

Community Dentistry in Armed Forces

Lt Col A Ahuja*, Lt Col HS Darekar†

Abstract

The objectives of community dentistry are to motivate the public to change their behaviour and planning for prevention and control of dental diseases. Oral health of army personnel is recognized as equally important in relation to general health. In the present study, the army personnel were inspected comprehensively utilizing the latest WHO survey proforma 1997 to know the pattern of oral diseases, prevalence of deleterious oral habits and treatment needs. The aim of this epidemiological study was to assess the oral health status and treatment needs of army personnel.

MJAFI 2003; 59 : 18-20

Key Words: Community Dentistry; Oral health

Introduction

Community dentistry is a specialized branch of dentistry, which deals with educating the public through health education, prevention, control of dental diseases and promotion of dental health. The procedural steps in dental public health are survey, analysis, program planning and program implementation. An oral health survey was conducted on army personnel of three large cantonments as per WHO assessment form 1997 (Simplified) [1].

Material and Methods

The present study was conducted at three large cantonments. A total of 1200 army personnel were included in this study. A brief interview and clinical examination of each soldier was carried out. The interview comprised few questions to know their oral hygiene practices and deleterious oral habits. WHO oral health assessment form 1997 was simplified [1]. The answers to these questions as well as clinical data were recorded in the WHO form 1997. In the present study army personnel with age varying from 16 - 56 years formed the study group. The total sample was divided into three age groups i.e. 16-18 years, 19-21 years and 22-56 years. Besides standard oral examination instruments, CPITN probe was used for measuring depth of periodontal pockets.

Criteria of pocket depth is as follows :

- (i)Shallow pocket - 4-5 mm (gingival margin within the band on the probe)
- (ii)Deep pocket - 6 mm or more (black band on the probe not visible)

Recording of data : The staff was firstly trained to fill the form and recording was done subsequently.

Results

The oral health survey was conducted on the army personnel of three places. A total of 1200 army personnel formed the study group. Among them total number of decayed teeth examined were 453, missing teeth were 183

and filled teeth were 258. The mean decayed, missing and filled teeth (DMFT) for all army personnel calculated was 0.74. The temporo-mandibular joint (TMJ) was found normal in 1188 of army personnel. TMJ clicking was found in 7 army personnel and tenderness was found in 1 jawan and reduced jaw mobility was detected in 1 jawan. Healthy oral mucosa was observed in 1196 of army personnel. Leucoplakia was found in 1 jawan, ulceration was found in 1 jawan and 2 cases of abscess were found.

Periodontal status of army personnel according to places: There were a total of 416 army personnel in cantonment A, out of which 203 (48.8%) had healthy periodontal status, 4 (0.96%) had bleeding on probing, 175 (42.07%) had calculus, 22 (5.29%) had shallow pockets and 12 (2.88%) had deep pockets. There were a total of 400 army personnel in cantonment B out of which 296 (74%) had healthy periodontal status, 8 (2%) had bleeding on probing, 92 (23%) had calculus, 4 (1%) had shallow pocket and none had deep pocket. There were a total of 384 army personnel in cantonment C, out of which 226 (58.85%) had healthy periodontal status, 3 (0.78%) had bleeding on probing, 119 (31%) had calculus, 28 (7.29%) had shallow pockets and 8 (2.08%) had deep pockets.

Periodontal treatment need of army personnel to units : No periodontal treatment was needed for 203 (48.80%) army personnel in cantonment A, 296 (74%) army personnel in cantonment B and 226 (58.85%) army personnel in cantonment C. TN2 i.e. oral hygiene education and scaling was required for 197 (47.35%) army personnel in cantonment A, 96 (24%) army personnel in cantonment B and 147 (38.28%) army personnel in cantonment C. Complex periodontal treatment of army personnel in cantonment A was 96 (24%) and in cantonment B 147 (38.28%). Complex periodontal treatment was required for 12 (2.89%) army personnel in cantonment A, none in cantonment B and 8 (2.08%) army personnel in cantonment C. Value of Chi-square, which is highly significant at $p < 0.001$, reflects there is a close association between place and periodontal treatment need.

