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Original Research Article

Assessment of oral health status and treatment needs among TSRTC employees in Hyderabad City, Telangana, India

Siva Kumar Patanapu[1]*, Naresh Arelli[2], Nagarani Veeraboina[3], Kandadi Vasavi Reddy[4], Satya Narayana Dantala[5], Sreenivas Voruganti[6]

[1]Department of Public Health Dentistry, Kamineni Institute of Dental Sciences, Narketaplly, Nalgonda, India
[2]Department of Public Health Dentistry, Shree Rajanna Dental Hospital, Vemulawada, Telangana, India
[3]Department of Public Health Dentistry, Positive Dental Pvt. Ltd, Dilsukhnagar, Hyderabad, India
[4]Department of Public Health Dentistry, Clove Dental, Secunderabad, Hyderabad, India
[5]Department of Public Health Dentistry, MNR Dental College and Hospital, Sanga Reddy Telangana, India
[6]Department of Public Health Dentistry, SVR Dental Hospital, Nalgonda, Telangana, India

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***Correspondence:**
Dr. Siva Kumar Patanapu,
E-mail: shivakumarkittu@gmail.com

ABSTRACT

Background: The trend in all countries is industrialization; it leads to many occupational health problems and diseases among transport workers. The workers may be exposed to hazardous environment which affect the general as well as oral health because of the relative lesser importance given to it. The use of products related to tobacco and poor oral hygiene practices adds to the oral disease burden among this population.
Methods: The study population consisted of 404 people, and oral health was examined using the World Health Organization (WHO) Oral Health Assessment form from 1997. Statistical Package for Social Sciences (SPSS) version 21.0 was used to analyze the data. The Chi-square test, t-test, and Analysis of Variance were used to compare study population proportions and mean scores (ANOVA).
Results: The number of sextants influenced by CPI and LOA was found to be considerably larger (p=0.005) among guys who had completed high school education. Buccal mucosa showed ulcerations and leukoplakia from oral mucosal ulcers. Males aged 46-60 years old had significantly higher mean DMFT scores (3.31±4.44; 2.11±3.33 respectively) than females aged 46-60 years old (p=0.005). Overall, male workers aged 30-45 years old with a high school degree were shown to have a higher risk of acquiring oral health problems and requiring treatment.
Conclusions: According to the findings, TSRTC personnel aged 30-45, males with a primary school education, had poor oral mucosal health and periodontal status. Workers with a high school education have a higher prevalence of dental caries and unmet dental care needs. As a result, there is an urgent need to focus on these high-risk groups.

Keywords: Education, Oral health status, Occupation, Periodontal health

INTRODUCTION

Health is a basic human right and a vital asset not only for individuals but also for society as a whole.[1] A nation's progress may be accelerated if its citizens are healthier and live more productive lives.[2] The interplay and integration of two ecological facts those are internal environment of man and the external environment that surrounds him.[3] As man progressed into the modern age, he was exposed to newer living styles, a lack of physical exercise, stressful working conditions, and harmful behaviors such as smoking, alcohol drinking, and dietary changes, all of which might have a negative impact on his overall and oral health.[4] In these cases, the occupational

environment is critical; it refers to the totality of external conditions and influences that exist in the workplace and have an impact on the health of the workforce.[2,5] Today's transport professionals labor in a very complex environment that is only getting more sophisticated as man's ingenuity grows.[1]

Oral health is an important element of overall health and contributes to a higher quality of life.[6] An individual with a problem-free mouth can eat, speak, and mingle without any active disease, symptoms, or embarrassment.[7] Despite ongoing efforts around the world, oral health continues to be undervalued and neglected.[8] Mouth disorders are multifactorial in nature, affecting people of all ages in all parts of the world; nearly no one can avoid oral difficulties over the course of their lives. Environmental factors play a role in poor oral health in many industries, as the oral cavity is a point of entry for many diseases and has numerous unique characteristics that make it particularly vulnerable to occupational disorders. Occupational exposure has been linked to an increased frequency of oral illnesses in studies.[6,9,10]

Industrialization is a global trend that has resulted in a slew of occupational health issues and disorders among transportation workers.[11] Workers may be exposed to a hazardous workplace that includes various physical variables such as noise, vibration, and climatic conditions, all of which have been shown to have a negative impact on their health.[6,12] Because of the mechanical existence that they are compelled to live in metropolitan cities, the average man's life is exceedingly stressful. Several cities have different modes of public transportation. The state government will provide transportation services to the people in most metropolitan cities, and a local transportation network will operate with the support of government and private firms.

