Prevalence of smoking habit and its variations in patients reporting to a private dental institution: a retrospective study

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Abstract: The prevalence of tobacco use has increased over the past decades. Traditional forms like betel quid, tobacco with lime and tobacco tooth powder are commonly used, and the use of new products is increasing, not only among men but also among children, teenagers and women. The aim of the study is to find the prevalence of smoking habits and its variations in patients reporting to a private Dental University, India. The case sheets of patients were obtained from the patient record system. The data of each patient regarding the duration, type and pattern of smoking habit was obtained and tabulated. The results of the study show prevalence of the pattern of smoking habit in conventional smoking is 69% and in reverse smoking is 31%. Prevalence of type of smoking tobacco showed prevalence of cigarettes to be 96% and to be bidi 4%. The present study shows there is a significant association based on comparison of age with pattern of smoking and age with the duration of smoking done using chi square test (p value-0.000). Thus higher prevalence was seen in the age group of 41-60 years (48%), 21-40 years (42%) and in males with cigarettes being the most preferred smoking tobacco. As cigarettes are accessible, it is also more carcinogenic and it is increasing among the youth, hence precautions must be taken in earlier age groups of 21-40 years for early interventions such as anti tobacco sessions and guidance to decrease the consumption of tobacco.

Keywords: forms; harmful effects; reverse smoking; smoking; tobacco

INTRODUCTION

Tobacco smoking is linked with many serious illnesses, such as cancer, cardiopulmonary diseases, low birthweight, as well as with many health problems (Wald and Hackshaw, 1996). It is also linked to a detrimental impact on oral health, such as increasing risk of periodontal (gum) diseases. In addition, dental implant failure is more common among smokers than among non-smokers, and peri-implantitis among smokers is also more prevalent (Haas et al., 1996). Tobacco is present in two forms such as smoking and smokeless forms. People are involved in habits of using the smoking form, smokeless form or a combination of both. These may induce a variety of oral manifestations of diseases. These lesions most likely result from the many irritants, toxins, and carcinogens found in the smoke emitted from burning tobacco, but they may also arise from drying of the mucosa by the high intra-oral temperature, pH change, alteration in immune response, or altered resistance to fungal or viral infections. Other effects include halitosis, staining of teeth and composite restorations, decreased ability to taste and smell, and nicotinic stomatitis and keratosis. Most of these problems are reversible after cessation of tobacco use (Asmussen and Hansen, 1986) (Mehta et al., 1977) (Venugopal and Maheswari, 2016). The common type of tobacco usage in India includes both the smoking and the nonsmoking forms. The few reports of tobacco use in different population groups report its prevalence from about 15% to over 50% among men (Reddy and Gupta, 2004) (Malaowalla et al., 1976). Differences in the prevalence rates are rather wide for the nonsmoking form of tobacco. Tobacco smoking in most parts of India is reported in about one fourth to half of adult men of over 15 years of age, except in Punjab, Maharashtra and Sikkim (Behera and Malik, 1987). In the North Eastern states, Jammu & Kashmir and Bihar, while most other parts of India had prevalence rates of about 4 percent or less 8, amongst women, smoking was more common.

In other reports, smoking among the school going youth of 13- 15 years age, studied as a part of the Global Youth Tobacco Survey (GYTS) study was reported on an average in upto about 10 percent individuals (Pandey et al., 2001) (Dharman and Muthukrishnan, 2016).

Efforts need to be taken for monitoring usage on tobacco and prevention; protecting people from tobacco smoke; offering help to give up tobacco use; warning people about the hazards of tobacco; enforcing bans on tobacco advertising; promotion and sponsorship to raise taxes on tobacco.

India is the second largest producer as well as consumer of tobacco after China. Tobacco use is very rampant varying across different geographical regions of the country in both forms: smoking and smokeless. The use of tobacco in dual form makes its control even more challenging; this situation is made worse by the fact that the presence of nitrosamines makes smokeless tobacco (SLT) use more addictive than smoking form (Sarkar, Roy and Nongpiur, 2019).

Twenty years ago, it was suggested that "the nutrition-mediated effects of smoking, in terms of chronic undernutrition as well as survival, are likely to be far more important than the direct consequences of smoking on health" (World Health Organization, 2013) (Chaitanya et al., 2017).

