

## **Impact of Lifestyle, Behavioural risk factors and Educational Level on Periodontal Health: A Cross Sectional Study**

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### **Abstract**

**Background:** The significance of enhanced lifestyle has garnered substantial attention regarding the preservation of holistic well-being, encompassing periodontal health. The manner in which an individual leads their life can elicit behavioral patterns that can either promote or hinder periodontal health. The educational status of patients has the potential to be interconnected with their adherence to oral hygiene practices.

**Materials and Methods:** A cross-sectional study was undertaken, involving a total of 400 participants. The demographic factors pertaining to their lifestyle and educational achievements were documented employing a standardized questionnaire, which was subsequently

examined to establish any discernible associations with the individual's periodontal health status.

**Results:** The findings of this study reveal that the presence of periodontitis significantly decreases as education levels increase, as indicated by the statistically significant P value of 0.0037. Furthermore, it can be observed that the incidence of periodontitis, which is linked to an individual's adherence to a healthy lifestyle, exhibits a significant decrease (P value = 0.0024) in comparison to those who adopt an unhealthy lifestyle.

**Conclusion:** The findings indicate that individuals with a higher level of education exhibited a higher likelihood of adhering to a consistent regimen of preventive care for maintaining periodontal health. Furthermore, it was

observed that leading a healthy lifestyle played a significant role in the preservation of periodontal health.

**Keywords:** Lifestyle, behaviour, Educational status, periodontitis.

### **Introduction**

Periodontal disease, a condition with multifactorial origins, is an infectious disease that is distinguishable through clinical signs and symptoms.<sup>1</sup> The etiology of periodontal disease is influenced significantly by plaque microorganisms, as well as immunological and genetic factors.<sup>2</sup> Periodontal diseases have been identified as a significant risk factor for various health conditions, including but not limited to infectious endocarditis, coronary disease, premature labor, and diabetes.<sup>3</sup>

The individual and societal lifestyle or manner of existence has shaped the circumstances to which individuals have been exposed throughout their lifespan, encompassing the period from birth to the current moment. A theoretical framework elucidating the etiology of generalized periodontitis has been presented, emphasizing the primary role played by individual risk factors, including detrimental lifestyle choices and adverse psychosocial circumstances. The development of periodontal disease may be attributed to various personal factors.<sup>4,5</sup>

The significance of enhancing one's lifestyle has extensively grown in relation to the upkeep of general well-being, encompassing periodontal health. Methods such as exercising regularly, eating a balanced diet, and getting enough sleep, have been proven to have positive effects on overall well-being and can contribute to a healthier lifestyle.<sup>6</sup> Engaging in regular physical activity can improve cardiovascular health, increase muscle strength, and help control weight. Consuming a variety of nutrient-rich foods can provide the body with essential vitamins, minerals, and antioxidants necessary

for optimal health. Additionally, getting adequate sleep plays a crucial role in restoring energy levels, promoting cognitive function, and maintaining a strong immune system.<sup>7</sup>

By incorporating these practices into daily routines, individuals can enhance their overall health and well-being. It is imperative to thoroughly analyze the impact of lifestyles as potential risk factors and adopt necessary measures to reduce their influence on health outcomes. Efforts should be implemented to address and correct any present inconsistencies or issues.<sup>8,9</sup>

Currently, there exists a paucity of research investigating the correlation between individuals' overall educational attainment, lifestyle choices, and the prevalence of periodontal disease. The aim of this research endeavor is to assess the influence of lifestyle and educational attainment on the overall state of periodontal health.

### **Materials and Methods**

A cross-sectional study was conducted in the community health center, paddhari, Rajkot Gujarat. A total of 200 subject were randomly selected depending on following criteria, Patients aged 35 years and above, Presence of more than 15 teeth. During the course of the study, in compliance with ethical standards, informed consent was obtained from all participants prior to their inclusion in the study.

The sample size needed to carry out this study was calculated, taking confidence level at 95% ( $Z$ , standard value of 1.96) and margin of error at 5% ( $d$ , standard value of 0.05). The estimated sample size for the study was 400 individuals.

