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Guardians Of Health: Periodontal Wellness and Its Impact on Systemic Diseases - A Questionnaire Based Survey Amongst Medical Professionals

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ABSTRACT

Introduction: Periodontitis is a chronic inflammatory disease, characterized by progressive destruction of supporting periodontal structures. However, the periodontal infection can enter into the systemic circulation which may aggravate systemic diseases

Aim: To perceive an understanding and knowledge among medical professionals on periodontal- systemic link with the help of a questionnaire based survey.

Materials and Methods: The survey was conducted amongst medical professionals in Chandigarh tricity, India. There were a total of 15 questions in the questionnaire, and the respondents were asked to mark their appropriate choices.

Results: A total of 150 medical professionals were involved in the study. In general as 73% of respondents were aware of the relationship between periodontal diseases and systemic health. Among the medical doctors practicing in Chandigarh tricity, this survey showed that knowledge about the relationship between periodontal health and general health was good.

Conclusion: This study emphasizes on increasing the awareness regarding periodontal and systemic interrelationships amongst medical professionals

Keywords: *oral health, periodontitis, systemic diseases.*

1. INTRODUCTION

Good health is a globally accepted human demand for mass strata of society. Oral health mask an important role to maintain the overall general health. In accordance with the definition by the WHO, periodontal health is defined as a state free from inflammatory periodontal disease that allows an individual to function normally and not suffer any consequences (mental or physical) because of past disease.[1]

The associations between oral disease particularly periodontal disease and chronic systemic diseases such as diabetes, coronary artery disease, adverse pregnancy outcomes have been reported in observational and clinical studies.[2,3] It has been suggested that inflammatory cascade initiated by the mediators in periodontal disease can cause oral microbes, lipopolysaccharides, and proinflammatory molecules to gain access to different parts of the body, thus contributing to chronic

systemic conditions and infectious diseases.[4]

Different risk factors are associated with periodontal disease, the strongest being cigarette smoking and diabetes mellitus. If left untreated, periodontal disease can result in patients with missing teeth, affecting their well-being and quality of life. Periodontal disease affects glycemic control and increases the risk of developing hyperglycemia, which increases with

periodontal disease severity.[5] Some evidence suggests that the treatment of periodontal disease would result in better glycemic control.[6] For coronary heart disease and atherosclerosis, patients with periodontal disease are at an increased risk for these diseases, including acute myocardial infarctions.[7]

For respiratory diseases, it has been suggested that the aspiration of pathogenic oral bacteria found in a poorly maintained oral cavity might result in pneumonia development or chronic obstructive pulmonary disease exacerbations. [8]

Therefore, importance should now be given in the treatment of periodontitis and other dental diseases as a means to improve systemic diseases. As reported by the World Health Organization, many oral diseases, such as periodontal diseases, are a significant and essential part of the individual's overall health.[4] Medical professionals should familiarize themselves with knowledge, as they can alter the course of systemic diseases and assess their diagnosis and prognosis accordingly. Because of the higher prevalence of periodontal diseases and their correlation with systemic health, patients visiting medical professionals may not obtain the requisite guidance and education.[5] Therefore, this study was conducted to understand the level of knowledge about medical practitioners about the periodontal disease to realize their training needs for the subject under review

2. MATERIAL AND METHODS

This survey was conducted in Chandigarh tricity in various hospitals. The online survey form was created and was circulated among various medical practitioners in October- November 2023. From all participants, verbal consent was obtained. Doctors were randomly selected from different hospitals. The purpose and all the terminology used in the survey were clarified to the respondents and were ensured that absolute confidentiality would be maintained. Each participant had to answer the multiple-choice type questionnaire. The survey was designed to evaluate the knowledge of medical practitioners on periodontitis and its relationship with systemic diseases. There were a total of 15 questions in the study, and the respondents were asked to tick their appropriate answers. The collected data have been compiled and analyzed using SPSS version 16. Results are expressed in percentage

3. RESULTS

A total of 150 medical practitioners (106 female and 41 male) were involved in the study. The age of the population is (20–30 years—80 participants, 31–40 years—42 participants, 41–50 years—19 participants, 51–60 years—8 participants).