According to the 2011 national census, Hyderabad is the metropolitan capital of Telangana state, with a population of about 67 lakhs. Because the city is so large, encompassing over 650 square kilometers, travelling from one location to another is unavoidable for a variety of reasons, including work, school, and recreation.[13] The public transportation system in Hyderabad is extremely important for the general public's transportation. Buses are the most often used public transit option, and many people favor them because of their cost effectiveness. The Telangana State Road Transport Corporation (TSRTC) is the organization in charge of Hyderabad's public transportation bus system.

Various issues like as work shifts, workplace environments, and lengthy working hours have a substantial negative impact on drivers' health. Drivers' job load is high in nerve psychological strain, and they are impacted by stress, mechanical vibration, shock, and fuel evaporation, the influence of high temperatures, noise, and pollution.[14] Drivers and conductors travel hundreds of miles without stopping for food, relaxation, or sleep. The majority of drivers and conductors have their meals at mid-way dhabas or hotels. Due to their hectic schedules, people frequently use tobacco in the form of smoking and chewing to reduce tension and stay awake while traveling.[12]

As a result, in addition to general health, bus drivers' dental health suffers as a result of the lower priority paid to it. The usage of tobacco products and poor oral hygiene habits contribute to this population's oral disease burden.[15] The current data on TSRTC employees' oral health is insufficient to plan appropriate dental care delivery to satisfy their oral health care needs. Since then, this study has been planned to analyse the oral health status and treatment needs of TSRTC employees in Hyderabad city of Telangana.

METHODS

A cross-sectional survey was conducted among employees working at Hyderabad's four major bus depots (Uppal, Tharnaka, Afzal Gunz, and Miyapur). Permission to conduct the study was received from the recognized Bus depot's Chief Medical Officer. Before clinical assessment, all study participants signed a written informed consent form. The Institutional Review Board of Panineeya Mahavidyalaya Institute of Dental Sciences and Research Centre (PMVIDS&RC/IEC/PHD/DN/0122-16) gave its approval. The research was carried out in line with the Helsinki Declaration.

A pilot study was conducted among 30 employees working in working in the TSRTC Corporation, Hyderabad. It was done to assess the feasibility, to estimate the sample size and to finalize the survey proforma.

$$n = \frac{Z^2 pq}{d^2}$$

Z=Standard normal variant value (Z-value) =1.96
p=Proportion or prevalence of interest and q= 100-p (alternative prevalence)
d=clinically acceptable error (sample error – population proportion = 5%

With a confidence level of 95% and sampling error at 5%, the estimated sample size obtained was a minimum of 360 subjects required.

The study population consisted of 404 people, and oral health was examined using the World Health Organization (WHO) Oral Health Assessment form from 1997.[16] Subjects who were completely edentulous, employees undergoing orthodontic treatment, underwent oral prophylaxis in the last 3 months and who did not give informed consent were eliminated from the study, with the exception of bus drivers and conductors. The poll was done throughout the working hours of the chief medical

officer's personnel. The research was carried out during a three-month period, from March to June 2021.

Statistical Package for Social Sciences (SPSS) version 21.0 was used to analyze the data. The Chi-square test, t-test, and Analysis of Variance were used to compare study population proportions and mean scores (ANOVA). The relationship between the risk factors and dental caries was determined using logistic regression analysis. Statistical significance was defined as $p \leq 0.05$.

RESULTS

The study population consisted of a total of 404 individuals, with 336 (83.2%) males and 68 (16.8%) females. The majority of the participants were between the ages of 30-45 (257; 63.6%) and about 82 subjects (20.3%) had a university education. The study population consisted of 395 (97.8%) married people, 205 (50.7%) of whom had previously seen a dentist, and 199 (49.3%) workers who had never visited one. In contrast to cigarette usage, more than half of the employees (261; 64.6%) had a negative history of alcohol intake; in contrast, more than half of the subjects (228; 56.4%) had an alcohol habit (Table 1).

Table 1: Demographic distribution of the study subjects.

Variables		N (%)
Age (in years)	30-45	257 (63.6)
	46-60	147 (36.4)
Gender	Male	336 (83.2)
	Female	68 (16.8)
Education	Primary School	160 (39.4)
	High School	162 (40.3)
	University	82 (20.3)
Marital status	Married	395 (97.8)
	Unmarried	9 (2.2)
Previous dental visit	6 Months -1year	108 (26.7)
	>1 Year	97 (24)
	No	199 (49.3)
History of tobacco use	Yes	143 (35.4)
	No	261 (64.6)
History of alcohol use	Yes	228 (56.4)
	No	176 (43.6)
Total subjects	404 (100)	

Table 2: Frequency distribution of study subjects according to Oro mucosal conditions based on age, gender and education.

