.33)	11(10.18)	01(0.92)
25-29	17(15.74)	07(6.48)	09(8.33)	04(3.70)	13(12.04)	12(11.11)	05(4.63)
30-34	32(29.62)	30(27.78)	02(1.85)	20(18.52)	12(11.11)	12(11.11)	20(18.52)
35-39	41(37.97)	41(37.96)	00(00)	30(27.78)	11(10.18)	11(10.18)	30(27.78)
40-45	06(05.56)	06(5.56)	00(00)	02(1.85)	04(3.70)	03(2.78)	03(2.78)
Mean( $\pm$ SD) age: 32.50 $\pm$ 2.08 years							

Table-I shows that mean age ( $\pm$ SD) of the participants was 32.50 $\pm$ 2.08 years and range 20-45 years. Maximum number (37.97%) of participants were in between 35-39 years of age and the minimum number (05.56%) were in between 40-45 years of age. Among the participants, 78.70% were married and 21.30% were unmarried. 54.62% of them completed Secondary School Certificate and 45.38% completed Higher Secondary Certificate. 45.37% participants lived in sainik line and rest 54.62% lived in family quarter.

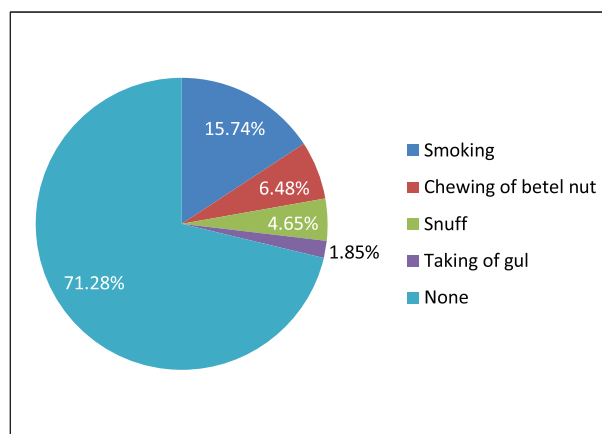


Fig-1: Distribution of the participants by their personal habit (n=108)

Fig-1 shows that, majority of the participants (71.28%) did not have any bad habit. Among other respondents of having different habits, smoking was 15.74%, habit of betel nut chewing was 4.64% and snuff dipping habit were 1.85%.

Table-II: Distribution of the participants by gingival status (n= 108)

Gingival status	Frequency	Percent
Abnormal gingival colour	46	42.59
Bleeding gums	55	50.92
Gum swelling	48	44.44
Gingival ulceration	05	04.62

\*Multiple responses

Table-II shows that, bleeding per gum were present with 50.92% of participants and 37% had no such problem. 44.44% and 42.59% participants were of gum swelling and abnormal gingival colour respectively. The lowest percentage (04.62%) were of gingival ulceration.

Table-III: Distribution of the participants by oral care (n=108)

Tooth Cleaning aids			Tooth Cleaning materials			Dental aids			Duration of tooth brushing		
Name of cleaning aid	n	%	Name of cleaning aid	n	%	Name of Dental aid	n	%	Duration (min)	n	%
Tooth brush	91	84.26	Tooth past	93	86.11	Dental floss	30	27.77	1	23	21.29
Meswak	12	11.11	Tooth powder	12	11.12	Tooth pick	38	35.18	2	29	26.86
Only finger	05	4.63	Ash	03	02.77	None	40	31.48	3	38	35.19
									4	15	13.88
									5	03	02.78

Table-III reveals that, among the participants cleaning tool of 84.26% were tooth brush and only 4.63% brushed teeth by their own finger. 11.11% participants also used meswak as cleaning tool. Considering tooth cleaning materials, majority of the participants (86.11%) opined that, they used tooth paste. 11.12% used tooth powder and only few (2.77%) used ash as cleaning material. tooth pick are used by 35.18% participants to clean their interdental spaces and dental floss 27.77% but 31.48% participants did not use anything. The maximum number (35.19%) of the participants

took 3 minutes to brush their teeth for and the minimum (2.78%) participants took 5 minutes to brush their teeth.

Table-IV: Distribution of the participants by tooth status (n= 108)

Tooth Status	Response	Frequency	Percent
Tooth Decay	Yes	65	60
	No	43	40
Missing Tooth	Yes	23	21
	No	85	79
Filling of Tooth	Yes	67	62
	No	41	38

Table-IV shows that, 60% participants were with tooth decay and no tooth decay were 40%. Among the participants, no missing tooth was 79% and with missing tooth were 21%. 38% participants had no filling and 62% had filled teeth.

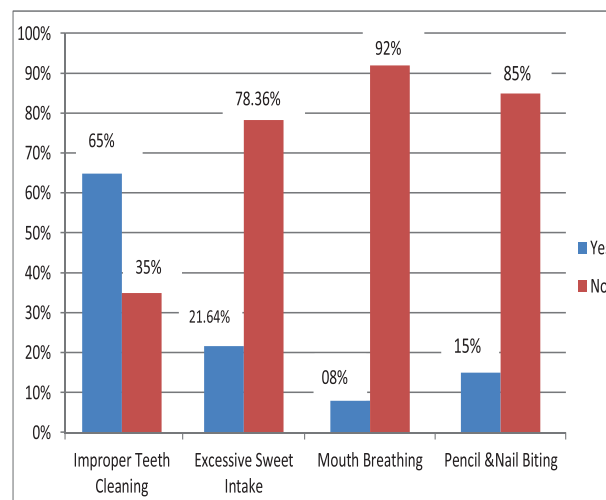


Fig-2: Distribution of the participants according to their bad personal habits (n= 108)

Fig-2 shows that, 64.94% participants didn't clean the teeth and mouth properly, taking of excessive sweets were 21.64% respondents. 8.0% of the participants had mouth breathing problem and 15% of the participants had the habit of pencil and nail biting.

