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RESEARCH ARTICLE

JOB SATISFACTION - AN INDEPENDENT RISK DETERMINANT OF PERIODONTAL DISEASE

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ABSTRACT

Background: Periodontal diseases are oral disorders characterized by inflammation of the supporting tissues of the teeth. The aetiology of periodontal diseases is multifactorial. The effects of various psychosocial factors such as emotional stress, a high level of work stress, dissatisfaction at work or stress from unemployment have been the focus of several investigations on oral diseases.
Objectives: The aim of the present study was to evaluate the relationship between periodontal disease and job satisfaction in rural area of India.
Material and Methods: The case-control study included 241 subjects in the age range of 35-60 years, from a rural region of India. The study participants were divided into three groups: Group I (n = 80), Group II (n = 80), Group III (n = 81). All the subjects were instructed regarding completion of a questionnaire from job satisfaction scale. The periodontal status was assessed by plaque index, gingival index, probing pocket depth and clinical attachment levels. The results were statistically analysed by means of one way ANOVA and Pearson's correlation coefficient.
Results: The results showed that the comparison of z-score with Group I was 66.21 while in Group II the z-score was 84.05 and in Group III the z-score was 92.52 and the difference was statistically significant.
Conclusion: It can be concluded that job satisfaction may be a risk determinant of periodontal disease & not only the type of stress but coping behaviour of the person is important as far as its effects on health are concerned.

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INTRODUCTION

Chronic periodontitis is an infectious disease characterized by plaque-induced inflammatory lesions in the soft tissues surrounding the teeth, leading to breakdown of the tooth-supporting structures. [Hugoson *et al*., 2008] If left untreated, it leads to deteriorating oral health status with a potential impact on the daily life and functioning of the individual. (Needleman *et al*., 2004; Ng and Leung, 2006) The aetiology and pathogenesis of periodontal disease are multifactorial. The major risk factors include uncontrolled diabetes, smoking, specific infections & age. (Genco, 1996) Socioeconomic factors, type of occupation, daily schedule, competitive work load, emotional disturbances, etc. have led to increased stress levels in the modern lifestyle. Psychological and social stresses in the workplace have been indicated as risk factors for mental, physical and periodontal health problems. (Moss *et al*., 1996; Monteiro da Silva *et al*., 1996; Croucher *et al*., 1997) Job satisfaction and work motivation are the key concepts for the prosperity of any organization and its workers. Job satisfaction is a complex phenomenon and a subjective experience. It not only improves quality of life, but also makes a person more confident and a secure future. (Difference In Job Satisfaction And Work Motivation Among Government And Private Company Employees, 2013) According to National Institute for Occupational Safety and Health, job stress can be defined as "the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources or needs of a person". Fimian (1986) indicated that continuous stress can drastically lower job satisfaction and performance and can also damage the individual's personal life. (Fimian, 1986) The WHO in collaboration with the European Union has reported stress as one of the main social determinant of health and the most common chronic diseases in the world. (Borges and Moreira, 2007) According to the American Institute of Stress and WHO, the most common form of stress in the world is occupational stress. (Devereux *et al*., 2009) Earlier studies in industrial workers in Norway and in India have related periodontitis primarily to smoking as risk factor. (Lie and Due, 1988; Dagli Jr *et al*., 2008) But the long known relationship between smoking and stress, especially job stress brings us more closely to associate between periodontitis and job stress. (Cherry *et al*., 1996-2001) In attempting to understand why an individual's occupation or the

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organizational characteristics of his/her work might contribute to the development of periodontal disease, researchers have investigated the content of the daily experience of work-life. However, all these studies are from urban population and not from rural population. Hence, the aim of the present study was to evaluate the relationship between periodontal disease and Job satisfaction in rural area of India.