Variables		No abnormality	1=malignant tumor	2=leukoplakia	3=lichenplanus	4=ulceration	7=abscess
		N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Age (in years)	30-45	227 (56.2)	1 (0.2)	6 (1.5)	3 (0.7)	18 (4.5)	2 (0.5)
	46-60	141 (34.9)	0	4 (1)	0	2 (0.5)	0
	Total	368 (91.1)	1 (0.2)	10 (2.5)	3 (0.7)	20 (5)	2 (0.5)
	P value	0.073					
Gender	Males	316 (78.2)	1 (0.2)	10 (2.5)	2 (0.5)	7 (1.7)	0
	Females	52 (12.9)	0	0	1 (0.2)	13 (3.3)	2 (0.5)
	Total	368 (91.1)	1 (0.2)	10 (2.5)	3 (0.7)	20 (5)	2 (0.5)
	P value	0.000*					
Education	Primary	148 (36.6)	1 (0.2)	6 (1.5)	0	5 (1.2)	0
	High school	146 (36.1)	0	3 (0.7)	3 (0.7)	8 (2)	2 (0.5)
	University	74 (18.3)	0	1 (0.2)	0	7 (1.7)	0
	Total	368 (91.1)	1 (0.2)	10 (2.5)	3 (0.7%)	20 (5)	2 (0.5)
	P value	0.169					

*p value <0.005 statistically significant.

With regards to Oro-mucosal conditions, majority of the subjects had no abnormality; very few people among subjects aged 30-45 years (4.5%), females (3.3%) and those with high school education (2%) had shown presence of ulcerations in their mouth. On the other hand, males had significantly higher percentage of having leukoplakia (2.5%) when compared to other conditions. (p=0.000) (Table 2).

Similarly when observed for Oro mucosal locations, subjects aged 30-45 years, males and those with primary education had shown higher percentage for buccal mucosal lesions (4.2%, 3.2% and 2.5% respectively). However, only gender has shown statistically significant (P=0.00) relationship (Table 3).

Table 3: Frequency distribution of study subjects according to Oro mucosal locations based on age, gender and education.

Variables		No abnormality	1=Commissure	2=Lips	3=Sulci	4=Buccal mucosa	6=Tongue	8= Alveolar ridge
		N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Age (in years)	30-45	228 (56.4)	0	2 (0.5)	3 (0.7)	17 (4.2)	5 (1.2)	2 (0.5)
	46-60	141 (34.9)	1 (0.4)	0	0	5 (1.2)	0	0
	Total	369 (91.3)	1 (0.4)	2 (0.5)	3 (0.7)	22 (5.4)	5 (1.2)	2 (0.5)
	P value	0.091						
Gender	Males	317 (78.5)	1 (0.4)	0	3 (0.7)	13 (3.2)	2 (0.5)	0
	Females	52 (12.9)	0	2 (0.5)	0	9 (2.2)	3 (0.7)	2 (0.5)
	Total	369 (91.3)	1 (0.4)	2 (0.5)	3 (0.7)	22 (5.4)	5 (1.2)	2 (0.5)
	P value	0.00*						
Education	Primary	149 (40.4)	1 (0.4)	0	0	10 (2.5)	0	0
	High school	146 (36.1)	0	0	2 (0.5)	9 (2.2)	3 (0.7)	2 (0.5)
	University	74 (18.3)	0	2 (0.5)	1 (0.2)	3 (0.7)	2 (0.5)	0
	Total	369 (91.3)	1 (0.4)	2 (0.5)	3 (0.7)	22 (5.4)	5 (1.2)	2 (0.5)
	P value	0.1						

*p value <0.005 statistically significant

Table 4: Mean sextant scores of Community Periodontal Index (CPI) based on age, gender and education.

Variables		Mean±SD				
		CODE 0	CODE 1	CODE 2	CODE 3	CODE 4
Age (in years)	30-45	3.27±2.151	1.74±1.902	0.91±1.444	0.07±0.330	0.2±0.186
	46-60	1.56±2.048	0.99±1.758	2.23±2.196	0.91±1.613	0.27±0.839
	P value	0.005*	0.005*	0.005*	0.005*	0.005*
Gender	Males	2.37±2.207	1.51±1.921	1.55±1.956	0.42±1.133	0.13±0587
	Females	4.01±2.062	1.24±1.676	0.60±1.024	0.13±0.771	0.01±0.121
	P value	0.005*	0.27	0.005*	0.044*	0.114
Education	Primary	1.93±2.041	1.31±1.823	1.93±2.051	0.66±1.440	016±0.571
	High school	2.91±2.376	1.57±2.037	1.19±1.836	0.22±0.780	0.11±0.630
	University	3.51±2.062	1.56±1.671	0.74±1.131	0.11±0.544	0.00±0.000
	P value	0.005*	0.419	0.005*	0.005*	0.085

*p value <0.005 statistically significant

Table 5: Mean sextant scores of Loss of Attachment (LOA) based on age, gender and education.

