ISSN: 0975-833X

Available online at http://www.journalcra.com

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

International Journal of Current Research
Vol. 14, Issue, 01, pp.20384-20387, January, 2022

DOI: https://doi.org/10.24941/ijcr.42758.01.2022

RESEARCH ARTICLE

A RETROSPECTIVE STUDY ON THE PREVALENCE OF TOOTH DISCOLOURATION AMONG DENTAL PATIENTS IN FEDERAL MEDICAL CENTRE ASABA, DELTA STATE, NIGERIA

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ARTICLE INFO

Article History:
Received 17th October, 2021
Received in revised form
15th November, 2021
Accepted 20th December, 2021
Published online 31st January, 2022

Keywords:

Asaba, Delta State,
Discolouration,
Tooth, Prevalence.

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ABSTRACT

Objective: This retrospective study was conducted to elucidate the prevalence of tooth discolouration among patients considering their gender and age. **Methods:** A simple random sampling technique was employed to obtain samples from the study population. Data obtained from the sampled population were 199 subjects, of which 104 were females and 95 were males. The data were collected from patients who attended the Dentistry Department of Federal Medical Centre, Asaba, Delta State, between September 2016 to September 2017. The obtained data were analysed using Statistical Package for Social Sciences (SPSS, Version 22). Ethical approval for this research was granted bythe Research and Ethics Committee of the Department of Human Anatomy and Cell Biology, Delta State University, Abraka. **Results:** The prevalence of tooth discolouration was 58% of the studied population, which was noticed to decrease with age. However, tooth discolouration appeared to be more predominant in the 28-37years age group. It was also observed that tooth discolouration was more prevalent among males than in females and a significant relationship between gender and age to tooth discolouration was closely observed. **Conclusion:** Discoloured dentition is a common diagnosis observed by the medical and dental practitioners in their routine clinical practices. This is so rampant among the youths of the studied populationprobably as a result of their social and unhygienic lifestyles.

Citation: Eloho N. Igbinedion, Ahama, E. EFE. and Oghene Joy. *"*A Retrospective Study on the Prevalence of Tooth Discolouration among Dental Patients in Federal Medical Centre Asaba, Delta State, Nigeria.", *2022. International Journal of Current Research, 14, (01), 20384-20387.*

INTRODUCTION

Tooth discolouration in our recent day dispensation is mostly sequel to dental pain, which may be linked with embarrassment, negative emotions and low self-esteem that comes with it (Okuda, 2000)[1]. Its displeasing and psychologically placed distress on patient makes it a priority to seek dental care (Manuel *et al.*, 2010). A study showed that dental aesthetics has great role to play as regards beauty and masticatory functions in individuals (Joiner, 2006)[3]. Another study has proven that the appearance of teeth is determined by socio-cultural values and individual preferences (Vallittu *et al.*, 1996). A study which was conducted by Bryan and Welbury (2003) stated that aesthetic challenges in childhood and adolescence has a great effect on psychosocial growth and interrelationships among peers. Tooth discolouration is a change in the colour of a tooth from its whitish colour to creamy yellow, which is mostly common in children (Robinson, 2008). This discolouration is believed to get worsened as age increases in an individual, if proper dental care is not maintained (Robinson,2008)[6]. The major causes of tooth discolouration is focused on intrinsic (mostly drugs) and extrinsic origin (toxic substance and food) or even the combination of both, as they have an effect on the enamel, cementum and dentine of the tooth (Garcia *et al.,* 2001; Watt &Addy, 2001[8]). Report has it that effect on the layers of the human dentition, always comes first with observable differences in the colour of the teeth (Hattab *et al.,* 1999). Studies have shown that several factors could lead to tooth discolouration. These factors may be categorised into genetics, (Regezi *et al.*, 2003; Wright *et al.*, 1991; Greenberg & Glick, 2003) congenital factors, (Pindborg, 1982) acquired or environmental factors and iatrogenic factors (Van der Burgt *et al.*, 1986). It may also be due to structural alterations of dental hard tissues and incorporation or deposition of endogenous stains (Schroeder, 1997). Discolouration is found on the external part of the tooth mostly on the enamel or dentine and sometimes occurs during tooth growth resulting in the alteration of the normal teeth appearance (Sanchez *et al.*, 2014). Studies have also shown that tetracycline causes tooth discolouration in about 50% of infants (Cheek & Heymann, 1999) that were exposed to it during embryonic development,

which most times leads to associated enamel hypoplasia. It has also been reported to affect adult dentition (Cheek & Heymann, 1999). In the early 1960's, clinical evidence revealed that tetracycline caused tooth discolouration when administered during tooth development (Tredwin *et al.*, 2005). However, studies have suggested that a concurrent use of Vitamin C and other antioxidants help prevent adult onset of tooth discolouration caused by tetracycline. Therefore, the purpose of this study was to ascertain the prevalence of tooth discolouration among adults with respect to their age and gender.