MATERIALS AND METHODS

The present case-control study was conducted at the rural satellite health centre of rural region of India to evaluate the association between Job satisfaction and its effect on chronic periodontitis. Total 241 patients were randomly selected using following inclusion and exclusion criteria. The nature of the study was explained to all the participants and written informed consent was obtained from each study participant. The study was approved from Institutional Ethical Committee & the procedures were in accordance with the ethical standards of the responsible committee on human experimentation & with the Heilsinki Declaration 1975, revised in 2000. Confidentiality of the personal data was maintained by giving enrolment number & not disclosing the names. The inclusion criteria were age range of 35–60 years, chronic periodontitis patients having probing depth >5mm and/or CAL > 4mm, gingivitis patients having GI at least one and periodontally healthy study participants for control group. Subjects excluded from the study were patients with psychiatric disorder, systemic diseases that affects the periodontium, pregnant or lactating females, patients who received any anti-inflammatory drugs, antibiotics or corticosteroids within previous 3 months, patients who were smokers, had received scaling and root planing (SRP) or sub-gingival instrumentation < 2 months before the baseline examination. (Armitage, 1999; Schätzle *et al*., 2003)

The selected patients were divided into 3 groups as those having:

- Group I -Chronic periodontitis (n = 80)
- Group II -Gingivitis (n = 80)
- Group III -Healthy controls (n = 81).

All the demographic variables were recorded from these study participants & then stress analysis was performed using JSS. The participants were properly instructed regarding use and completion of JSS questionnaire. Clinical examination was conducted immediately after stress analysis, before disclosing the stress analysis report. The periodontal parameters used in assessment were plaque index, gingival index, probing pocket depth and clinical attachment level. (Silness and Loe, 1964) Periodontal probing depth and Clinical attachment level were measured at six sites per tooth (mesio-buccal, buccal, disto-buccal, mesio-lingual, lingual and disto-lingual) of all erupted teeth excluding third molars. All the clinical measurements were carried out by a single examiner using Williams probe (Hu-Friedy, Chicago, IL, USA).

Job satisfaction scale

JSS is a copy- righted scale prepared by Amar Singh and T.R. Sharma (2010) specifically for Indian population. After proper instructions regarding use of the job-satisfaction questionnaire, they were distributed to the study participants. The scale consists of 30 items. Each item has five suitable options from which a respondent has to select any one. The scale has 24 positive and 6 negative items. The positive items are scored as 4,3,2,1 & 0 and the negative items are scored reversely. The obtained total raw score is used to measure the level of satisfaction/dissatisfaction of respondents towards the job. The corresponding z-score for this raw score has been obtained from the JSS scale. Depending on the z-score, the level of job satisfaction has been divided into seven grades, Grade A indicating extremely satisfied to Grade G indicating extremely dissatisfied.

Statistical analysis

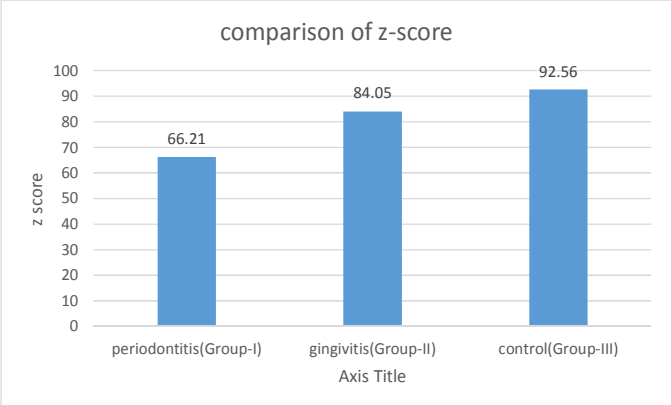
The collected data was analysed statistically using SPSS 16.0 software. To compare the mean scores of job-satisfaction and periodontal disease and periodontitis and healthy controls, one way ANOVA was used. Pearson's correlation coefficient was used to evaluate the correlation between JSS score, periodontal clinical parameters and demographic variables. Probability levels at $P<0.05$ were considered as statistically significant.