Variables		Mean±SD				
		CODE 0	CODE 1	CODE 2	CODE 3	CODE 4
Age (in years)	30-45	5.99±0.139	0.01±0.139	0.0±0.0	0.0 ±0.62	0.0 ±0.62
	46-60	5.56±1.079	0.44±1.079	0.0±0.0	0.0±0.0	0.01±0.82
	P value	0.005*	0.005*	0.456	0.45	0.689
Gender	Males	5.80±0.751	0.20±0.751	0.00±0.00	0.0±0.0	0.01±0.077
	Females	5.99±0.121	0.01±0.121	0.0±0.0	0.01±0.12	0.00±0.0
	P value	0.048*	0.048*	0.65	0.026*	0.525
Education	Primary	5.74±0.756	0.26±0.756	0.00±0.00	0.00±0.00	0.01±0.079
	High school	5.86±0.771	0.14±0771	0.00±0.00	0.00±0.00	0.01±0.0790
	University	5.98±0.155	0.02±0.155	0.00±0.00	0.01±0.11	0.00±0.00
	P value	0.033*	0.033*	0.69	0.14	0.776

*p value <0.005 statistically significant

With regards to Mean score comparison based on age had showed that, subjects belongs to the 30-45 years age group had significantly preponderance for code-0 (Healthy) (3.27±2.151) and bleeding gum on probing (code-1) (1.74±1.902) (p=0.005). Regarding gender, males had significantly dominant for calculus (code-2)

(1.55±1.956), and shallow pockets (code-3) (0.42±1.133) than females. On the other hand, subjects with lower education level had significant higher mean CPI scores. (p=0.005) (Table 4).

In present study, 46-60 years had significantly (p=0.005*) higher mean scores for no attachment loss (code-0) (5.56±1.079) and Code-1 (0.44±1.079). Similarly, females and those with university education also had significantly (p<0.05*) higher mean score for no attachment loss (code-0) (5.99±0.121&5.98±0.155 respectively). However, males and subjects with primary education had loss of attachment of 4-5 mm (Code-1) (0.20±0.751&0.26±0.756 respectively). These differences were statistically significant. (p≤0.005) (Table 5).

With regards to age, 46-60 years hand significant (p<0.05) higher mean score for Missing Teeth (0.29±0.95), filled teeth (0.29±0.73) and overall DMFT (3.31±4.44) than subjects with age 30-45 years. However, males (2.11±3.33) and subjects with primary education (2.61±3.85) had significant (p=0.005) higher mean DMFT score than females and subjects with higher and university education. However, comparable means scores was observed for Decayed, Missing and Filled Teeth (p>0.05) (Table 6).

With regard to the treatment needs, among 30-45 years age group, majority of subjects required extraction(14.9%) followed by pulp care (13.1%). However significance difference was observed only for extraction (p=0.058). Likewise, with 45-60 years age group showed significantly (p<0.005) dominant for crowns for any reason (8.9%). Considering gender, higher percentage of males required extractions, followed by pulp care and two surface fillings (16.1%, 16.1% & 4.2% respectively) among this only two surface fillings showed significant difference (p<0.005). With respect education majority of the subjects with high school education required extractions, followed by pulp care and one surface fillings (8.2%, 8.1% & 4.7% respectively) and there was no statistical difference. (Table 7)

Table 6: Dental Caries Experience (DMFT and its components) based on age, gender and education.

Variables		Mean±SD			
		DMFT	DECAYED	MISSING	FILLED
Age (in years)	30-45	1.21±1.493	0.78±1.082	0.14±0.509	0.15±0.455
	46-60	3.31±4.447	0.72±1.302	0.29±0.952	0.29±0.733
	P value	0.005*	0.613	0.032*	0.005*
Gender	Males	2.11±3.331	0.74±1.200	0.21±0.758	0.21±0.600
	Females	1.31±1.330	0.85±0.981	0.09±0.334	0.15±0.432
	P value	0.005*	0.471	0.18	0.38
Education	Primary	2.61 ±3.856	0.73 ±1.181	0.26 ±0.913	0.26 ±0.677
	High school	1.70 ±2.689	0.82 ±1.251	0.15 ±0.549	0.16 ±0.510
	University	1.28 ±1.680	0.71 ±0.949	0.16 ±0.484	0.17 ±0.466
	P value	0.005*	0.687	0.345	0.24

*p value <0.005 statistically significant

Table 7: Frequency distribution of study subjects according to treatment needs based on age, gender and education.