Previously our team had conducted numerous studies which include systematic reviews (Maheswari et al., 2018) (Muthukrishnan and Warnakulasuriya, 2018) (Chaitanya et al., 2018) (Subha and Arvind, 2019) , clinical trials (Misra et al., 2015) (Steele et al., 2015) (Patil et al., 2018) (Rohini and Jayanth Kumar, 2017), epidemiological surveys (Subashri and Maheshwari, 2016) and case reports (Muthukrishnan, Bijai Kumar and Ramalingam, 2016) (Muthukrishnan and Bijai Kumar, 2017) (Choudhury et al., 2015). Our team has rich experience in research and we have collaborated with numerous authors over various topics in the past decade (Deogade, Gupta and Ariga, 2018; Ezhilarasan, 2018; Ezhilarasan, Sokal and Najimi, 2018; Jeevanandan and Govindaraju, 2018; J et al., 2018; Menon et al., 2018; Prabakar et al., 2018; Rajeshkumar et al., 2018, 2019; Vishnu Prasad et al., 2018; Wahab et al., 2018; Dua et al., 2019; Duraisamy et al., 2019; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Gheena and Ezhilarasan, 2019; Malli Sureshbabu et al., 2019; Mehta et al., 2019; Panchal, Jeevanandan and Subramanian, 2019; Rajendran et al., 2019; Ramakrishnan, Dhanalakshmi and Subramanian, 2019; Sharma et al., 2019; Varghese, Ramesh and Veeraiyan, 2019; Gomathi et al., 2020; Samuel, Acharya and Rao, 2020)

The present study was designed to be a retrospective study, to assess and quantify the prevalence of the type of smoking habits and its variations in patients reporting to a private dental college.

MATERIALS AND METHOD

The present retrospective study was carried out in patients reporting to a Private Dental University Hospital, Chennai, Tamil Nadu. The study was of university setting and carried out using data collected from patient management software from June 2019-April 2020. The advantage of using a university setting is that data is readily available and patients are of similar ethnicity. The disadvantage of this type of setting is that it covers a specific geographic area and trends in other locations, patients with multiple habits are not assessed. Ethical approval was obtained for data retrieval from the obtained from the Institutional Ethical Committee-SDC/SIHEC/2020/DIASDATA/0619-0320. The data was reviewed by 2 reviewers. Case verification was done by 2 reviewers and was verified using photographs. Convenient sampling of the available data was done. The sample size consisted of 160 patients who had smoking habits. Inclusion criteria included all the patients with smoking habits. The data regarding the pattern of smoking, duration and type of smoking tobacco was recorded.

Data collection was carried out using dental archives obtained from the patient management software. Data verification was carried out. The data was tabulated using Microsoft Excel. Censored or incomplete data was excluded from the study.

Statistical analysis

The data was imported to SPSS software developed by IBM for statistical analysis. Descriptive analysis of frequency, percentage of parameters was employed in the analysis. Chi square test was used to detect the association between age and duration of smoking and age and pattern of habit. p value less than 0.05 was considered statistically significant.

RESULTS AND DISCUSSION

Prevalence of the pattern of smoking habit in conventional smoking is 69% and in reverse smoking is 31%. Prevalence of type of smoking tobacco showed cigarette 96% and bidi 4%. Prevalence of duration of smoking was 78% in the duration range of 1-10 years.

Graph 1 shows prevalence of smoking in gender, which was more in males (97.50%) than in females (2.50%).

Graph 2 shows the prevalence of smoking tobacco in different age groups using frequency tests, 47.50% in the age group 41-60 years and 41.88% in the age group 21-40 years.

Graph 3 shows the prevalence of patterns of smoking habits using frequency tests, in which conventional smoking is 68.75% and reverse smoking is 31.25%.

Graph 4 shows the prevalence of type of smoking tobacco using frequency tests, cigarette usage is 95.63% and bidi usage is 4.38%.

Graph 5 shows the association between age and duration of smoking tobacco, pearson chi square value- 37.799, p value- 0.000 <0.05; statistically significant implying that duration of smoking of 1-10 years was seen to be at a higher incidence particularly in the age group 21-40 years (40%) when compared to the other age groups.

Graph 6 shows the association between age and patterns of smoking tobacco, pearson chi square value- 23.548, p value- 0.000 <0.05; statistically significant implying that conventional smoking pattern was seen to be at a higher incidence particularly in the age group 21-40 years (36.86%) when compared to the other age groups.

With regard to prevalence of smoking in gender, similar findings were observed in a study by Chinwong et al where the prevalence was 88% males and 12% females (Chinwong et al., 2018). A study by Jindhal et al showed prevalence of smoking to be 28.5% in men and 2.1% in women (Jindal, 2006). The reason being attributed that males are more exposed during adolescence and peer pressure. Low education, poverty and male gender are the more frequently reported factors of importance among smokers. With each diminishing income quintile the regular use of both tobacco and alcohol increased significantly.

