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Short Communication

Comparison of Oral Health Status Between Individuals with Systemic Diseases and Healthy Individuals Among Automobile Industrial Workers at Ambattur Estate, Tiruvallur

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I N F O

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A B S T R A C T

Dentist and dental screening may be the most recent development helpful in detecting persons at risk of cardiovascular disease. Oral diseases, particularly periodontal diseases, are associated with different systemic conditions. There is a bi-directional relationship between cardiovascular disease and periodontal disease. In people with periodontal disease and vascular heart issues, treating gum disease may decrease the chance of developing cardiovascular disease and improve their overall health. This article presents a cross-sectional study conducted among automobile industrial workers in Ambattur Estate, Tiruvallur. There were 50 plants, among which workers from 25 plants reported on the day of the study. The study participants underwent clinical oral examination after being questioned about demographic data and systemic disease. Oral Hygiene Index (OHI), Decayed, Missing, Filled Surfaces (DMFS) index and WHO Oral Health Assessment Form for Adults, 2013 were used to assess the oral hygiene status. Throughout every clinical examination, a mouth mirror, and explorer were used. It was seen that out of 193 participants, 76 (39%) were male, and 117 (61%) were female. The study showed that the maximum number of participants had fair OHI status, with female participants having better OHI status than male participants. In general, those who were in good health had better OHI and DMFS status than those who had systemic disorders.

Keywords: Awareness, Diabetes, Hypertension, Oral Hygiene

Introduction

A person's ability to nourish, talk, and interact socially without experiencing any active illness, discomfort, or humiliation is a measure of their oral and linked tissues' health, which benefits their overall health and wellness.[1] For both children and adults, dental health is an important aspect of the overall well-being of a person. A person's health and well-being are significantly impacted by oral disorders because they cause pain, sickness, mortality, and a loss of ability to engage in social, economic, and educational activities. Hence, the well-being of a person depends on having good dental health, which is important in having good overall health.[2]

People of different ages, genders, racial and ethnic backgrounds, and socioeconomic statuses are susceptible to oral illness, which is among the most common and expensive medical disorders. Moreover, it is one of the most important issues in worldwide public health.[3]

The main causes of the increased prevalence of oral disorders include dietary changes, an increase in the intake of sweetened beverages, a lack of knowledge[4], poor dental hygiene, smoking, and alcohol use.[4] Dental caries and periodontal diseases are among the most common dental problems globally.[5] About 65% of the Indian rural population suffers from caries and periodontitis, and it is most common in South Asia.[6]

Owing to its widespread prevalence and strong social impact, dental illness is considered a major global health problem. Only a few things are well-known regarding dental health attitudes and behaviours of people in developing countries when compared to developed countries.[7] Hence, this study was conducted to evaluate the dental status. It will also serve as the foundation for the aetiology and treatment requirements in a particular group.

Method

The study was a cross-sectional study which was carried out among automobile industrial workers in Ambattur estate, Tiruvallur. The ethical approval was obtained from the institutional ethical committee of Priyadarshini Dental College and Hospital. There were 50 plants and workers from 25 plants were reported on the day of the study.

After obtaining their informed consent, the study was carried out. The participants were clinically examined after being questioned about systemic disease, conduct and socioeconomic status. The oral hygiene index (OHI), DMFS index and WHO Oral Health Assessment Form, 2013 were used to assess the oral hygiene status.

The Decayed, Missing, Filled Surfaces (DMFS) index proposed by Henry T Klein, Carrole E Palmer and JW Knutson was used which consists of three components: D - describes decayed surface, M - describes missing surface due to caries, and F - describes teeth surfaces that are filled due to caries. Totally 148 surfaces (100 posterior teeth surfaces and 48 anterior teeth surfaces) were calculated including the third molar.

Each participant's medical and dental histories were logged. The time taken to examine each patient was about 4 minutes. Throughout every clinical examination, a mouth mirror and explorer were used. The data obtained were collected and analysis was done through Statistical Package for Social Sciences software version 23.0. A p value < 0.05 was considered statistically significant.

Results

A total of 193 study patients were screened from automobile industries in Ambattur estate, Tiruvallur. Out of 193 participants, 76 (39%) were males and 117 (61%) were females.

Also, out of 193 participants, 102 were suffering from systemic diseases, while 91 did not have any systemic illness. The number of participants suffering from systemic illness is given in Table 1.

When the population's OHI status was evaluated, it was found that 47% had a good status, 3% had a poor status, and 50% had a fair status. In comparison to men, women's OHI status was generally considered to be better. The mean DMFS score was 9.09 and the prevalence rate of DMFS was about 58%.

Table 2 shows OHI and DMFS score comparisons among individuals with systemic diseases and healthy individuals. OHI score was found to be higher in individuals with systemic diseases (1.56 ± 0.86) than healthy individuals (1.30 ± 0.83); the difference was not statistically significant with a p value of 0.41. DMFS score was found to be higher in individuals with systemic diseases (9.91 ± 9.40) than the healthy individuals (8.13 ± 8.51); the difference was not statistically significant with a p value of 0.173.