Variables		One surface filling	Two surface filling	Crown	Pulp care	Extraction
		N (%)	N (%)	N (%)	N (%)	N (%)
Age (in years)	30-45	25 (6.2)	10 (2.5)	15 (3)	53 (13.1)	60 (14.9)
	46-60	14 (3.5)	8 (2)	33 (8.9)	28 (6.9)	22 (5.4)
	Total	39 (9.7)	18 (4.5)	48 (11.9)	81 (20)	82 (20.3)
	P value	0.416	0.553	0.000*	0.584	0.058*
Gender	Males	34 (8.4)	17 (4.2)	36 (8.9)	65 (16.1)	65 (16.1)
	Females	5 (1.3)	1 (0.3)	12 (3)	16 (3.9)	17 (4.2)
	Total	39 (9.7)	18 (4.5)	48 (11.9)	81 (20)	82 (20.3)
Education	P value	0.456	0.005*	0.238	0.586	0.565
	Primary	13 (3.2)	8 (2)	22 (6.4)	30 (7.4)	30 (7.4)
	High school	19 (4.7)	8 (2)	10 (3.4)	33 (8.1)	33 (8.2)
	University	7 (1.8)	2 (0.5)	8 (2.1)	18 (4.5)	19 (4.7)
	Total	39 (9.7)	18 (4.5)	48 (11.9)	81 (20)	82 (20.3)
	P value	0.51	0.612	0.393	0.834	0.72

*p value <0.005 statistically significant

Table 8: Multiple logistic regressions of oral health status and treatment needs based on age, gender and education.

Variables		Dental caries		Root caries		Treatment needs		CPI		LOA		Oro mucosal conditions		Oro mucosal locations	
		OR	P	OR	P	OR	P	OR	P	OR	P	OR	P	OR	P
Age (in years)	30-45	0.986	0.896	1.327	0.005*	0.756	0.564	1.6	0.01*	1.456	0.05*	1.737	0.02*	0.56	0.658
	46-60	Ref	-	Ref	-	Ref		Ref		Ref	--	Ref	-	Ref	
Gender	Male	1.13	0.709	0.505	0.555	1.2	0.654	2.5	0.05*	1.5	0.689	4.5	0.02*	1.258	0.789
	Female	Ref	-	Ref	-	Ref	-	Ref	-	Ref	-	Ref	-	Ref	
Edu-cation	Primary	0.99	0.976	1.498	0.85	0.568	0.86	2.67	0.05*	2.89	0.05*	1.89	0.05*	1.5	0.02*
	High school	1.968	0.05*	2.154	0.05*	0.124	0.693	1.456	0.896	1.56	0.896	0.451	0.089	0.25	0.986
	Univ-ersity	Ref	-	Ref	-	Ref	-	Ref	-	Ref	-	Ref	-	Ref	

*p value <0.005 statistically significant OR- Odds Ratio

With regards to age, subjects age 30-45 years age group had significantly higher odds for root caries (1.3), CPI (1.6), LOA (1.4), and oral mucosal conditions.(p<0.05). Based on gender, it was noticed that even though males had higher odds for all the characters, significant association was observed only for CPI (2.5) and oral mucosal conditions (4.5). (p<0.005). Considering educational status, subjects with primary education were significantly greater risk of having CPI (2.6), LOA (2.8), oral mucosal conditions (1.8) and oral mucosal locations (1.5). (p<0.005). Nevertheless, those with high school education showed significantly higher prone for crown and root caries (1.9 and 2.1 respectively) (p<0.005) (Table 8).

DISCUSSION

There is significant evidence that occupation has an impact on health and well-being, and the impact of occupation on health has multiple aspects.[17,18] A "negative change in health state directly arising from more or less prolonged exposure to dangerous substances or situations directly related to the individual's work" is an occupational disease.[19] As a result, it is critical to investigate the impact of occupation on health. Because the mouth cavity is a point of entry for many diseases6, environmental hazards contribute to poor oral health in many vocations.