Data was gathered pertaining to the participants' lifestyle and educational background, utilizing a questionnaire for initial assessment. Subsequently, clinical recordings were conducted to evaluate bleeding upon probing, periodontal pocket depth, and clinical attachment

loss. These groups were correlated with Lifestyle and Education level.

### **Lifestyle**

The measurement of lifestyle entailed the utilization of queries pertaining to three specific behaviors, namely: This study combines tobacco-related habits, physical activity and dietary habits into a composite lifestyle variable, aimed at obtaining a comprehensive indicator that assesses an individual's inclination towards health.

Tobacco-related behaviors were deemed positive when individuals reported no habits or had ceased their habit for a minimum of two years. Conversely, behaviors were rated negative if individuals exhibited regular or occasional use of any form of tobacco. These ratings were assigned a value of positive 1 for favorable behaviors and -1 for detrimental behaviors.

The level of physical activity was deemed to be elevated if the individual had regular engagement in any form of physical exercise. In alternative instances, it was designated with a low rating (high 1, low -1).

Dietary patterns were determined by three influencing factors, namely the frequency of vegetable intake, consumption of sweets, and utilization of ghee or butter. If the participant selected the most healthy option for each of the three factors, their habit was evaluated as positive. If there was one alternative that was deemed unhealthy, the habit was considered moderate. Conversely, if there were multiple unhealthy alternatives chosen, the habit was considered negative. These evaluations were scored as positive (1), moderate (0), and negative (-1).

Thus, the total sum score could range from 3 to -3. The combined lifestyle variable was categorized as "healthy" (1-3) and "unhealthy" (-3 to -1).

### **Education level**

The evaluation of education attainment was conducted based on,

- a. Primary education
- b. Secondary education
- c. Graduation or above.

### **Statistical Analysis**

The data were analyzed using the IBM SPSS Statistics version 22. The results were calculated by using Pearson's chi-square test. The value of  $P < 0.05$  was considered statistically significant.

### **Results**

Periodontal disease was found to be significantly higher in individuals with unhealthy lifestyle habits compared to those with healthy lifestyle habits.

The occurrence of periodontitis demonstrated a significant decrease in subjects adhering to healthy lifestyle habits when compared to those following unhealthy lifestyle practices ( $P < 0.0001$ ), as evidenced by the data presented in Table 1, Figure 1.

The study findings indicate a noteworthy inverse relationship between the level of education and the prevalence of periodontitis, as evidenced by a significant reduction in periodontal disease with higher levels of education ( $P < 0.0001$ ) (Table 2, Figure 2).

### **Discussion**

Present study reports the impact of lifestyle, behavioural risk factors and educational Level on Periodontal Health. The topic of a healthy lifestyle is currently receiving considerable attention in the field of social science and medical research, offering intriguing insights for the discipline of medical sociology. Leuschen et al. conducted a study highlighted the theoretical capacities of the lifestyle concept in its elucidation of novel manifestations of societal disparities pertaining to health.

The importance of lifestyle changes that contribute to the development of lifestyle disorders, such as cardiovascular disorders, diabetes, and periodontal diseases, as well as their considerable impact on morbidity, psychological disorders such as depression, and the consequences of stress, is steadily growing.<sup>11</sup> The primary strategy for counteracting a multitude of these conditions was identified as the modification of individual health behaviors. The propensity for engaging in excessive drinking and smoking, overindulging in food consumption, and maintaining inadequate nutrition, alongside a lack of physical activity, can have detrimental consequences on an individual's health.<sup>12,13</sup> The findings of our study revealed a statistically significant positive correlation between lifestyle factors and the overall periodontal status of the participants. According to Rajala, there exists a positive correlation between dental health behavior and lifestyle variables.<sup>14</sup> Individuals who engage in unhealthy lifestyle choices tend to exhibit a compromised periodontal health status as a consequence of their irregular brushing behaviors and the harmful consequences associated with tobacco use. According to Revicki's research, smokers exhibit a propensity towards a more detrimental lifestyle overall.<sup>15</sup> This finding suggests that the correlation between tobacco usage and periodontal health is not solely attributable to suboptimal oral hygiene practices, but also to a lack of healthy habits in general lifestyle. Our study found a positive correlation between higher levels of education and improved periodontal status when comparing educational attainment with periodontal health. Gomonal et al demonstrated a significant correlation between individuals who pursued higher education at the university level and their overall better state of health in comparison to their counterparts. This finding concurs with the research conducted by Richard

et al. The identification of education level as a robust indicator of periodontal status was ascertained by the researcher. There could be increase in dental awareness amongst educated people leading to these results.<sup>8,16</sup>