Table-V: Distribution of the participants by personal habit and gingival status (n= 108)

Personal Habit	Gingival Status			
	Abnormal gingival colour (N=46) n(%)	Bleeding gum (N=55) n(%)	Gum swelling (N=48) n(%)	Gingival ulceration (N=05) n(%)
Smoking	11(5.06)	17(9.35)	11(5.28)	01(0.05)
Chewing of betel nut	05(2.3)	03(1.65)	09(4.32)	00(0.00)
Snuff dipping	12(5.52)	13(7.15)	07(3.36)	01(0.05)
Taking of gul	15(6.9)	12(6.60)	13(6.24)	02(0.10)
None	03(1.38)	10(5.50)	08(3.84)	01(0.05)

Table-V depicts that, among 46% with abnormal gingival colour had the habit of taking gul (6.9%), followed by smoking habit (5.06%). Maximum participants (9.35%) of bleeding gum were found with the habit of smoking. A remarkable number of participants (6.24%) with gum swelling also had the habit of taking gul. 0.10% participants with the habit of taking gul were found with gingival ulceration. Few participants were also found with different abnormal gingival status those who had no bad personal habit.

## DISCUSSION

Oral health refers to a state, which is free from different clinical conditions like chronic pain on mouth and face, sores in oral cavity, cancer throat and mouth, developmental defects like cleft lip and palate, periodontal (gum) disease, tooth loss and its decay. It also includes the diseases and disorders in which oral cavity is also involved. Unhealthy diet, use of tobacco, taking alcohol and poor oral hygiene are the risk factors for oral diseases. In this study, among 108 participants mean ( $\pm$ SD) age was  $32.50 \pm 2.08$  years and range 20-45 years. All the participants were male and 78.70% of them were married. Among the participants 54.62% were secondary school certificate qualified and 45.38% completed higher secondary certificate. About 45.37% participants lived in sainik line and 54.62% lived in family quarter with

families. Some researchers stated that, social and economic disparities had relation with loss in oral health like decayed teeth. Mobile teeth were less prevalent in higher family wealth groups than lower.<sup>6</sup> It was believed that, no cleaning of teeth and mouth properly, which is done by 64.94% of participants and taking of excessive sweets by 21.64% of participants were the liable factors for causing dental diseases. Bad habits like mouth breathing (8.0%), pencil and nail biting (15%) were also found among the participants. According to the study it is revealed that, certain diet and some patterns of lifestyle have effect on oro-dental health.<sup>13,14</sup>

Out of 108 participants, teeth brushing of 73% participants were done once daily and twice daily were done by 21.29% of participants. 99% participants used tooth brush and tooth paste to clean their teeth. Among the participants, 31.48% didn't use anything, toothpick was used by 35.18% and dental floss was used by 27.77% for cleaning the interdental spaces. Highest number of participants (44.45%) took 3 minutes to brush their teeth, 26.86% took 2 minutes, 13% took 1 minute and only 2.78% took 5 minutes to brush their teeth. After taking of food dental floss were used by the 56% of participants and 32% used dental floss as and when required. It is shown by the study that, 38.0% of participants used to brush their teeth for brightness, 28% to prevent bleeding per gum, 8.0% for preventing caries teeth and 25% used to brush their teeth to stop bad odor of mouth. Among the participants, chocolates or juice or other sweets were taken in a day by 41%, multiple times per day by 45%, 38% took irregularly and no such kinds of foods were taken by 17%. This study showed, 57% participants used to replace their old tooth brushes by new two times per year and 36% replaced it in every two months. No visit to



dentist was done by 47.38% of the participants for not having any tooth problem, once in a year by 36.24% and 16.38% visited dentist two times per year due to different complaints related to teeth. 30% of the participants visited dentist with complaints of gum bleeding, tooth pain of 57%, and 13% participants for recognition of caries by themselves. A few participant (1%) visited dentist for dental checkups at regular interval. Number of authors reported that, infrequent brushing of teeth and smoking habit affected tooth loss.<sup>6,10,15</sup>

In this current study, only 9.0% of the respondents had visited first to any dental installation for tooth related problem. Gilbert et al in their study found less positive attitude of the persons to visit dentists who had lost their teeth due to poor dental hygiene and smoking habit.<sup>16</sup> Among the study population, 15.74% had the bad habit of smoking, chewing of betel nut with 6.48% and snuffing 4.65%. A study reported that, total tooth loss had an association between some factors like below average income, education, long continued illness of oral health, habit of smoking and negative affecting health behavior.<sup>5</sup>

Certain aspects of lifestyle and diet affect dental and oral healths.<sup>13,14</sup> Study showed that, the Periodontal Disease (PDD) which prevailed worldwide, range between 37% to 77%, depending of its onset of age, hygienic condition of mouth, underlying teeth problems, smoking and Diabetic diseases.<sup>8,17</sup>

## CONCLUSION

It is suggested by the study findings that, affecting factors of oral health hygiene of the soldiers were frequency of tooth brushing, having some bad personal habits, abstinence of regular dental checkup. So, to establish good oral hygiene among soldiers a healthy dietary

habit, regular dental checkup, regular personal oral care are proven to be essential.

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