RESULTS

Statistical analysis revealed that, the z-score (JSS) for Group-I was 66.21, Group-II was 84.05 and Group-III was 92.56 (Fig. 1) indicating periodontitis patients to be least satisfied in their job followed by gingivitis and healthy controls. There was a statistically significant difference between these 3 groups regarding job satisfaction. However, Pearson's Correlation Coefficient showed no correlations of z-score with periodontal clinical parameters & other demographic variables except family size in Group-III (control group), (Table 1).

Table 1. Relation of z-score to periodontal parameters and demographic variables in Group I, Group II and Group III (P<0.05)

z-score	Group-I Pearson's Correlation Coefficient	Group-II Pearson's Correlation Coefficient	Group-III Pearson's Correlation Coefficient
GI	-0.005	0.15	0.001
PI	-0.24	-0.05	0.1
CAL	0.12	-	-
Probing depth	0.1	-	-
Age	0.17	0.07	0.15
Family Size	0.029	-0.03	0.28*
Socioeconomic status	0.009	-0.07	0.001



Graph 1. Showing comparison between the (Z- scores) of all the 3 groups (Group I, Group II and Group III)

DISCUSSION

Job satisfaction is a widely accepted psychologic aspect of functioning in any profession. It results when there is a fit between job requirements and the wants and expectations of the employees. In this case-control study, the relationship between job stress and periodontal variables was investigated in a sample of 241 participants aged 35-60 years in a rural healthcare centre in India. In the present study, job satisfaction scale, specially prepared and standardized for Indian population, was used to measure the level of Job satisfaction. The scale measures the level of job satisfaction in two types of areas- job-intrinsic (factors lying in the job itself) and job extrinsic (factors lying outside the job). Job intrinsic is further divided as job concrete (excursions, working conditions) and job abstract (cooperating and democratic functioning) and job extrinsic area as consisting of three components i.e. psychosocial aspects, financial aspects and community growth aspect. Rural areas usually have joint families so there is ample family and social support from parents, relatives and friends thus nullifying the effect of occupational stress. Thus, susceptibility to periodontal breakdown in response to stressful life events appears to depend, in -part, on the effectiveness of a person's coping behavior. Haavio-Mannila *et al*. (1997) showed that the major sectors of people's life are family, work and leisure, and that among those, family is the most important to overall life satisfaction. (Haavio-Mannila, 1997) The scale divides the level of job satisfaction into seven grades ranging from Grade A- indicating extremely satisfied to Grade-G, extremely dis-satisfied. In present study, periodontitis patients were dis-satisfied and gingivitis patients were moderately satisfied whereas healthy subjects were satisfied. Also, there was a statistically significant difference in three groups as far as job satisfaction is concerned. This confirms the findings demonstrated by study conducted by Wagner Segura and Aubrey Sheiham (1992) in which the study showed a statistically significant relationship between work related mental demand and periodontal health status. (Wagner Segura and Aubrey Shieham, 1992)

In present study, there was no co-relation between JSS scores and periodontal clinical parameters and demographic variables except family size in healthy subjects. This may be due to the fact that, this study is conducted in rural region of India, and in rural region mostly joint-family system is followed because of which the population may have better coping ability than individuals living alone or in nuclear families. The support system that a joint family system offers in the form of parents, brothers, sisters, renders the individuals to forget the job stress after coming home and to better cope with the situation. Decreased job stress results in increased job satisfaction. Job stress may arise from various sources, some of which are intrinsic to the job such as poor working conditions, long workings hours, work overload or under load, individual's role in the organization, relationships at work, career development and general work climate. The implications of the present study for future research are twofold. First, present results illustrate that job satisfaction may act as a potent chronic stressor and should be included in studies of occupational stress, particularly in industries where employment opportunities are declining. Second, this study demonstrates the need to conduct longitudinal studies of stress in which measures of stress, job satisfaction and health are taken at multiple points in time. It would also be enlightening to expand this research to different cultural groups.

Conclusion

The results of present study showed that job satisfaction positively correlates with periodontal health status and within limitations of the study, it can be concluded that job satisfaction may be a risk determinant of periodontal disease and not only the type of stress but coping behaviour of the person is important as far as its effects on health are concerned.

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