Prosthesis need : Prostheses were required for 10.4% of

*Officer Commanding, Military Dental Centre, College of Military Engineering, Pune, †Reader & Classified Specialist (Periodontics), Armed Forces Medical College,Pune - 411 040.

army personnel.

Malocclusion cases : A total of 3 cases of malocclusion were seen in cantonment A, 2 cases in cantonment B and 2 cases in cantonment C.

Prevalence of oral habits according to age : In 16-18 year age group, there were a total of 270 army personnel. Out of these 268 (99.25%) had no oral habit, none had smoking habit, 1 (0.3%) had tobacco and quid keeping habit and 1 (0.3%) had pan and betal nut chewing habit. In 19-21 age group, there were a total of 140 army personnel, out of which 137 (97.85%) had no oral habit, 1 (0.7%) had smoking habit, 1 (0.7%) had tobacco quid keeping habit and 1(0.7%) had pan and betal nut chewing habit. In 22-56 year age group, there were a total of 790 army personnel out of which 528 (66.8%) had no oral habit, 158 (20%) had smoking habit, 35 (4.43%) had tobacco keeping habit and 69 (8.7%) had pan and betal nut chewing habit.

Table 1

Distribution of army personnel according to places

Name of places	Total	%
Cantt A	416	34.67
Cantt B	400	33.33
Cantt C	384	32

Table 2

Age profile

Age in Years	Cantt A	Cantt B	Cantt C
16-18	242	69	25
19-21	45	76	10
22-56	319	266	53

Table 3

DMFT, DT, MT, FT among three units

Unit	DTMTFT	DMFT	Mean
Cantt A	14791693070.74		
Cantt B	199171263420.89		
Cantt C	10775632450.61		
Total	453183258894		0.75

DMFT - Decayed, missing, and filled teeth; DT - Decayed teeth; MT - Missing teeth; FT - Filled teeth

Table 4

Periodontal status of army personnel according to units

Criteria	Cantt A	Cantt B	Cantt C
	No%	No%	No%
Healthy	203	48.82	967422658.85
Bleeding	4	0.96	8230.78
Calculus	175	42.07	922311931
Shallow pockets	22	5.29	41287.29
Deep pockets	12	2.88	0082.08
Total	416	100	400100384100

Discussion

Community Dentistry embodies in it the philosophy of epidemiology, survey work documentation by WHO procedures, database programme and giving preventive education lectures to prevent dental diseases. The basic principles of this faculty are survey, group responsibility, teamwork and prevention [2]

Filling up WHO assessment form for each army personnel at the time of dental inspection has given comprehensive information about TMJ, oral mucosa conditions, dental caries status, periodontal status, prosthetic status, DMFT of the population, malocclusion and prevalence of deleterious oral habits. The data was analyzed with computer using database programmes.

All available army personnel reporting for dental inspection were selected. Almost equal representative samples of population have been selected for study from all three cantonments for comparison. Cantonment B had maximum number of army personnel in young age group 16-18 years i.e. 269 (69.25%), because cadets get selected at an early age.

In the present study mean DMFT among all three cantonments was 0.75. Author reported higher mean DMFT 0.9 among army recruits in Belgaum. Asmyhr et al [3] reported 10.2 mean DMFT among male army recruits in Norway in 1990. The reason of marked differences between recruits in Norway and present study is the better awareness in modern age and getting the restorations done at appropriate time through Military Dental Centres. Therefore DMFT index is comparatively less in present study. The mean DMFT of cantonments A, B and C was 0.74, 0.89 and 0.61 respectively. Missing teeth were more in cantonment A and C i.e. 91 and 75 as these places had personnel of older age group. These teeth were missing because of caries or periodontal reasons. Most army personnel required TN 2 (professional scaling and oral hygiene education).

Asking about deleterious oral habits and educating about harmful effects on gums and oral mucosa, made army personnel aware about their consequences and motivated them to stop these habits. In 22-56 year age group, the prevalence of smoking has been 20%. The smoking, tobacco quid keeping and pan and betal nut chewing habits have shown a sharp increase from 19-21 to 22-56 year age group of army personnel. High value of Chi-square $p < 0.001$, depicts there is a close association between age and oral habits. Ahuja [4] reported 12% Belgaum recruits having these deleterious oral habits. Dileep CL [5] reported 56% police recruits in Karnataka having above oral habits.

