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Prevalence of gingival status of PCOS women visiting a dental college - an institution based study

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ABSTRACT

Introduction : Almost 6.5–8% women of the reproductive age (18–45 years) suffer what is currently acknowledged as polycystic ovary disorder (PCOS), a perplexing sickness related with persistent an ovulation, hyperandrogenism, and various ovarian sores as trademark highlights .Wholesome changes because of a westernized diet and inactive way of life have brought about metabolic wellbeing unsettling influences affecting the metropolitan spaces of non-industrial countries like India and China, prompting a higher commonness of PCOS, roughly 9.13% to 36% in India and 2% to 7.5% in China.

Materials And Method: The study was conducted in a University setting. The subjects in the age group of 15- 45 years of age with PCOS were included in the present study. The sample size for the present study was 20 subjects with PCOS were selected from the outpatient visits to Saveetha Dental College & Hospital from November 2020 to February 2021. Subjects with systemic disease, subjects who were on medication for systemic diseases. The subjects were divided into two groups containing 20 subjects

Results: Figure 1 represents the association between modified gingival index for healthy and pcos women . The X-axis represents the modified gingival index and Y-axis represents the age group between 15-50 years . Blue colour represents healthy women and Green colour represents pcos women . With the mean score of modified gingival index 0.61were healthy women and 1.36 were pcos women . However this is statistically not significant with chi-square value - 21.42 and p-value = 0.3 (p-value > 0.05) hence insignificant.

Discussion: The present study was carried out on a total number of 40 women (20—healthy; 20—PCOS) with an age range of 15 to 45 years. The mean age in the PCOS group was 26.13 + 4.49 years, and in the healthy group 23.53 + 3.96 years. Most women belonged to a semi-urban locality with good female literacy levels. Hence, only BMI was assessed and socioeco- nomic considerations were not taken into account. The BMI was significantly higher for women in the PCOS group [23.83 ± 2.49] compared to healthy controls [22.50 ± 2.24].

Conclusion: Within the limitations of the present study, it can be con- cluded that relatively greater gingival inflammation was observed in patients with PCOS compared to healthy controls, independent of the risk factors present.

INTRODUCTION

Almost 6.5–8% women of the reproductive age (18–45 years) suffer what is currently acknowledged as polycystic ovary syndrome (PCOS), a perplexing sickness related with persistent ovulation, hyperandrogenism, and various ovarian sores as trademark highlights(1). Wholesome changes because of a westernized diet and inactive way of life have brought about metabolic wellbeing unsettling influences affecting the metropolitan spaces of non-industrial countries like India and China, prompting a higher commonness of PCOS, roughly 9.13% to 36% in India and 2% to 7.5% in China.

Hazard factors for PCOS incorporate insulin obstruction, endothelial brokenness, and dyslipidemia, heftiness. Favorable to fiery cytokines like interleukin-6 (IL-6), tumor corruption factor-α (TNF-α), and interleukin-17 (IL-17) have been identified in more prominent focuses in this condition, recommending presence of poor quality irritation. Increased ROS and C-responsive protein (CRP) attendant with metabolic, endocrine, and hereditary segments may work in the etiopathogenesis of PCOS(2). IR and hyperinsulinemia seem, by all accounts, to be liable for the poor quality ongoing foundational irritation(3).

Periodontal infection, which influences the tooth supporting constructions, conversely, is thought to be of microbial etiology, with a simultaneous part of host reaction and hereditary and ecological danger factors(4). The movement of the infection is there-front generally subject to singular vulnerability(5). It has been proposed as a danger factor for some fundamental infections, for example, diabetes mellitus, dyslipidemia, heftiness, CVDs, rheumatoid joint inflammation, and respiratory illnesses(6,7).

In periodontitis, neutrophils assume a focal part in the underlying host provocative reaction against periodontal microorganisms. Therefore, oxidative pressure is improved during periodontitis. As a marker of oxidative pressure, expanded GCF MPO levels have appeared at destinations with gum disease and persistent periodontitis(8) .