The results are summarized in ►Figs. 1–13.

The majority of the doctors, 55% responded that they have noticed bleeding from gums. (►Fig.1)

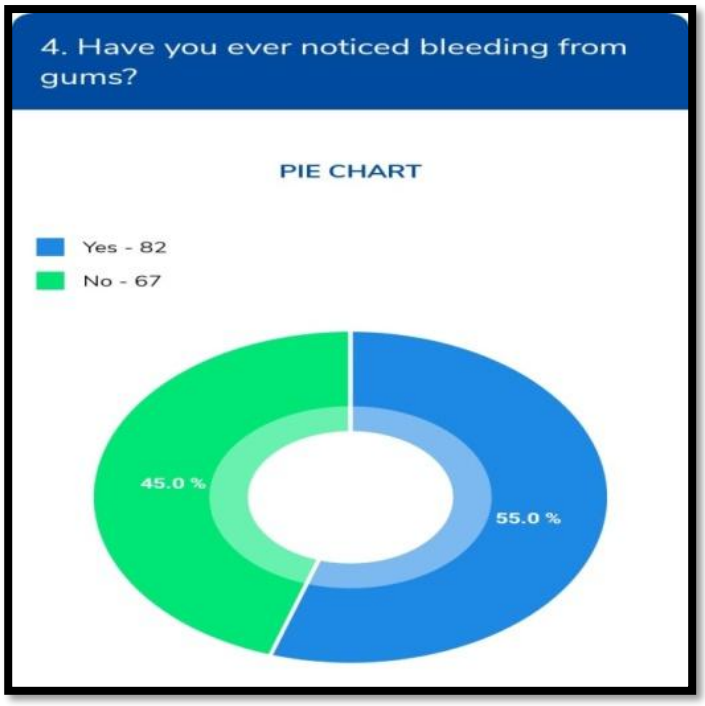

Fig 1. Experience of participants regarding bleeding from gums

(►Fig.2) shows dental visits among participants; 70% of the study participants visit dentists once a year for cleaning their teeth; 29.5 % of the participants visit once in six years and 16.15% once in three months. There are 7.4% of the respondents who have never undergone professional cleaning before.

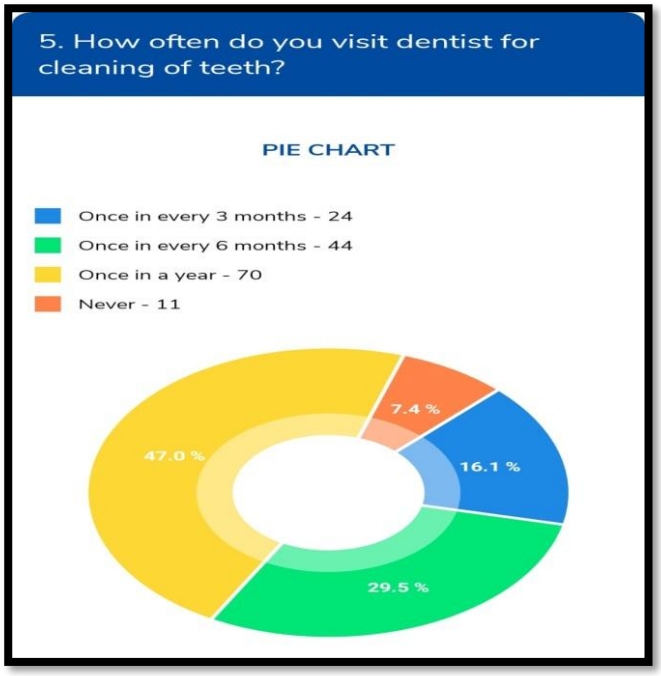

Fig. 2 Visit to a dentist

Amid the respondents, approximately 57.4% believed that periodontal disease is transmissible within family members. Only 42.6% respondent appreciated that periodontal disease is not transmissible within family members (►Fig. 3).