The outcomes of this study show that TSRTC personnel had a high prevalence of dental caries and periodontal disease.[20] To achieve the study's goal, participants were asked to provide a history of oral mucosal disorders, their periodontal state was determined using the CPI and LOA index, and their dentition status and treatment needs were determined using WHO codes and criteria (1987).[16] The study had a higher proportion of male employees and a lower proportion of female employees, most of whom were conductors; similarly, Zaitsu et al found that male employees outnumbered female employees. This could be related to the fact that driving is a difficult career with erratic hours and family obligations, making women less interested in it.[21]

According to the current report, the majority of them have completed high school. This is due to the fact that only government drivers who have completed their secondary school are eligible to work for TSRTC. It appears to play a significant impact in both knowledge and attitudes, as well as a movement in consumption criteria from basic necessities coverage to income disposal aimed at improving quality of life. In contrast, a research on professional truck drivers done by Aguilar-Zinser et al found that the majority of the study subjects had completed their primary school education.[18]

In the whole study population, 199 workers (49.3%) had never visited a dentist. This was in line with research conducted in Mysore by Reddy et al among Karnataka state road transport 55.6% of drivers visited the dentist.[3] Other studies reveal that due to a lack of oral health awareness, dental neglect, and fear of dentists, as well as a lack of time due to a less flexible work schedule, the cost of treatment was too expensive, and people only visited dentists when they were in a serious condition.[22-24] Many studies among transportation workers revealed evidence of increased cigarette and alcohol consumption.[19,20] Similarly, more over half of the workers in the current study (56.4 percent) drank alcohol, but fewer workers smoked cigarettes (35.4%).

One probable explanation is that they operate under stressful conditions as a result of long hours and lack of sleep. As a result, they use alcohol as a sedative to cope with their stress.[12] Long hours of driving and infrequent shifts have been linked to a higher prevalence of leukoplakia (3.1%) in studies.[3,20,24] In contrast to previous research, we found a low prevalence of leukoplakia (2.5%) and ulcerations (5%), with the most afflicted sections of the oral cavity being the buccal mucosa (5.4%) and tongue (1.2%).

This could be because management provides frequent medical services to their staff. Nonetheless, it is a substantial public health issue that must be addressed. According to the Community Periodontal Index (CPI), bleeding after probing (27.8%) was the most common periodontal problem among study participants in both age groups, with males (52.2%) being affected more than females (13.8%). Their poor dental hygiene habits, such as infrequent and inadequate brushing and flossing, are most likely to blame for this problem.

A periodontal pocket of 4-5 mm was found in 19.4% of the participants in this investigation (code 3). This result was lower than that reported in other studies, such as Ahmed et al (72.67 percent) among Nellore bus drivers and Sanadhya et al (46.8 percent) among industrial population in Uttar Pradesh, India.[25,26] It's possible that this is attributable to their poorer educational attainment, longer driving experience, and regular use of alcohol and tobacco.[19]

The bulk of the participants (40.2%) in a research done by Chandra et al among bank employees in Bangalore exhibited with LOA 4-5 mm.[27] Plaque, supra-gingival, and sub-gingival calculus were all found to be significant correlates with the existence of LOA in this investigation. This is owing to the fact that the numerous forms of pressures experienced by bank personnel are linked to plaque formation, calculus, and attachment loss. In contrast to the data above, we discovered that roughly 27.6% of both age groups exhibited attachment loss of 6-8 mm (code-2) and 22.4 percent had 4-5mm attachment loss (code 1). Other investigations by Gambhir et al revealed that attachments 4-5 mm and 6-8 mm were lost at a rate of 11.9 percent and 5.9 percent, respectively, while Singh et al reported that the reason was the availability of regular medical and health insurance services to them (17.5 percent).[19,28]

Male participants and those with a high school diploma had the highest prevalence of decaying crowns (34.4 percent and 17.9 percent respectively). Previous research by Reddy et al shown that the frequency of dental caries was higher than previously thought (45.7 percent).[3] It was 63.1 percent in a research by John et al among drivers.[8] This is because they spent the most of their time on wheels and practiced poor mouth hygiene at the time. Dental caries was found to be prevalent in 54.3 percent of police officers in Haryana, according to Sohi et al.[29]

Workers in the current study who were 46-60 years old and had only a primary education had significantly higher mean DMFT scores (3.31±4.447, 2.61±3.856, respectively), which was in contrast to a study conducted by Aguilar-Zinser et al among Mexican drivers who had significantly higher mean DMFT scores (9.86±6.05), which could be due to smoking and 'poor' oral hygiene practices. Smoking caused 7.07 deaths among truck drivers in Chennai, according to Shalini et al. It was 3.23±2.89 among Nellore bus drivers, according to Ahmed et al.[15,17,25]