Proof additionally focuses on a twisted reaction of the vascular endothelium alongside uplifted neighborhood and fundamental fiery cytokine [TNF-α, IL-6, interleukin-1β (IL-1β)] reaction in periodontal sickness. The steady presence of receptive oxygen species (ROS)and fiery arbiters, for example, cytokines in this zone proposes perseverance of aggravation, which is currently being broadly considered as a Perio-fundamental in conditions like metabolic disorder, diabetes, and cardiovascular illness.

Past investigations showed more elevated levels of oxidative pressure and fundamental provocative markers, for example, interleukin-6 and C-receptive protein in both periodontal infections and PCOS(9) . As indicated by Saglam et al., salivary MDA levels in fundamentally solid subjects with no periodontitis were essentially lower than those with PCOS and ongoing periodontitis just as those with PCOS or persistent periodontitis alone . Ongoing second rate irritation, thus, is arising as a potential etiologic instrument connecting periodontal infection and numerous fundamental illnesses(6). Accordingly, it may very well be guessed that PCOS and periodontal illness might be potentially related, because of the presence of a course of proinflammatory arbiters and oxidative pressure, which happen in both the infections.

Information in regards to the job of oxidative pressure in periodontal sickness and PCOS among Indian subjects is, notwithstanding, scant and thus the requirement for leading this investigation(10). Past investigations among Indian subjects have assessed the affiliation between periodontitis and PCOS and furthermore checked the impact of clinical treatment and non-careful periodontal treatment on C-responsive protein levels in ladies with PCOS(11). Our team has extensive knowledge and research experience that has translate into high quality publications (Neelakantan et al. 2013; Aldhuwayhi et al. 2021; Sheriff et al. 2018; Markov et al. 2021; Jayaraj et al. 2015; Paramasivam et al. 2020; Li et al. 2020; Gan et al. 2019; Dua et al. 2019; Mohan and Jagannathan 2014) (12-21)

MATERIALS AND METHODS

The study was conducted in a University setting. The subjects in the age group of 15- 45 years of age with PCOS were included in the present study. The sample size for the present study was 20 subjects with pcos were selected from the outpatient visited Saveetha Dental College & Hospital from November 2020 to February 2021. Subjects with systemic disease, subjects who were on medication for systemic diseases. The subjects 40were divided into two groups containing 20 subjects in each group as group A healthy women and group B PCOS women . The weight and BMI were calculated for the subject In the clinical periodontal status the parameters evaluated were modified gingival index depth (BOP),modified gingival index (mGI),Plaque index (PI) was assessed using a William's Probe clinically on all the 6 surfaces of the tooth and the values were noted.The collected data was tabulated in Microsoft Excel and imported into SPSS software version 2.0. Chi-square test and Pearson correlation analysis were used for the data analysis, with a p-value less than 0.05 to be statistically significant.
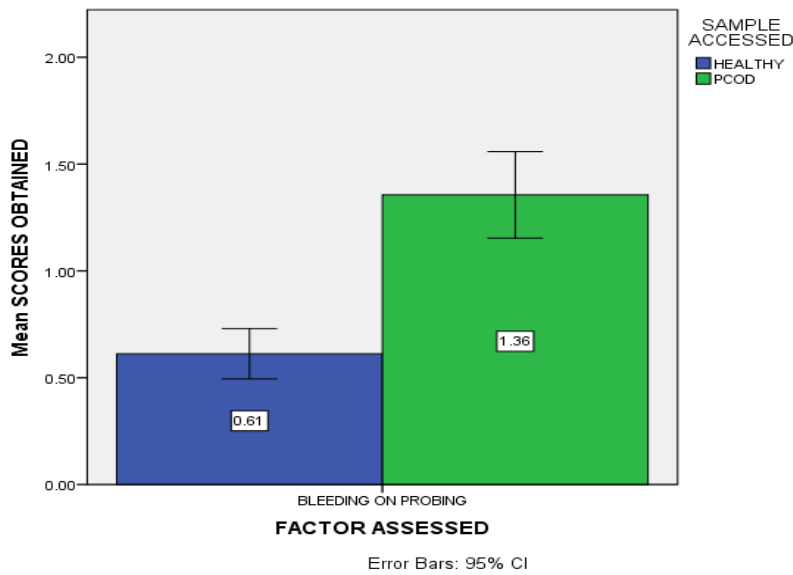
RESULTS

