

# Impact of caries prevalence on oral health-related quality of life among police personnel in Virajpet, South India

Kanuvanaghata Nagesh Abhishek, Supreetha Shamarao, Jithesh Jain, Reshmi Haridas<sup>1</sup>, Sunil Lingaraj Ajagannavar<sup>2</sup>, Sneha Chandrashekhar Khanapure

Department of Public Health Dentistry, Coorg Institute of Dental Sciences, Maggula, Virajpet, Karnataka, <sup>1</sup>Department of Public Health Dentistry, Pariyaram Dental College, Kannur, Kerala, <sup>2</sup>Department of Public Health Dentistry, College of Dental Sciences, Davanagere, Karnataka, India

**Corresponding author** (email: <dr.abhishek.kn@gmail.com>)

Dr. Kanuvanaghata Nagesh Abhishek, Department of Public Health Dentistry, Coorg Institute of Dental Sciences, Maggula, Virajpet - 571 218, Karnataka, India.

## Abstract

**Objective:** The objective of this study is to assess the impact of caries prevalence on oral health-related quality of life among police personnel in Virajpet, South India. **Materials and Methods:** Police personnel were randomly selected from the 296 police staff working in Virajpet, India. They were invited for a dental examination and a questionnaire survey. A self-administered questionnaire was used to collect their demographic information, and to determine the oral health-related quality of life (OHRQoL). Caries experiences of the participants were recorded as per the World Health Organization (WHO) criteria (1997). The analysis of variance (ANOVA) was used to compare within-group differences of the selected sociodemographic factors and the Chi-square analysis was used to explore the association between the variables. **Results:** All the 172 invited participants joined this study. Their mean age was  $38.02 \pm 9.08$  years. There was no significant difference in oral health-related quality of life scores according to gender and age. The prevalence of dental caries was found to be 78% in the current study. Data analysis showed that there was no statistically significant association between the oral health-related quality of life scores and caries prevalence. **Conclusion:** The present study showed that there was no association between the oral health-related quality of life and caries prevalence among the police personnel in Virajpet.

**Key words:** Dental caries, OHIP-14, self-administered questionnaire, stress

## INTRODUCTION

The quality of life is concerned with 'the degree to which a person enjoys the important possibilities of life'.<sup>[1]</sup> Oral health has a major impact on the general quality of life.<sup>[2]</sup> People's oral health status can affect them physically and psychologically and influence how

they enjoy life; how they look, speak, chew, taste, enjoy food, and socialize. It also affects their self-esteem, self-image, and feelings of social well-being. Successful aging is related to maintaining one's quality of life, which in turn is dependent on how well individuals can fulfill these day to day activities.<sup>[1]</sup>

Oral diseases seriously impair the quality of life in a large number of individuals and they may affect various aspects of their life, including function, appearance, interpersonal relationships, and career opportunities.<sup>[2]</sup> Dental caries is the most commonly studied and preventable oral disease. It is a major public health problem worldwide. Poor oral health not only has an effect on the general health, but also might restrict various day-to-day activities leading to loss of working hours. This in turn can have an effect on

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the individual's quality of life. Oral health is an integral part of general health and health of the police personnel is of utmost importance, as they are personnel who work against crime and facilitate the people to live in peace and harmony with each other, and thus help the growth of the nation.

The mission of the police of a state is to help the common man, to provide security, and to create a peaceful and law-abiding community with his cooperation. Police personnel are a group of professionals, who have an altogether different working environment, with 24 hours duty, often being exposed to the highest form of physical strain and mental stress. On account of their odd working pattern, they often miss timely food, sleep, rest, recreation, and family contact. Due to these factors, police personnel tend to neglect their health and are unable to seek care when needed. This complicates their general as well as oral health, which in turn has an influence on their life and level of living.<sup>[3]</sup>

In India, few studies have been carried out to assess the oral health status of police personnel, but very scanty literature exists on the impact of oral health on the oral health-related quality of life in police personnel. The objective of the study was to assess the impact of caries prevalence on the oral health-related quality of life among police personnel in Virajpet, South India.

## MATERIALS AND METHODS

Virajpet is one of the hilly areas in the Coorg District, South India. The study population included police personnel in the Virajpet Taluk.