The majority of the workers required extraction (20.3 percent), pulp care (20 percent), crowns (11.9 percent), and one surface filling (9.7%). Due to a lack of time for dental services, non-availability, and the high cost of treatment, 85.7 percent of Karnataka state road transport drivers needed extractions, 38.5 percent needed restorations, and 88.8 percent needed root canal treatment, according to a study conducted by Reddy et al among Karnataka state road transport drivers.[3]

Root caries was shown to be more prevalent in the 30-45 year old age group, according to a logistic regression study. The findings of Akrad et al and Peterson et al were similar.[30,31] This could be due to the accumulation of oral illness as people get older. It was also discovered that people with a high school education had a 1.9 times higher chance of rotting teeth than those with a primary school education. Education level has been found to have an impact on oral health and should be taken into account when assessing risk and planning suitable preventative measures.[32]

Subjects with a primary education were more likely to have periodontal pockets and attachment loss; Craig et al discovered that unskilled and skilled employees in New York had more severe periodontal pockets and attachment levels than professionals.[33] According to a nationally representative cross-sectional survey in Japan, men in lower-status occupations, such as service, transportation, and labor, were significantly more likely to engage in health-risk behaviors, such as smoking, alcohol consumption, or physical inactivity, which are known risk factors for periodontal disease.[34]

Limitations

Variables like oral hygiene practices, frequency of sugar consumption and duration of exposure which might have significant effect on oral health were not recorded. Also, relying on self-reported data for few parameters might possibly lead to bias. Moreover, being cross-sectional in nature, the study lacks the ability to draw inferences about causal relationships.

CONCLUSION

The current study's findings provide insight into the oral health of TSRTC employees in Hyderabad, India. Workers reported a high prevalence of dental caries, poor periodontal condition, substantial oro-mucosal lesions, and unmet dental treatment needs, according to the study. Oral health was found to be compromised, which could be related to long work hours, harmful oral practices such as smoking and alcohol intake, and a lack of understanding about the importance of oral health.

As a result, there is an urgent need to focus on these high-risk populations, with a particular emphasis on primary oral health care programs such as dental screening and oral education at regular intervals, which will assist to prevent the accumulation of employee health-care demands.