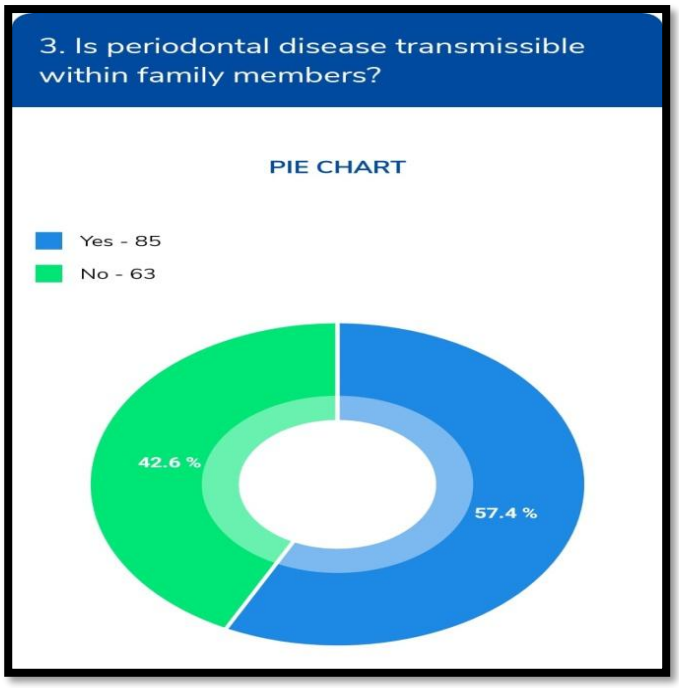

Fig 3. Opinion regarding transmission of periodontal disease amongst family members

(►Fig. 4) shows good awareness of the impact of periodontal diseases on systemic health in general as 73% of respondents were aware of this relation; Meanwhile, 78.5% believe that oral hygiene maintenance can improve systemic health issues (►Fig. 5)