FIGURE 1: represents the association between bleeding on probing for healthy and pcos women. The X-axis represents the bleeding on probing and the Y-axis represents the age group between 15-50 years . Blue colour represents healthy women and Green colour represents pcos women . With the mean score of modified gingival index 0.61were healthy women and 1.36 were pcos women . chi-square value - 21.42 and p-value = 0.3 (p-value > 0.05) was statistically significant .
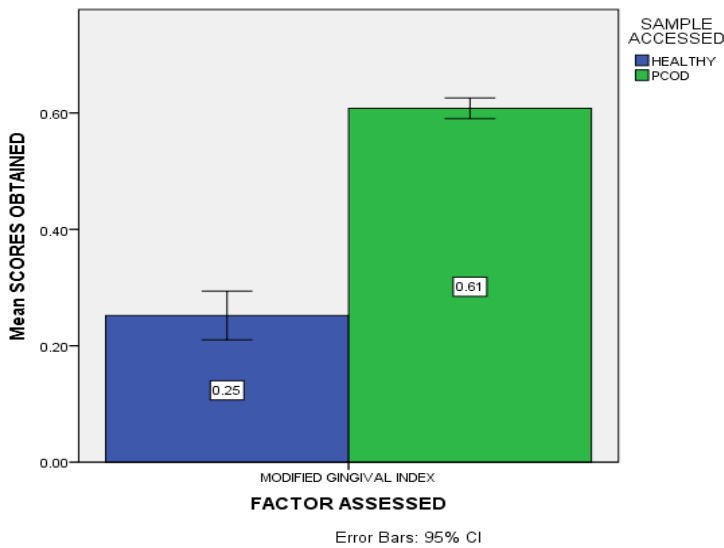

FIGURE 2 represents the association between modified gingival index for healthy and pcos women . The X-axis represents the modified gingival index and Y-axis represents the age group between 15-50 years . Blue colour represents healthy women and Green colour represents pcos women . With the mean score of the modified gingival index 0.25 were healthy women and 0.61 were pcos women . chi-square value- 27.58 and p-value =1.2 (p-value > 0.05) was not statistically significant .
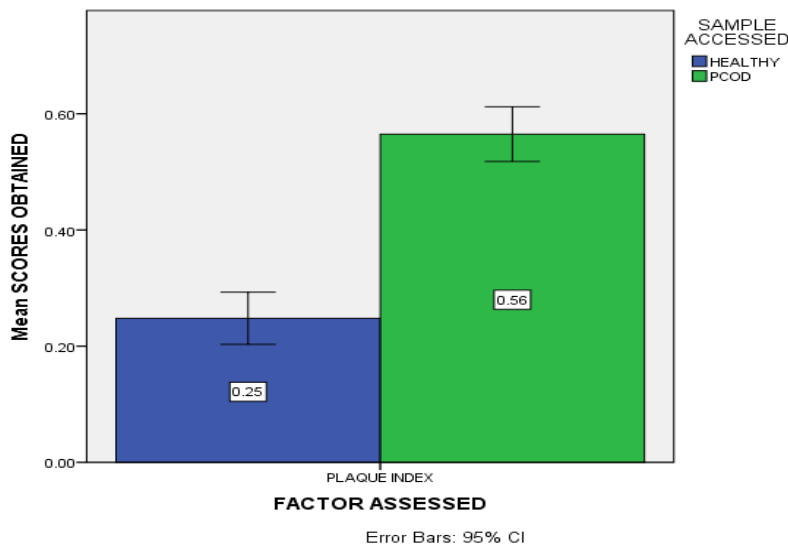
FIGURE 3: represents the association between plaque index for healthy and pcos women. The X-axis represents the plaque index and Y-axis represents the age group between 15-50 years . Blue colour represents healthy women and Green colour represents pcos women . With the mean score of the modified gingival index 0.25 were healthy women and 0.56 were pcos women . chi-square value-32.58 and p-value =0.8 (p-value > 0.05) was not statistically significant .