Prior permission was taken from the Deputy Superintendent of Police (DySP), Virajpet, and the Police Sub Inspector (PSI) of the respective Police Station to conduct the study. The Virajpet Taluk consists of six police stations, with a total of 296 police personnel. The sampling technique used was simple random sampling, without replacement, for a sample size  $N = 296$ . A sample size of  $n = 172$  was obtained by using the formula,

$$n = \frac{N}{1 + Ne^2}$$

Where,  $e$  was the desired level of precision, which we had selected to be 5%.

The police personnel were explained about the study and informed consent was obtained from the study participants.

A self-administered questionnaire consisting of 14 questions was used in the survey. The questionnaire was typed both in the local language (Kannada) and English, to ensure comprehensibility by all police personnel. The internal reliability (Cronbach' alpha) of the questionnaire was tested in a pilot study done and was found to be acceptable (0.7). The first part of the questionnaire consisted of questions on the sociodemographic factors, which recorded the sex and age of the police personnel. The second part of questionnaire was pertaining to the Impact of Oral Health on the Quality Of Life, which was measured by the Oral Health Impact Profile (OHIP-14) questionnaire. Each question in the OHIP-14 questionnaire was answered on a five-point Likert scale, with answers ranging from 'very often' to 'never,' and the possible scores ranged from 14 to 70.

This study was conducted between February and April 2012. The questionnaires were distributed to the police personnel personally and they were given sufficient time to answer the questions, and the questionnaire was collected back on the same day. After receiving the filled questionnaires from the participants, a clinical examination was carried out by a trained, calibrated, single examiner and the caries experiences of the participants were recorded as per the WHO criteria (1997).

The ethical approval for the study was obtained from the Institutional Ethical Committee of the Coorg Institute of Dental Sciences, Virajpet, South India.

The collected data was classified and tabulated. The SPSS version 20.0 software for Windows was employed for statistical analysis. The frequency distributions of the responses to the questions were produced. In addition to descriptive statistics, Pearson's Correlation was used to assess the relationship between the variables. ANOVA was used to compare the within-group differences of the selected sociodemographic factors in the study. Chi-square analysis was used to explore the association between the variables.  $P < 0.05$  was selected for describing the levels of significance.

## RESULTS

A total of 172 participants were recruited in this study. The response rate was 100%. Most of them were male ( $N = 154$ , 89.5%) and only 18 participants (10.5%) were females. Their mean age was  $38.02 \pm 9.08$  years and their age ranged from 20 to greater than 50 years. As shown in Tables 1 and 2 there were no significant differences between the within-group comparison of age, gender or oral health-related quality of life.

Table 3 shows the distribution of the respondents by questions. Sixty-eight (39.5%) of the study participants were happy with their teeth and 66 (38.4%) participants were happy with the appearance of their teeth. Ninety-eight (57%) of the study subjects responded that they never avoided smiling and laughing and 90 (52.3%) never felt embarrassed due to their oral health.

Other questions, such as, any difficulty in pronouncing words, avoiding certain types of food, headaches, problems in any other part of their body because of problems with their mouth or teeth were asked, to which 115 (66.9%), 80 (46.5%), 91 (52.9%), and 109 (63.4%) of the participants replied negatively.

Fifty-five (32%) participants answered that they could have meals properly and 51 (29.7%) replied to being

satisfied with their regular food habits. Out of 172 police personnel 128 (74.4%), 111 (64.5%), 117 (68%), and 118 (68.6%) acknowledged that they never avoided other people, oral health never affected their ability to work or their everyday activities, never felt that life has been less satisfactory, and they had never been totally incapable of functioning, respectively.

Prevalence of dental caries was found to be 78% in the current study. It is evident from the Table 4 that oral health-related quality of life scores were negatively correlated with the caries prevalence score ( $r = -0.173$ ) and it was statistically significant.

It can be observed from Table 5 that there was no significant association between caries prevalence decayed, missing and filled teeth (DMFT) and the oral health-related quality of life scores.

**Table 1: Between and within-group comparison of age and oral health-related quality of life**

Age (years)	Mean of OHRQoL	F value	P value
20-29	56.65	1.948	0.124 <sup>ns</sup>
30-39	57.48		
40-49	57.18		
>50	53.68		

<sup>ns</sup>=Not significant, OHRQoL=Oral health-related quality of life

**Table 2: Between and within-group comparison of gender and oral health-related quality of life**

Gender	Mean of OHRQoL	F value	P value
Male	57.04	3.297	0.071 <sup>ns</sup>
Female	53.88		

<sup>ns</sup>=Not significant, OHRQoL=Oral health-related quality of life

## DISCUSSION

Occupational environment plays a major role on the health of the exposed. The fact that the police personnel are quite often engaged in 24-hour duty, puts them under a lot of physical as well as mental strain.