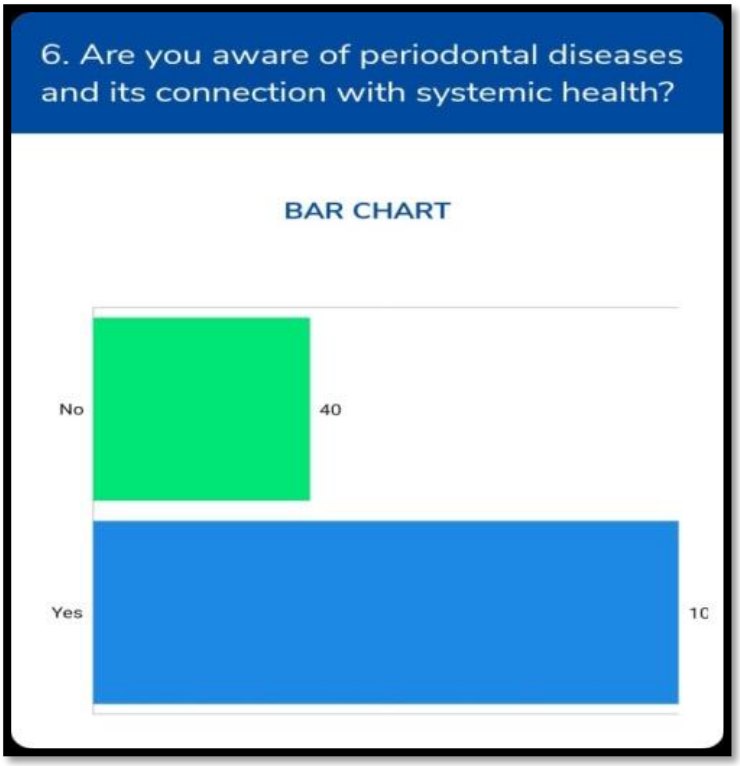

Fig 4. Awareness of the impact of periodontal diseases on systemic health

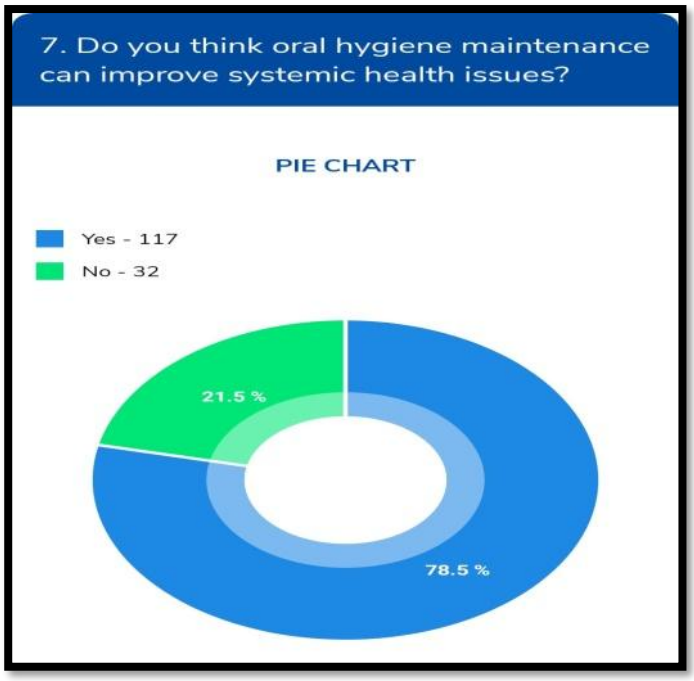

Fig 5. Views regarding oral hygiene maintenance can improve systemic health

About 68.2% respondents agreed to the fact that there is a bidirectional relationship between periodontitis and diabetes mellitus. (►Fig. 6). 61.1% of the study population thought that periodontitis is an independent risk factor to develop myocardial infarction (►Fig. 7)68.5% of the medical professional believed that rate of pneumonia is reduced by 40% by periodontal treatment. (►Fig. 8).

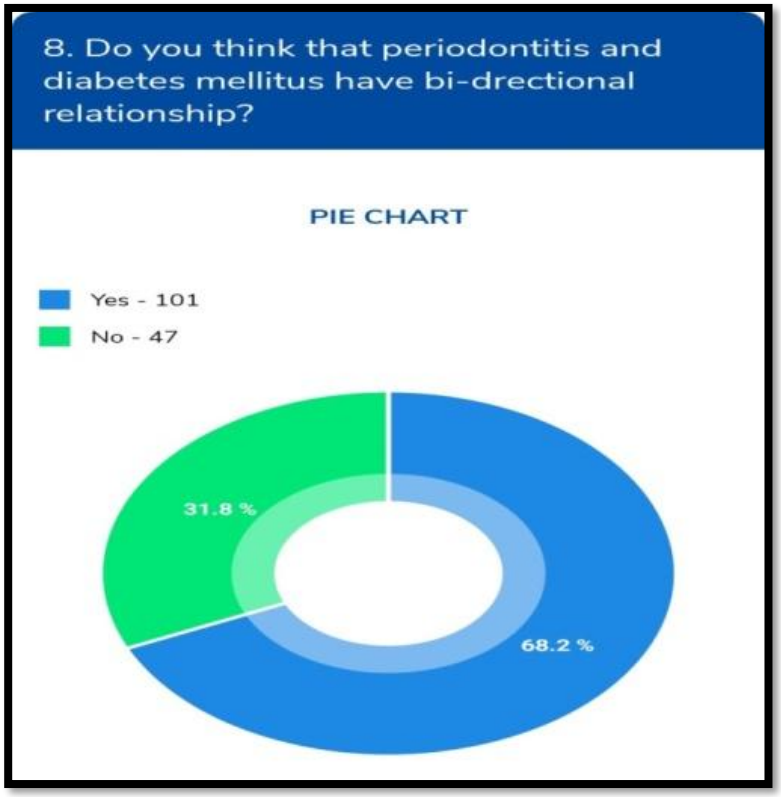

Fig. 6 Regarding bidirectional relationship between periodontitis and diabetes mellitus