Clinical data like TM joint assessment, oral mucosa condition and malocclusion have been recorded in the

Table 5

Periodontal treatment needs according to places

Units	No of Personnel	army TN 0 No%	TN 1 No%	TN 2 No%	TN 3 No%
Cantt A	41620348.8		40.96	19747.35	122.89
Cantt B	40029674		82	9624	00
Cantt C	38422658.85		30.78	14738.28	82.08

$p < 0.001$, Highly significant

TN 0 - No treatment needed; TN 1 - Oral hygiene education; TN 2 - TN 1 + Scaling; TN 3 - TN 1 + TN 2 + Complex treatment

Table 6

Prevalence of oral habits according to age

Age in Years	Total No of Army personnel	0 No%	1 No%	2 No%	3 No%
16-18	27026899.25		00	10.37	10.3
19-21	14013797.85		10.71	10.71	10.7
22-56	79052866.83		15820	354.43	698.7
Total	120093377.7515913.25373.0871				

$p < 0.001$, Highly significant

0 - No oral habit; 1 - Smoking habit; 2 - Tobacco quid keeping; 3 - Pan and betal nut chewing

survey forms. It can be of interest and serve useful purpose to oral surgeons and orthodontists for treatment planning and specialists in multichair/zonal dental centres. Periodontal status and treatment needs of army personnel have been depicted by recording the exact diagnosis of bleeding on probing, shallow and deep pockets and treatment can be planned accordingly.

The mean DMFT of the population under dental cover can be calculated and serves as a useful clinical index to know about caries prevalence in unit/formation/command. Mean DMFT index is recognized nationally and internationally as well as in other armies of the world [6,7]. In present study, DMFT of total population was 0.74. Restorations were the most needed treatment followed by extractions. 39.5% of army personnel suffered from some form of periodontal disorder. The calculus deposits and shallow pockets were the main findings in most army personnel.

The WHO oral health assessment form 1997 (simplified) [1] has been useful for knowing prevalence of specific disease in population under dental cover. By asking suitable questions the troops were made aware of correct oral hygiene practices and got motivated to stop tobacco habits. The prevalence of smoking habits were found 20% in 22-56 year age group. 28.3% of army personnel required oral hygiene and scaling. 1.8% of army personnel required complex periodontal treatment. 10.4% of army personnel required prosthesis. The mean DMFT can be calculated, which is recognized nationally as well as internationally. Mean DMFT of cantonments A, B and C were 0.74, 0.85 and 0.63

respectively. Restorations were the most needed treatment. The oral health data generated from WHO oral health assessment form 1997 [1] is useful for planning equipment, resources, research work and treatment by various specialists. Community dentistry approach of doing oral health survey of army personnel constitutes the basic criteria for prevention and control of dental diseases and promotion of oral health.

References

1. World Health Organization. Oral health surveys basic methods: Assessment form 4th ed. Geneva, 1997;26-9.
2. Radhakrishnan AN. Preventive and Social dentistry. Public health. 1st ed. Bangalore, 1996;01-3.
3. Asmyhr O, Grytten L, Grytten J. Changing trends in caries experience among male recruits in Norway. Community Dent Oral Epidemiol 1994;22:206-7.
4. Ahuja A. Assessment of oral health status and treatment needs of army recruits in Belgaum. Proceedings of 5th National Conference IAPHD; 1999 May 18-19; Belgaum, 1999.
5. Dileep CL. Oral health status, treatment requirements, knowledge and attitude towards oral health of police recruits in Karnataka. Proceedings of 3rd National Conference IAPHD; 1998;Mangalore:Indian association of public health dentistry, 1998.
6. Chisick M, Stephen J, York A, Poindexter F. Designing a Standardized Oral Health Survey for the Tri-services. Military Medicine, 1994;3:179-85.
7. Christen AG, Park Paul R, Graves RC, Young JM, Rahe AJ. United States Air Force survey of Dental needs, 1977 :methodology and summary findings. J Am Dent Assoc 1979;98:726-30.