### **Conclusions**

The concept of lifestyle enhances wellbeing. Efficient public health intervention is imperative in addressing the various elements that contribute to unhealthy lifestyle practices among the general population. Based on the findings of this study, it can be inferred that a robust correlation exists between individuals' lifestyle choices and education level, in relation to the prevalence and severity of periodontal diseases.

### **Limitations of the study**

Several limitations were evident in this study, namely the reliance on self-reporting for all variables and data obtained from a questionnaire might not precisely reflect the actual behavior of the participants. The chosen sample size of 400 individuals may not possess the capability to adequately portray the prevailing trends within the larger community.

### **Future Recommendations**

Periodontal health strategies and policies are urgently needed. To address this issue, The periodontal health of both individuals and society as a whole is regarded as being susceptible to influence. In the realm of health, one key objective is to foster preventive measures, which are crucial in facilitating behavioral changes. Moreover, an important aspect of health literacy pertains to strengthening awareness and knowledge in the realm of oral healthcare.

Table 1: Association between lifestyle and periodontal status

Lifestyle	CGG	Percentage	CGP	Percentage	P - value
Healthy lifestyle	41	32.58	11	19.27%	P < 0.0001 (HS)
Unhealthy lifestyle	86	67.42	45	80.73%	
Total	127	100	56	100	

HS – Highly Significant

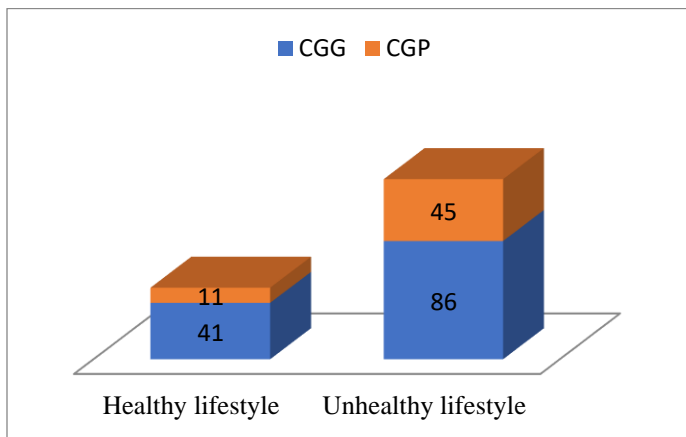


Fig 1: lifestyle and periodontal status

Table 2: Association between educational level and periodontal status

Education	CGG	Percentage	CGP	Percentage	P value
Primary Education	47	37	32	58	P < 0.0001 (HS)
Secondary Education	56	44	17	31	
Graduation	24	19	07	11	
Total	127	100	56	100	

HS – Highly Significant

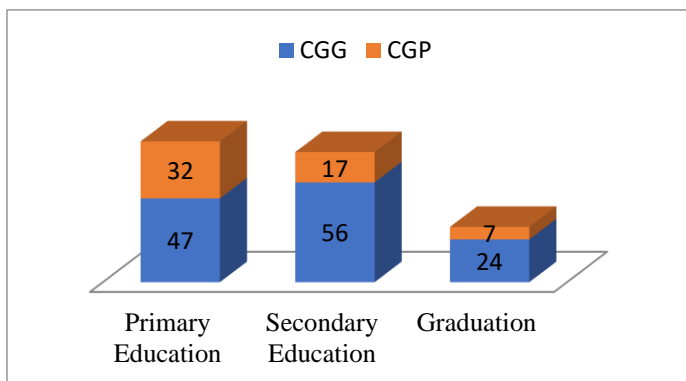


Fig 2: Educational level and periodontal status

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