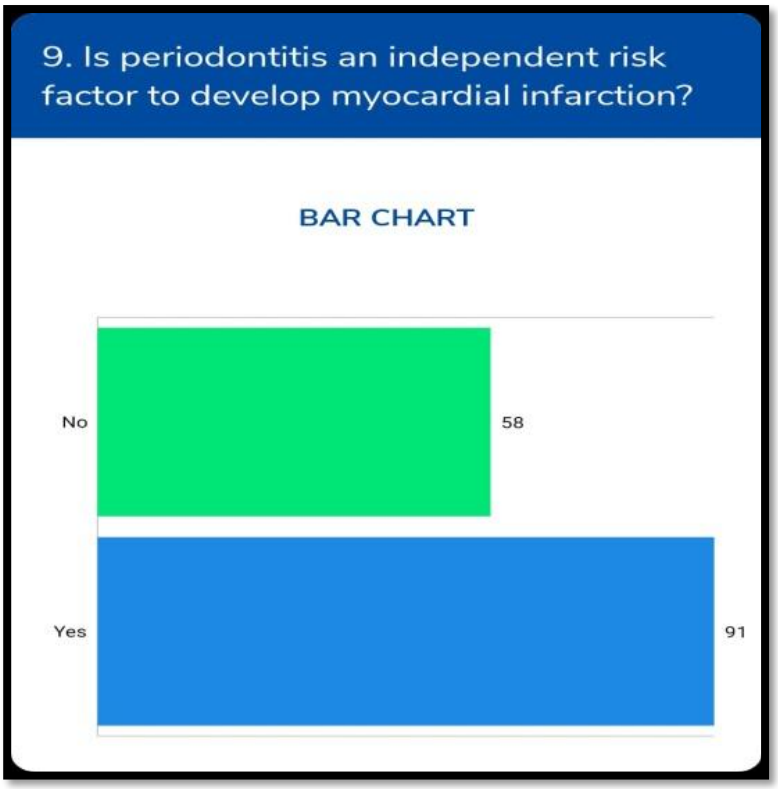

Fig. 7 Periodontitis as a risk factor for myocardial infarction

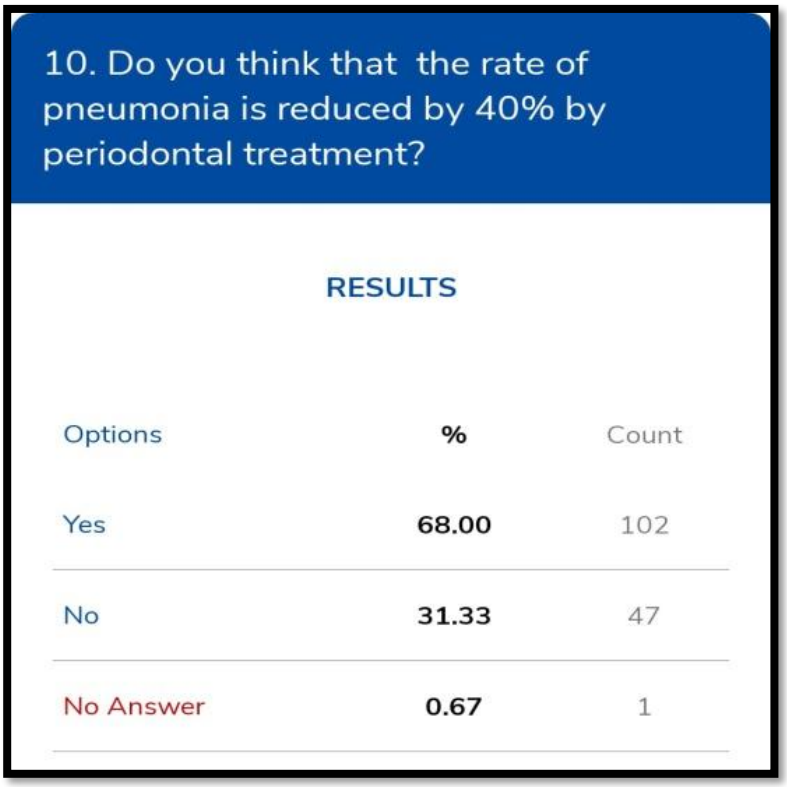

Fig 8. Rate of pneumonia is reduced by periodontal treatment

75% of the participants believed that there is a link between osteoporosis and bone loss in the jaws. (►Fig.9).