MATERIALS AND METHODS

This is a retrospective cross sectional study that utilised a simple random sampling technique to obtain samples from the studied population. The sample obtained for the study was 199, comprising 104 females and 95 males who were within the age range of 18 and 65 years. The data were collected from patients who attended the Dentistry Department of Federal Medical Centre, Asaba, Delta State between September 2016 and September 2017. Patients' data (laboratory number, gender, age, indication and diagnosis) were retrieved from the records of the Dentistry Department of Federal Medical Centre, Asaba, Delta State and recorded on a data collection sheet. Inclusion and exclusion criteria such as: proper documentation of patient details, age limits as well as facial and/or tooth abnormalities were considered. The data were analysed using Statistical Package for Social Sciences (SPSS, Version 22).The results were presented in frequency tables; Chi square was used to test for the statistical difference between genders; while correlation was used to show the statistical differences between age and prevalence of tooth discolouration.Ethical approval for this research was acquired from the Research and Ethics Committee of the Department of Human Anatomy and Cell Biology, Faculty of Basic Medical Sciences, College of Health Sciences, Delta State University, Abraka.

RESULTS

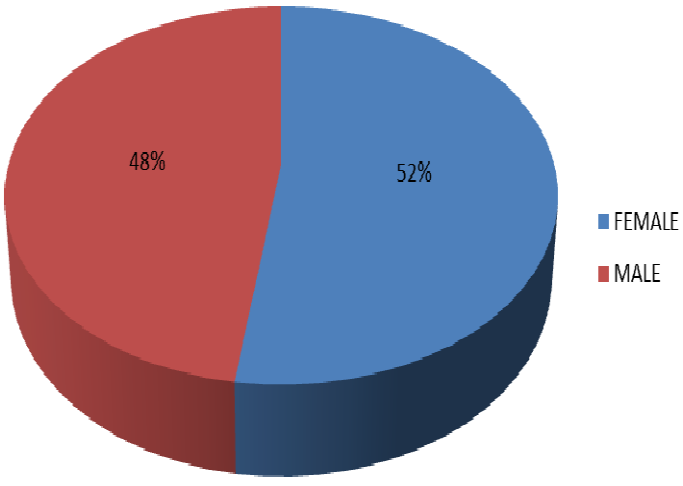

Figure 1. Demographic Data of Study Population based on Gender

The demographic data of this study showed that a total of 199 patients visited the dentistry unit of the Federal Medical Centre, Asaba, Delta State during the study period. Based on gender, it was observed that of the 199 subjects, 104 were females while 95 were males as shown in Figure 1.

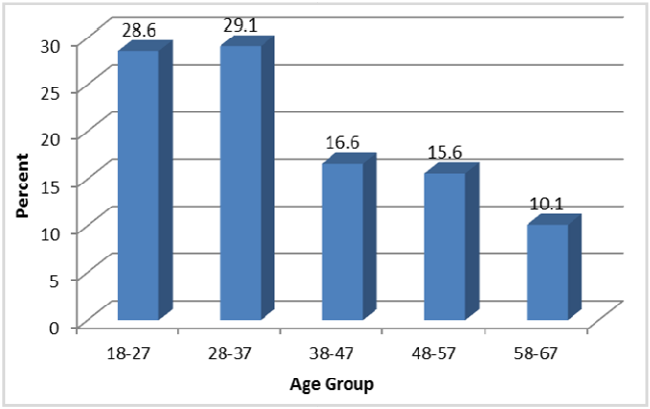

Figure 2. Demographic Data of Study Population based on Age

The age of subjects were grouped into 18-27 (57 subjects), 28-37 (58 subjects), 38-47 (33 subjects), 48-57 (31 subjects) and 58-67 (20 subjects). Thus the age range of 28-37 had the most participants while 58-67 had the least as presented in Figure 2.