Prevalence of smoking in different age groups, showed a similar evidence in a study done by Neelopant et al in which 32.6% were in the age group 36-45 years, 23% were in the age group 46-55 years, 10.3% were in the age group 56-65 years (Bhattacharyya et al., 2018). Sarkar et al showed same evidence of prevalence of 21.5% in age group of 44–60 years (Sarkar, Roy and Nongpiur, 2019)

The present study reported a higher prevalence of tobacco use among men above the age of 18 years. With regard to age and type of tobacco, the use varied. Most of the smokers used both cigarettes and bidis. There was a significant association with sociodemographic factors and reasons like different areas and different lifestyles have varied patterns.

Our study showed that conventional patterns of smoking habit had a higher prevalence when compared to reverse smoking, which was in contrary to the findings in a study by Ramesh et al which showed a prevalence of 81% for the reverse smoking habit (Ramesh et al., 2014). Metha et al showed popularity of reverse smoking in Andhra population in which 43-8 % were practising reverse smoking as a sole habit especially being more prevalent in female population than male population (Mehta et al., 1977). Reasons for the practice of reverse smoking habit was it was followed as a tradition and as a myth that it would cure toothache.

Such a habit can be prevented before spreading from one place to another with proper education in the low socioeconomic community thus preventing oral cancer. Jindal et al showed that in their study, the prevalence of smoking tobacco was cigarettes 47.5% and bidi 51.7% (Jindal, 2006). Mishra et al showed the same evidence that cigarette smoking are displacing bidis, especially among younger men (Mishra et al., 2016). Efroymson et al showed cigarettes consumption and usage at peak (80%) (Efroymson et al., 2001). The reason for this changed habits could be different areas with different types of smoking popularity.

Cigarettes are displacing bidi smoking, most notably among young adult men and illiterate men. Tobacco control policies got to adapt to those changes, most notably with higher taxation on tobacco products, so as to raise the currently low levels of adult smoking cessation. The economic aspects of tobacco frequently specialise in price elasticity, tax revenues, and spending on tobacco related disease. The opportunity cost of tobacco use for the poor has received much less attention.

Jena et al showed that hardcore smokers is a real threat to tobacco control interventions with habit for over 5 years (Jena and Kishore, 2012). Lopez et al also demonstrated the cigarette epidemic for a period of 10 years (Lopez, Collishaw and Piha, 1994). Reasons include it was believed to reduce stress as a habit practice.

The findings from the present study adds to the consensus of the previous study. Clinicians should be aware of the occurrence and close monitoring and follow up is required to demonstrate the clinical behavior.

Our study has limitations that must be taken into account for an adequate interpretation of its results such as geographic limitation, confounding factors and does not represent all the ethnic groups or populations from around the world.

Benefit of the study includes the need to educate people on the effects of smoking tobacco to be carcinogenic and very addictive. The need to intervene in early age groups of 21-40 years which are equally prevalent for habit usage and suggest guidance for habit withdrawal and prevention.

As these habits are prone to the development of tobacco related lesions, the long term follow up of such cases can be done which may benefit the patients for early intervention and treatment. Cigarette smoking is increasing among age groups that is more carcinogenic and anti tobacco intervention and counseling to be done.Our institution is passionate about high quality evidence based research and has excelled in various fields ((Pc, Marimuthu and Devadoss, 2018; Ramesh et al., 2018; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Ramadurai et al., 2019; Sridharan et al., 2019; Vijayashree Priyadharsini, 2019; Mathew et al., 2020)
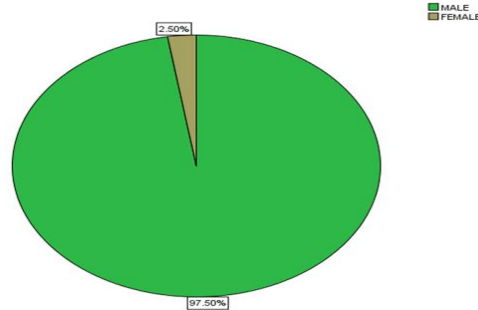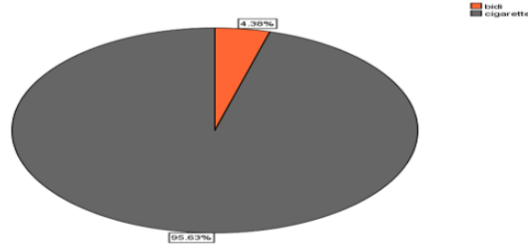