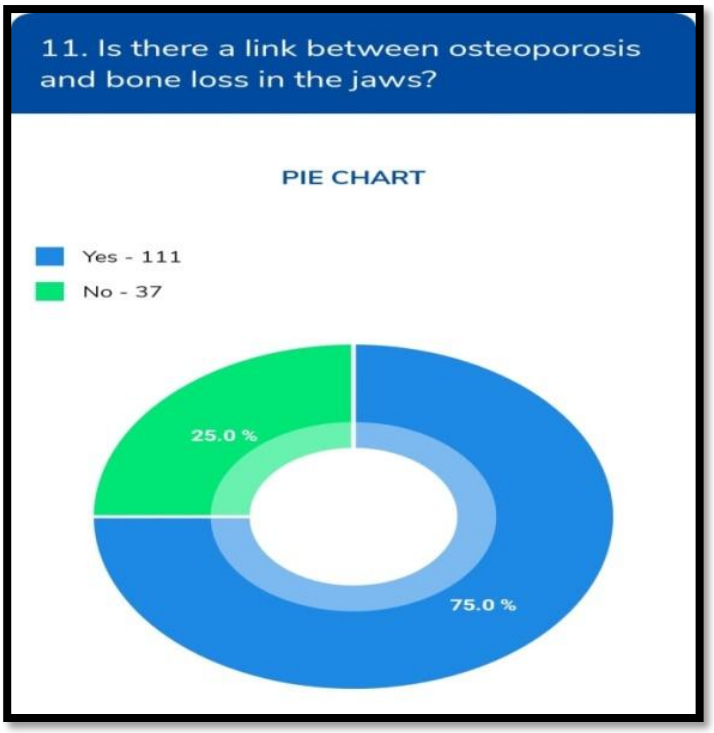

Fig.9 Link between osteoporosis and bone loss in the jaws

To the question that periodontal infection increases the risk of post–covid complications 21.5 % of the participants opted for the "strongly agreed"options, 37.6% opted for agreed ; 28.2% for neutral; 10.7% for disagree option. Only 2% of the participants were strongly disagreed with this fact.(►Fig.10)

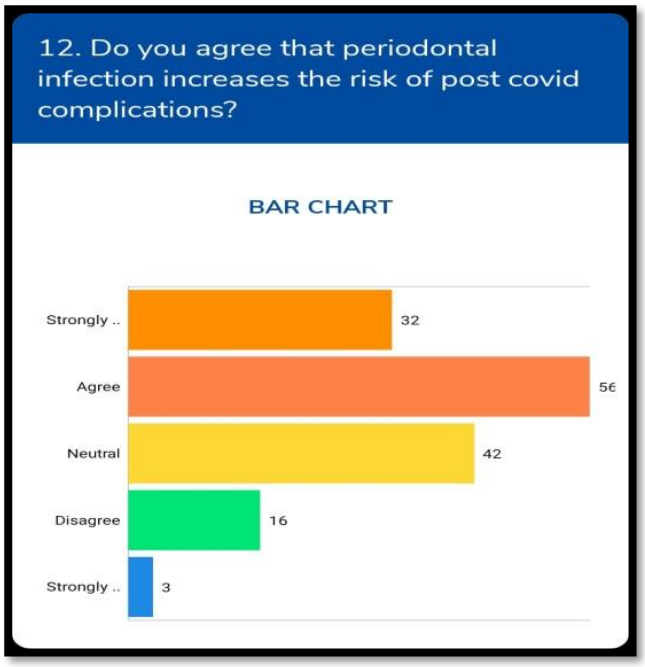

Fig. 10 Periodontal infection increases the risk of post-covid complication

59.5% of the participants were of the opinion that periodontal pockets may serve as reservoirs for severe acute respiratory syndrome (corona virus) whereas 29.1% were not sure about it.(►Fig.11)