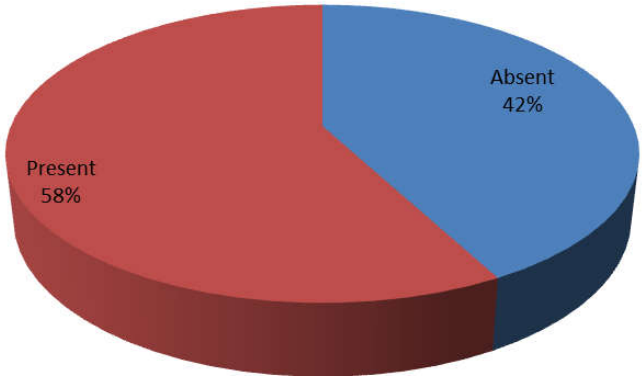

Figure 3. Occurrence of Tooth Discolouration

As seen in Figure 3, the percentage of subjects with tooth discolouration was also ascertained. 115subjectshad tooth discolouration while 84 subjects lacked it. The prevalence of tooth discolouration was determined based on gender in the studied population as presented in the table below. It was observed that the prevalence of tooth discolouration among females (26.10%) was lower than that of their male counterparts (31.70%). Also, the mean of tooth discolouration among males was higher than among females and this difference was statistically significant ($p<0.05$).Thus, the gender of an individual could be used to predict the likeliness of an individual having tooth discolouration. The prevalence of tooth discolouration was also determined based on age in the study population as presented in the table 2. It was shown that the prevalence of tooth discolouration among the age range of 28-37 (19.60%) was the highest while it was least among the age range of 58-67 (5.50%). Also, there was a negative correlation between age and tooth discolouration. Moreover, tooth discolouration was seen to decrease with age in the study population. Hence, age could be used to predict the probability of occurrence of tooth colouration in an individual.

DISCUSSION

Teeth is an important part of the oral cavity which aids chewing, speech making and contributes to facial appearance. The colour of teeth varies from white to creamy yellow (Robinson, 2008).

Table 1. Prevalence of Tooth Discolouration Based on Gender

Gender	Absent	Present	Mean	±	Std.Dev	df	*p*-value
Female	52	52	1.5	±	0.475	197	0.022
	26.10%	26.10%					
Male	32	63	1.66	±	0.502		
	16.10%	31.70%					
Total	84	115					
	42.20%	57.80%					

Table 2. Prevalence of Tooth Discolouration Based on Age

Age Group	Absent	Present	r	*p*-value
18-27	25	32	-0.067	0.350
	12.60%	16.10%		
28-37	19	39		
	9.50%	19.60%		
38-47	14	19		
	7.00%	9.50%		
48-57	17	14		
	8.50%	7.00%		
58-67	9	11		
	4.50%	5.50%		
Total	84	115		
	42.20%	57.80%		

Discolouration of teeth is an aesthetic problem that is linked to a variety of causes and it could be a source of embarrassment, leading to reduced self-esteem (Okudu, 2000)[1]. This study involved a total of 199 cases comprising 104 females of about 52.3%and 95 male with about 47.7%, with age range of 18 to 65 years. During the course of the study observations were focused on the prevalence of tooth discolouration among male and female of the aforementioned age range with a general estimation of individual with decolourized tooth of about 58% and non-colourized tooth of about 42% (Mohammed *et al.,* 2014[19]; Ibeyemi, *et al.,* 2017). Result from the study shows that tooth discolouration is found to be prevalence in male, as compared to the female counterpart and difference between sex and prevalence of tooth discoloration is statistically significant ($P< 0.05$).This may be due to the use of tobacco related products, which is in agreement with a study conducted by Mithra *et al.,* (2016) stating tooth discolouration prevalence in male than in female counterpart due to some extrinsic and intrinsic stains pinpointing tobacco as a major cause of discolouration to male tooth. This is not in agreement with a study conducted by Mohammed *et al.,* (2014) were He recorded a high significance of tooth discoloration which was associated with the use of tobacco in female counterpart.

Report from the index study also depict that individual of age range 28-37 years has high frequency of decolourized tooth, as compared to individual of age range 58-67 years with a low frequency of decolourized tooth. This is result is concomitant with the result shown on the prevalence of tooth decolouration in individual, this is attributed to the lack of awareness and low level of education among young age group as compared to the older individual. This is in agreement with a study conducted by Oredugba and Akindayomi, 2008 and Nagahama *et al.,* 2002, stating in their study, that it is expected that the higher the educational level of an individual, the better the health seeking behaviour of that individual. The index study also depicts a difference between age range and prevalence of tooth discoloration to be statistically significant ($P< 0.05$). This is traceable to the good oral hygiene among older individual and this is in agreement with a study conducted by Ghassemi *et al*., 2015, stating that low percentile of tooth discoloration highlights the importance of home tooth brushing as an important measure to minimize tooth discoloration. This is also strongly supported by a study conducted by Gunvi & Anna, 2015[25] stating the oral health related quality in young ones which is poor and merits constant follow up.

CONCLUSION

This study showed a high occurrence of tooth discolourationamong males than in females with a statistical significance and the pervasiveness of tooth discolourationis peaked at age 28-37 years among the studied population.

Conflict of Interest: None

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, ornot-for-profit sectors.

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