The present cross-sectional, self-administered questionnaire study was conducted in order to obtain data regarding the oral health of the police personnel of the Virajpet Taluk, as well as, the impact of this on their oral health-related quality of life. There is no published data regarding the same to date.

**Table 3: Distribution of respondents by question and score**

Questions	n (%)				
	Very often	Often	Occasionally	Hardly ever	Never
Are you happy with your teeth?	10 (5.8)	68 (39.5)	41 (23.8)	44 (25.6)	9 (5.2)
Are you happy with the appearance of your teeth?	28 (16.3)	66 (38.4)	41 (23.8)	31 (18.0)	6 (3.5)
Do you ever avoid smiling and laughing because of problems with your teeth?	3 (1.7)	10 (5.8)	26 (15.1)	35 (20.3)	98 (57.0)
Has your oral health made you feel embarrassed any time?	7 (4.1)	8 (4.7)	16 (9.3)	51 (29.7)	90 (52.3)
Do you have any difficulty in pronouncing words?	2 (1.2)	6 (3.5)	14 (8.1)	35 (20.3)	115 (66.9)
Do you ever avoid certain types of food because of your inability to chew them?	9 (5.2)	11 (6.4)	25 (14.5)	47 (27.3)	80 (46.5)
Do you have headaches because of problems with your mouth or teeth?	4 (2.3)	4 (2.3)	35 (20.3)	38 (22.1)	91 (52.9)
Do you have problems in any other part of your body because of problems with your mouth or teeth?	9 (5.2)	13 (7.6)	15 (8.7)	26 (15.1)	109 (63.4)
Do you have meals properly?	49 (28.5)	55 (32.0)	21 (12.2)	13 (7.6)	34 (19.8)
Do you think your regular food habits have been satisfied?	50 (29.1)	51 (29.7)	20 (11.6)	9 (5.2)	42 (24.4)
Do you ever avoid other people because of problems with your mouth or teeth?	8 (4.7)	3 (1.7)	12 (7.0)	21 (12.2)	128 (74.4)
Do you feel that your oral health affects your ability to work or your everyday activities?	2 (1.2)	4 (2.3)	20 (11.6)	35 (20.3)	111 (64.5)
Have you felt that life has been less satisfactory?	2 (1.2)	4 (2.3)	26 (15.1)	23 (13.4)	117 (68.0)
Have you been totally incapable of functioning?	3 (1.7)	0 (0)	19 (11.0)	32 (18.6)	118 (68.6)

**Table 4: Correlation of total oral health-related quality of life scores of the subjects with Caries prevalence (DMFT)**

Quality of life	Caries prevalence (DMFT)	P value
Total oral health-related quality of life score	Pearson correlation Significance	-0.173 0.02*

\*Statistically significant, DMFT=Decayed, missing and filled teeth

**Table 5: Association between caries prevalence (DMFT) and oral health-related quality of life scores**

Caries prevalence (DMFT)	Oral health-related quality of life scores			$\chi^2$ value	Df	P value
	Poor	Average	Good			
Absent	0	5	24	0.83	2	0.74 <sup>ns</sup>
Present	2	32	109			

<sup>ns</sup>=Not significant, DMFT=Decayed, missing and filled teeth

The reliability score of the questionnaire was assessed from a pilot study and was found to be 0.7, which is considered good.

Prevalence of dental caries was found to be 78% in the current study. The high prevalence of caries in the present study may be because police personnel stay for a long time in their working environment, thus giving less priority for oral health. Not many studies have been published for comparison with this population group. However, a study done on police personnel in Haryana showed a lower caries prevalence among the police personnel in that region.<sup>[3]</sup>

In the present study, between and within-group comparison of age and oral health-related quality of life was not statistically significant, which was similar to the other studies.<sup>[4,5]</sup> Moreover, the comparison of gender and oral health-related quality of life was not statistically significant. This result was similar to the other studies<sup>[6]</sup> and was in contrast to the other studies.<sup>[2,7]</sup> In the present study the total women police personnel were less, and therefore, a difference may not have been found. Women and younger age groups, in particular, perceived oral health as impacting more strongly on their life quality, as compared to men and older people. It is important to highlight the gender effect, as women have specific oral health needs and these must be addressed by the oral healthcare services. Women enjoy higher oral health quality of life compared to men. Conflicting evidence on the influence of sex on the perceptions of how oral health impacts the quality of life has been reported. Discerning sex differences in oral health is important and may facilitate understanding the differences in

oral health practices, such as, service utilization, which requires further investigation.