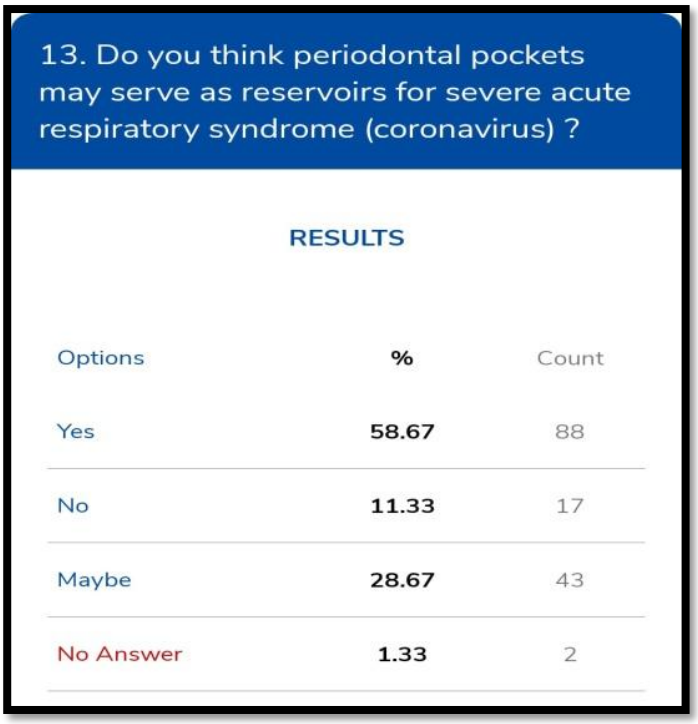

Fig. 11 Periodontal pockets may serve as reservoirs for severe acute respiratory syndrome (corona virus)

69.4% appreciated the fact that poor maintenance of oral hygiene in pregnancy may lead to Pre term low birth weight babies (PTLBW) and Pre mature delivery.(►Fig.12)

66.7% of the medical professionals were aware of the fact that second trimester is the best to perform elective dental treatment for pregnancy. But surprisingly 27.9% opted for first trimester whereas 5.4% opted for third trimester period as the safest period to perform elective dental treatment for pregnancy.(►Fig.13)

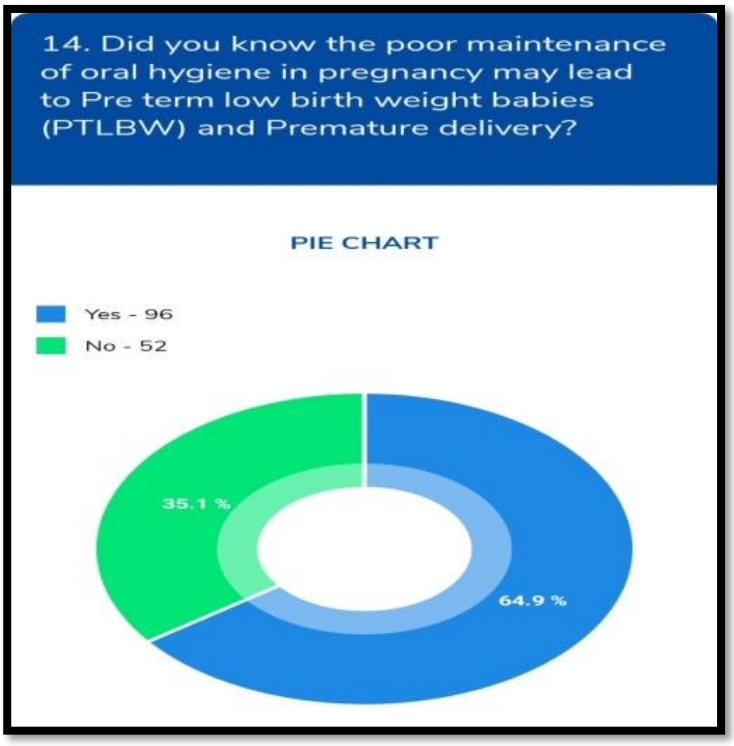

Fig. 12 Poor maintenance of oral hygiene in pregnancy may lead to Pre term low birth weight babies