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REFERENCES

1. Park K. Environment and health. In: Park's Textbook of Preventive and Social Medicine. Jabalpur: M/s Banarsidas Bhanot Publishers (India). 2007:566-68.
2. Sharda AJ, Shetty SS. Relationship of periodontal status and dental caries status with oral health knowledge, attitude and behavior among professional students in India. Int J Oral Sci. 2009;1:196-206.
3. Reddy CS, Reddy CVK. Oral health status and treatment needs of Karnataka Road Transport Corporation Drivers and Employees in Mysore division. J Indian Assoc Public Health Dent. 2010;16:221-27.
4. Naveen N, Reddy CVK. Oral health status and treatment needs of police personnel in Mysore city, Karnataka. Streamdent. 2010;1:156-60.
5. Sood M, Bhaggana A, Bhaggana V, Sharma N. Occupational dental wear among ceramic factory workers: an observational study. J Indian Dent Assoc. 2011;5:472-3.
6. Schour I, Sarnat BG. Oral manifestations of occupational origin. J Am Med Assoc. 1942;120:1197-207.
7. Ganesh A, Ramkumar S, Rajkumar M, Bhavyaa R, Ramkumar L, Balaji SK. Oral health-related knowledge, attitude, and practices among auto drivers in South Chennai. J Indian Assoc Public Health Dent. 2017;15:392-4.
8. John JR, Kesavan P, Sridharan P, Rajendra G. Evaluation of oral health status among road transport workers erode district Tamilnadu. J Comm Dent. 2016;10(2)35-9.
9. Shizukuishi S, Hayashi N, Tamagawa H, Hanioka T, Maruyama S, Takeshita T, et al. Life style and periodontal health status of Japanese Factory workers. Ann Periodontol. 1998;3:303-11.
10. Ramesh N, Sudhanshu S, Sharda A, Asawa K, Tak M, Batra M, et al. Assessment of the periodontal status among kota stone workers in Jhalawar, India. J Clin Diagn Res. 2013;7:1498-1503.
11. Bhatt B, Seema MS. Occupational health hazards: a study of bus drivers. J Health Manag. 2012;14(2):201-6.
12. Sudhanshu S, Pankaj A, Sorabh J, Nidhi S. Dental diseases of acid factory workers globally-narrative review article. Iran J Public Health. 2014;43:1-5.
13. Dhar RL. Quality of work life: a study of municipal corporation bus drivers. Int J Ind Cul Business Manag. 2009;2(6):638-53.
14. Soni A, Singh V, Savi GR, Yadav O, Khan M, Agrawal M. Oral health related knowledge, attitude and practice among bus conductors and drivers in Jaipur District. Int J Dent Med Res. 2014;1(4):25-9.
15. Shalini P, Niramathi K, Ranjith K, Preetha C, Indra PV, Nijesh JE. Dental cares experience among tobacco consuming truck drivers in north chennai,Iindia. Int J Dent Res. 2017;7(1):1-8.
16. Oral health survey basic methods. World health organization, Geneva. 4th ed. Delhi: AITBS Publishers and Distributions; 1997.
17. Patel F, Shourie V, Muglikar S. A cross-sectional study assessing the relation between stress and chronic periodontitis in state transport employees in the city of Pune. Univ Res J Dent. 2015;5:14-8.
18. Zinser V, Irigoyen ME, Rivera G, Maupomé G, Sánchez-Pérez L, Velázquez C. Cigarette smoking and dental caries among professional truck drivers in Mexico. Caries Res. 2008;42(4):255-62.
19. Gambhir RS, Nirola A, Singh J, Sekhon T, Anand S. Periodontal health status of transport workers of a union territory in India: A cross-sectional study. J Indian Soc Periodontol. 2015;19:312-6.
20. Shetty P, Khargekar NC, Debnath A, Khargekar NR, Srivastava BK, Hakeem N. Determinants of tobacco use and prevalence of oral precancerous lesions in cab drivers in Bengaluru city, India. Int J Prev Med. 2017;8:100.
21. Zaitsu T, Kanazawa T, Shizuma Y, Oshiro A, Takehara S, Ueno M, Kawaguchi Y. Relationships between occupational and behavioral parameters and oral health status. Ind Health. 2017;55(4):381-90.
22. Sohi R, Bansal V, Veeresha KL, Gambhir R. Assessment of oral health status and treatment needs of police personnel of Haryana, India. Internet J Epidemiol. 2010;7:1-8.
23. Srikandi TW, Clarke NG. Periodontal status in a south Australian industrial population. Community Dent Oral Epidemiol. 1982;10:272-5.
24. Kawamura M, Iwamoto T. Present state of dental health knowledge, attitudes/behavior and perceived oral health of Japanese employees. Int Dent J. 1999;49:173-81.
25. Ahmed SI, Sudhir KM, Reddy VC, Kumar RV, Srinivasulu G, Deepthi A. Impact of sense of coherence on oral health among bus drivers: A cross-sectional study. J Int Soc Prevent Communit Dent. 2018;8:145-52.
26. Sanadhya S, Nagarajappa R, Sharda AJ, Asawa K, Tak M, Batra M, et al. The oral health status and the treatment needs of salt workers at sambhar lake, Jaipur, India. J Clin Diagn Res. 2013;7:1782-6.
27. Chandra MK, Jayakumar HL, Vanishree N. Oral health status and treatment needs among Bank

employees in Bangalore city, India. An epidemiological study. J Indian Asso Public Health Dentistry. 2009;14:169-75.
28. Singh M, Ingle NA, Kaur N, Yadav P, Ingle E, Charania Z. Dental caries status and oral hygiene practices of lock factory workers in Aligarh City. J Int Oral Health. 2015;7(6):57-60.
29. Sohi R, Bansal V, Veeresha KL, Gambhir R. Assessment of oral health status and treatment needs of police personnel of Haryana, India. Internet J Epidemiol. 2010;8:1-8.
30. Akrad TZ, Beltollahi JM, Khajetorab AA. DMFT (Decayed, Missing, Filled Teeth) oral health index in sweets and cable workers. Iranian J Publ Health. 2006;35(2):64-8.
31. Peterson PE. Dental health among workers at a Danish chocolate factory. Community Dent Oral Epidemiol. 1983;11(6):337-41.
32. Paulander J, Axelsson P, Lindhe J. Association between level of education and oral health status in 35-, 50-, 65- and 75-year olds. J Clin Periodontol. 2003;30:697-704.
33. Craig RG, Boylan R, Yip J. Prevalence and risk indicators for destructive periodontal diseases in 3 urban American minority populations. J Clin Periodontol. 2001;28:524-35.
34. Irie K, Yamazaki T, Yoshii S, Takeyama H, Shimazaki Y. Is there an occupational status gradient in the development of periodontal disease in Japanese workers? A 5-year prospective cohort study. J Epidemiol. 2017;27(2):69-74.

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