Graph 1: reveals the prevalence of smoking habits based on gender. It was observed that a higher prevalence rate was found in male population (97.50 %) when compared to the female population (2.50%).
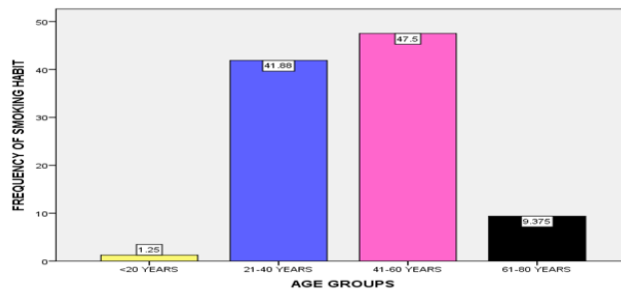

Graph 2: reveals prevalence of smoking habits in different age groups. X- axis represents the age group and the Y- axis represents the frequency of smoking habits. Highest prevalence of smoking was seen in the age group of 41-60 years (47.50%), in 21-40 years (41.88%), in 61-80 years (9.383%) and in less than 20 years (1.25%) was seen.
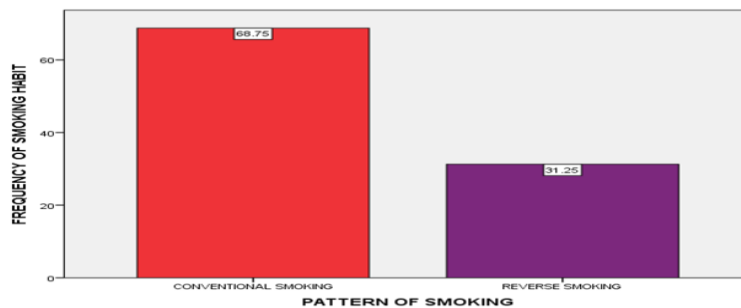

Graph 3: reveals prevalence of patterns of smoking habits. X axis represents the pattern of habit and Y axis represents the frequency of smoking habit. It was observed that conventional smoking habits had a higher prevalence rate (68.75 %) when compared to reverse smoking (31.25%).

Graph 4: reveals prevalence of type of smoking tobacco. It was observed that cigarette smoking habits had a higher prevalence rate (95.63 %) when compared to bidi smoking (4.38%).
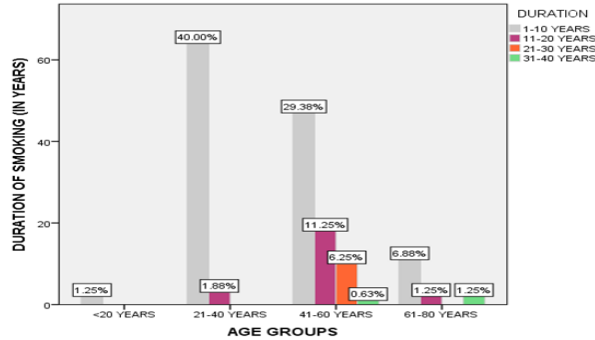
Graph 5: reveals the association between age and duration of smoking tobacco. X axis represents the age groups and Y axis represents the duration of smoking habit(in years). Pearson chi square value- 37.799, p value- 0.000 <0.05; statistically significant implying that duration of smoking of 1-10 years was seen to be at a higher incidence particularly in the age group 21-40 years (40%) when compared to the other age groups.
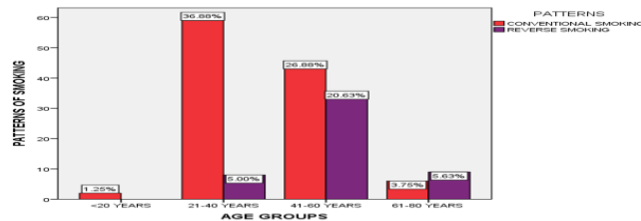
Graph 6: reveals the association between age and patterns of smoking tobacco. X-axis represents the age groups and Y-axis represents the patterns of smoking tobacco. Pearson chi square value- 23.548, p value- 0.000 <0.05; statistically significant implying that conventional smoking pattern was seen to be at a higher incidence particularly in the age group 21-40 years (36.86%) when compared to the other age groups.

CONCLUSION

Within the limitations of the study, prevalence was seen in the age group of 41-60 years (48%), 21-40 years (42%) and in males with cigarettes being the most preferred smoking tobacco. As cigarettes are accessible, it is also more carcinogenic and it is increasing among the youth, hence precautions must be taken in earlier age groups of 21-40 years for early interventions such as anti tobacco sessions and guidance to decrease the consumption of tobacco.

AUTHOR CONTRIBUTIONS

First author (Pavithra H Dave) performed the analysis, interpretation and wrote the manuscript. Second author (Dr.T.N.Uma Maheswari) contributed to conception, data design, analysis, interpretation and critically revised the manuscript. Third author (Dr.Mahesh) participated in the study and revised the manuscript. All the three authors have discussed the results and contributed to the final manuscript.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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