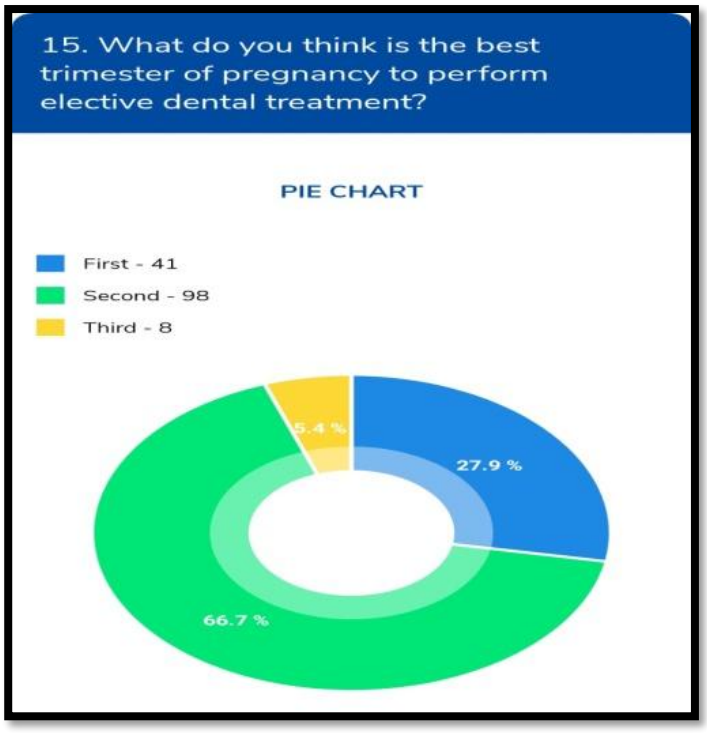

Fig. 13 Best trimester to perform elective dental treatment for pregnancy

4. DISCUSSION

This study investigated the awareness of medical professionals regarding the association of periodontal disease with systemic diseases.The overall results indicated a high level of awareness, where about 73% of individuals knew about the association.

Medical professionals are deemed an suitable means to reach a immense number of patients than dentists. Physicians can provide assistance and guidance to seek appropriate dental care. Considering the effects of poor periodontal health on the general health of an individual and consequently, its impact on the quality of life of that individual, medical professionals need to develop a high level of understanding of the etiology and pathogenesis of the periodontal disease. However, it is not professed by the people that often poor dental or periodontal health, in precise, can become a cause for their deteriorating systemic health. In such instances, medical professionals' knowledge and understanding about the interrelationship between periodontal and general health comes to the patient's rescue. Periodontitis is a chronic inflammatory disease of the supporting tissues of the teeth which is induced by biofilm of micro-organisms. Periodontal disease is diagnosed by clinical signs such as gingival recession, clinical attachment loss, mobility of the tooth, probing pocket depth, and ultimately tooth loss. Williams and Offenbacher [9] introduced a new area called "Medical periodontology," now referred to as periodontal medicine, and pointed to the bidirectional inter-relationship between periodontal diseases and other systemic disorders like diabetes mellitus, cardiovascular disorder and respiratory disorders. Patients with periodontal disease shows high level of systemic markers of inflammation, such as C-reactive protein, and with the resolution of periodontal disease, systemic inflammation levels have been reported to decrease.[10] There are different potential triggers for the increased systemic inflammatory response, including transient metastatic bacteremia injury from circulating oral microbial toxins and metastatic inflammation from an oral microorganism-induced immunological injury.[10]

As per the present survey conducted, 73% of the participants were aware of the association between periodontal and systemic diseases (►Fig.4).This is in contrast to a similar cross-sectional study amongst medical and dental practitioners in Saudi Arabia, which found that 52.1% of MPs had low levels of awareness and knowledge.[11]

Moreover, in this study, 61.1% of medical practitioners were aware of the association between cardiovascular diseases and periodontal diseases. This study is contrary to the a study conducted in Pakistan that revealed that 93 % of MPs think that PD can lead to cardiovascular disease.[12]

A cross-sectional study conducted amongst French general medical professionals revealed fair knowledge concerning the interrelationship between PD and systemic diseases: 75% reported that they knew about the interrelationship of PD and diabetes; 53% to 59% reported that there is an effect of PD on heart disease, respiratory infection.[13]

5. CONCLUSION

Among the medical doctors practicing in Chandigarh tricity, this survey showed that knowledge regarding the association between periodontal andsystemic health was good. General oral health educationis highly recommended in medical colleges and the postgraduate setting. Also, emphasis must be given to increasing the awareness regarding periodontal and systemic interrelationships among physicians. This can be done through frequent, continuous education programs, or workshops regarding its interrelationships. Comprehensive and collective efforts by both the general physicians and dental surgeons can improve overall health by improving oral health of the participants

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