Less than 4% of survey participants attended the dentist just for a regular check-up, according to the study's findings, and 54% of participants had a problem with tooth or gum discomfort or bleeding for which they visited the dentist.

Table 1.Distribution of Participants Suffering from Systemic Diseases

Systemic Illness	Participants n (%)
Diabetes mellitus	28 (27.4)
Renal-hepatic disease	3 (2.9)

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Ocular-auditory disease	9 (8.8)
Hypertension	19 (18.6)
Rheumatoid arthritis	12 (11.7)
Hormonal disorder	29 (28.4)
Respiratory disease	2 (1.9)

Table 2.Comparison of OHI and DMFS Status Between Healthy Individuals and Diseased Individuals

Scores	Individuals with Systemic Diseases or Healthy Individuals	N	Mean	Std Deviation	Std. Error Mean	Mean Difference	Sig.	95% Confidence Interval of the Difference	
								Lower	Upper
OHI score	Systemic disease	102	1.5627	0.86562	0.08571	0.25285	0.041	0.01094	0.49477
	Healthy	91	1.3099	0.83334	0.08736				
DMFS score	Systemic disease	102	9.91	9.409	0.932	1.778	0.173	-0.789	4.346
	Healthy	91	8.13	8.511	0.897				

Discussion

The current study was carried out among automobile workers in Ambattur estate, Tiruvallur. The study included 193 participants (76 (39%) men and 117 (61%) women). The study was conducted after receiving their informed consent and briefly explaining the study to them. The respondents had a clinical oral examination after being questioned about demographic status and systemic disease. The medical and dental histories of each patient were recorded. Clinical information about the patient was evaluated using the Oral Hygiene Index, DMFS index and WHO Oral Health Assessment Form for Adults, 2013.

When the OHI status of the population was assessed, it was discovered that 50% of the participants had a fair status, 3% had a poor status, and 47% had a good status. Overall, OHI status was found to be better in females compared to males.

Periodontal disease is a chronic inflammatory disorder characterised by bacterial infection with the destruction of the tooth's supporting components.[8] Adult populations of developed countries have a higher prevalence of periodontal disease.[9] There has been growing evidence over the past ten years connecting periodontal disease to cardiovascular diseases,[10] diabetes mellitus,[11] ocular disease[12] and its negative effects.

According to the current study, 99% of the population used a toothbrush and the same percentage used toothpaste to brush their teeth, which is higher than the rates found in the study by Thapa et al.[13] Only 2% of the patients used dental floss depicting less amount of people's knowledge regarding the use of dental floss. In addition, 54% of survey respondents were unaware that their toothpaste contained fluoride, which is in agreement with the study done by Wagle et al.[14]

The current study recorded that 54% of the study participants visited the dentist with the problem of pain or swelling in teeth or gums, while less than 4% of the study participants visited only for routine dental check-ups. Also, when asked about educational background, 50% of the study participants had completed their undergraduate studies, while 27% and 20% of them had completed their high school and secondary school, respectively.

More than 13% of the study's participants smoked cigarettes on a regular basis, while 4% of participants chewed tobacco. Approximately 81% of the patients did not regularly drink alcohol, whereas 8% had one drink per day, 3% had three drinks per day, 2% had five drinks per day, and 6% had not had any drink in the past 30 days. Almost 19% of the population consumed alcohol in one way or another. These results are in accordance with the research conducted by Singh et al.[15]

A general evaluation of the OHI status of the population revealed that 47% had a good status, 3% had a poor status, and 50% had a fair level. Women were generally thought to have better OHI status in comparison to men. The prevalence rate of DMFS was roughly 58%, with a mean score of 9.09. Table 2 shows OHI and DMFS score comparisons among individuals with systemic diseases and healthy individuals. OHI score was found to be higher in the systemic disease group (1.56 ± 0.86) than the healthy

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group (1.30 ± 0.83); the difference was not statistically significant with a p value of 0.41. DMFS score was found to be higher in the systemic disease group (9.91 ± 9.40) than in the healthy group (8.13 ± 8.51); the difference was not statistically significant with a p value of 0.173 (Table 2). Overall, it was determined that the study participants in good health had better OHI and DMFS status than the study participants with systemic illnesses.

This study has some limitations. As the study was only conducted in one area, it is impossible to extrapolate its results to the population of other areas. A more thorough investigation is required. On the other hand, this study is beneficial as it can be used as a guide when developing oral health initiatives for populations of a similar size.

Conclusion

The study has shown that most of the participants have fair OHI status, and the OHI status in females was better than in males. Overall, the study participants in good health had better OHI and DMFS status than the study participants with systemic illnesses. Since periodontal diseases and dental caries can be avoided through good oral hygiene habits, raising awareness of oral health and encouraging the development of good oral hygiene practises among the public should be taken into consideration, such that improper oral hygiene shouldn't aid as the contributing factor that burdens existing systemic diseases. Hence, patients should be educated to change their habits by planning preventative health programmes.

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Conflict of Interest: None

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