Police personnel are exposed to many different types of stress that may affect the sleep quality and physical health, such as physical injury, injuring others in the line of duty, and witnessing death or injuries to other officers and civilians. The impact of this high rate of exposure on their emotional health has long been a significant public health concern.

In addition, police officers are exposed to chronic non-traumatic stress arising from the demands of their work environment. Therefore, it can be hypothesized that police officers engaged in operational activities, which include exposure to danger and risk of life, would be more stressed.

Police officers carrying out operational duties, being more exposed to confrontation, violence, and day-to-day involvement in a variety of traumatic incidents, would present a greater prevalence of emotional stress - and consequently bruxism - than those who do organizational work and are less subject to risks.<sup>[8]</sup>

It can be observed that oral health-related quality of life was negatively correlated with caries prevalence ( $r = -0.173$ ). However, no significant association was observed between the prevalence of dental caries and quality of life scores among the police personnel. These findings are in contrast to the other studies done.<sup>[9,10]</sup> This is because, although they had high caries prevalence, probably the extent of the caries was less severe, so the impact was less on their oral health-related quality of life. Nevertheless, the extent of the caries was not evaluated in the present study. Therefore, further studies have to be carried out for a better understanding of the impact of dental caries on the quality of life. Furthermore, the very cross-sectional design of the study limits the validity of the study. Keeping this in view, further longitudinal studies have to be designed and carried out for a better understanding of the impact of stress on dental caries in this population group.

## CONCLUSION

The present study showed that there was no association with oral health-related quality of life and caries prevalence among police personnel in Virajpet. The sample of police personnel provided a unique opportunity to study a large population from diverse socioeconomic and geographical backgrounds. Hence,

their health was of utmost importance, not only for them and their families, but also for the entire nation.

## Recommendations

Prevention oriented health education lectures should be delivered, and possibly, should also form part of police training curriculum.

## REFERENCES

1. Sheiham A, Steele JG, Marcenes W, Tsakos G, Finch S, Walls AW. Prevalence of impacts of dental and oral disorders and their effects on eating among older people; a national survey in Great Britain. *Community Dent Oral Epidemiol* 2001;29:195-203.
2. Einarson S, Gerdin EW, Hugoson A. Oral health impact on quality of life in an adult Swedish population. *Acta Odontol Scand* 2009;67:85-93.
3. Sohi R, Bansal V, Veerasha K, Gambhir R. Assessment of oral health status and treatment needs of police personnel of Haryana, India. *Internet J Epidemiol* 2009;9.
4. John MT, LeResche L, Koepsell TD, Hujoel P, Miglioretti DL, Micheelis W. Oral health-related quality of life in Germany. *Eur J Oral Sci* 2003;111:483-91.
5. McGrath C, Bedi R. Measuring the impact of oral health on quality of life in Britain using OHQoL- UK (W). *J Public Health Dent* 2003;63:73-7.
6. John MT, Hujoel P, Miglioretti DL, LeResche L, Koepsell TD, Micheelis W. Dimensions of Oral-health-related Quality Of Life. *J Dent Res* 2004;83:956-60.
7. McGrath C, Bedi R. Population based norming of the UK oral health related quality of life measure (OHQoL-UK). *Br Dent J* 2002;193:521-4; discussion 517.
8. Carvalho AL, Cury AA, Garcia RC. Prevalence of bruxism and emotional stress and the association between them in Brazilian police officers. *Braz Oral Res* 2008;22:31-5.
9. Andrews NH. A study of the dental status of male and female personnel who enlisted in the Royal Australian Air Force during the 1939-45 war. *Aust Dent J* 1948;52:12-24.
10. Normark S. Oral health among 15- and 35-44-year-olds in Sierra Leone. *Tandlaeqbladet* 1991;95:132-8.

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