DISCUSSION

The present study was carried out on a total number of 40 women (20—healthy women ; 20—PCOS women) with an age range of 15 to 45 years. The mean age with respect to the PCOS group was around 26.13 + 4.49 years, and in the healthy group it was around 23.53 + 3.96 years. Most of the women belonged to a semi-urban locality with well female literacy levels. Hence, only BMI was assessed and socioeco- nomic considerations were not taken into account(22). The BMI was significantly higher for women in the PCOS group [23.83 ± 2.49] compared to healthy controls [22.50 ± 2.24]. PCOS patients are not required to be overweight but PCOS has shown strong association with abdominal obesity and insulin resistance.

The modified gingival index was used in this study as it follows a non-invasive approach, with inclusion of the papillary and marginal gingival units as well and a detailed scor- ing for mild and moderate gingivitis lesions(23).

This improves the sensitivity of detecting early visual alterations that occur during gingivitis start or progression. As BOP has been checked separately, the other gingival changes were carefully examined with this non-invasive index.CAL was not measured as CAL alone would tend to over- estimate periodontitis prevalence since attachment loss can be due to non-inflammatory causes. In the present study, PI, mGI, and BOP scores were significantly different in between PCOS women and healthy controls(34). Nair et al have shown significantly greater GI scores in subjects with PCOS (2.13 ± 0.26) than in the healthy group (1.12 ± 0.12) of subjects . Clinical periodontal indicators (PD, GI, BOP percent, and PI) and GCF volume were higher in the control group in women with PCOS, according to Dursun et al, and this was statistically significant.

Most of the patients in the PCOS group presented with shallow pockets (PPD < 6 mm) and were also in the younger age group (26.13 ± 4.49 years), in whom the features of gingivitis/mild periodontitis are more predominant. In a prior study, Akcali et al found that mean PD was less than 3 mm in all of their study groups (PCOS and healthy women with/without gingivitis) (16). The gingival groups, whether systemically healthy or with PCOS, had substantially higher PI, BOP, and PD ratings.Thus, the presence of gingivitis and higher plaque index as a plausible factor in influencing the other periodontal parameters (PD, mGI, and BOP) may be noted in the above-mentioned study(25). Therefore, it can be presumed that PCOS patients may tend to have increased gingival inflammation and tendency to bleed when compared with healthy individuals.It is well known that progression of periodontal disease is associated with multiple factors including mechanical removal of plaque, glycemic levels, and frequency and duration of smoking. It is therefore plausible that the severity of periodon- tal disease may also be associated with the aggravation of PCOS.Hence, the presence of gingivitis may depend on a variety of factors, including disruption of the homeostasis of the oral environment by a combination of poor oral hygiene, altered hormone levels, and chronic low-grade systemic inflammation(26).

PCOS cannot be cured completely , but the associated symptoms can be managed by leading a healthy lifestyle and altering dietary practices towards relatively more nutritious choices .Effective screening of patients during a dental examination may accordingly alert clinicians to related medical and family history as well as risk factors for PCOS and assist in referral for appropriate consultation and advice.

CONCLUSION

Within the limitations of the present study, it can be concluded that relatively greater gingival inflammation was observed in patients with PCOS compared to healthy controls, independent of the risk factors present.It can be hypothesized that PCOS patients may tend to have increased gingival inflammation and gingival bleeding, when compared with healthy individuals.Further longitudinal study have to been done to compare the gingival status for further diagnosis of periodontal diseases

CONFLICT OF INTEREST

Nil

FUNDING

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