

PREVALENCE AND ASSOCIATED RISK FACTORS OF DENTAL STAINS AMONG SCHOOL-GOING CHILDREN IN TALASH DIR (LOWER) KHYBER PAKHTUNKHWA

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ABSTRACT

Objective: To determine the Prevalence and risk factors of dental stains among school-going children in Talash Dir (Lower) Khyber Pakhtunkhwa.

Material & Methods: An Analytical cross-sectional study was carried out in school-going children in Talash Dir (Lower) Khyber Pakhtunkhwa. The period, time of this study was six months. Two hundred and twenty-six was the sample size, and the Non-Probability convenience sampling technique was adopted for this study. Mentally disabled students were excluded. Data were collected through questionnaires, and student's mouth examined. The data were analyzed in SPSS version 22.

Results: Total 226 school-going were examined in the current study. 199 were males, and 27 were females. 32.30% (n=73) of children had dental stains. 59.25% (n=16) female had dental stains, and 28.64% (n=57) males were affected with dental stains. Following variables were found risk factor for dental stains; Family history, Smoking and cleaning teeth because each one's P-value was less than 0.05.

Conclusion: Dental stains were found as aesthetic problem in school-going children. Almost every third child were having dental stains. if it is not treated on time it can lead several dental diseases.

Key Words: Children, Dental, Prevalence, Risk factor, Stain.

This article may be cited as: Ullah R, Ullah S, Khan R, Khan M, Ullah I, Zulfiqar R. Prevalence and associated risk factors of dental stains among school-going children in Talash Dir (lower) Khyber Pakhtunkhwa, Ann Allied Health Sci. 2021; 7(2):52-55.

INTRODUCTION

Tooth staining is a common clinical and esthetic problem often, resulting in low confidence and a source of embarrassment, especially in young patients. Black stains associated with chromogenic bacteria are a common aesthetic problem. Causes of extrinsic tooth pigmentation include betel leaf chewing, smoking, use of mouth rinses like chlorhexidine, increased intake of coffee and tea, intake of iron supplements in the form of tonics, etc.¹ Black extrinsic tooth stains are common in children. The first step in tooth staining is Pellicle formation. After few hours, bacterial growth leads to the formation of plaque.² Dental stains are classified into Extrinsic stains and Intrinsic. Extrinsic stains are present in different forms i.e., Brown stains, black stains, green stains, orange stains. Intrinsic

stains are present in the form of white stains, yellow stains, brown stains, Blue, gray or black stains.³ Risk factor includes Diet, Habits (Tobacco consumption), Medication factor (Chlorhexidine, systemic medication like Minocycline Doxycycline, Co-Amoxiclav, Linezolid), Occupational and environmental factor (Industrial exposure to manganese, iron, silver).^{4,5} Several studies conducted on dental stains, like a study in brazil in which black stains were observed in 25% of children.⁶ Study was conducted in Spain in which 3272 children were followed for dental stains, prevalence of black stain was 3.1% in the total sample.⁶ Study was conducted in United Arab Emirate; the frequency of tooth discoloration amongst the participants was 43.5%.⁷ In Turkey Black stain was observed in 60 children (18.5%).⁸ According to a study of Feng X-P et al; in China

preschool children were invited for dental stains investigation, 9.9% of the children were having dental stains based on study's results.^{8,9} A Study that was conducted in India, in which the overall prevalence of black stains was 18% (50.8% females children and 49.2% males children).¹⁰ Another survey was performed in India in which the prevalence of black tooth stains was found to be 20%.¹¹ The aim of this study was to determine the prevalence of dental stains and associated risk factors of dental stains among school-going children.

MATERIAL AND METHODS

An Analytical cross-sectional study was conducted to determine the Prevalence and associated risk factors of dental stains among school-going children in Talash Dir during a period of six-month from (1 August 2019 to 31 January 2019). The sample size for this study was two hundred and twenty-six by keeping 95% of the confidence interval, and P-value was 18.5%. The Non-Probability Convenience sampling technique was adopted for this study. The study was conducted designing a questionnaire comprising of queries and examined by using examination instruments (Probe, Mouth mirror) to evaluate the Prevalence and associated factors of stains among school-going children. Mentally disabled students were excluded from this study. Following variables were studied; gender, family history of dental stain, consumption of sweets/sugar, frequency of sweets intake, smoking status, frequency of smoking, cleansing of teeth, teeth cleaning tool, frequency of brushing, types of brush used, information about the soft drinks, frequency of soft drinking, taking tea, frequency of tea taking. The data were analyzed in SPSS version 22. The descriptive analysis applied to find out frequency's qualitative variables like gender and for quantitative variable mean \pm SD calculated.

RESULTS

Two hundred and six children have participated in this study, in which 32.30% (n=72) were having stains. 88.05% (n=199) were males and 11.95% (n=27) were females. Among them, (28.64%) (n=57) males had dental stains, and (59.25%) female children having stains. On the

basis of types of stain, 27.87% (n=63), children had extrinsic dental stains, and 4.42% (n=10) were with intrinsic stains. Dental stains in 42.03% (n=95) were having a positive response to family history; among them 49.47% (n=47) were with dental stains, and 57.96% (n=131) having a negative response to family history question among them 80.15 (n=105) children having no dental stains. Consumption of sweet/sugar question 214 children taking sugar among them the Prevalence of dental stains was 33.17% (n=71). Question related to the frequency of sweets intakes 28.26% (n=92) children taking sugar Sometimes/not applicable among them the Prevalence of stains was 35.61% (n=26) children had stains. 38.49% (n=87) children used to take sweets/sugar daily; among them, 36.78% (n=32) were having dental stains. Children who used to take sugar/sweet weekly basis were 20.79% (n=47) among them, 31.91% (15) were having dental stains, regarding smoking status 5.30% (n=12) children were smokers, among them, 75%(n=9) were having dental stains. About smoking frequency, 4.42% (n=10) used to smoke sometimes, among them prevalence of dental stains was 20%. And 0.88% (n=2) of children were used to smoking on a daily basis, among them, dental stains were found in 0.44% (n=1) children. About brushing frequency, 15.48% (n=35) of children used to clean their teeth more than twice among them, the result of dental stains 14.28% (n=5). The children who brush their teeth twice daily were 33.62% (n=76) among them dental stains were found in 26.31% (n=20) children. Children who used to brush once daily/not applicable were 51.32% (n=116) among them, Prevalence of dental stains were found 41.37% (n=48) of children. Furthermore, 91.59% (n=207) children used soft drinks, among them the Prevalence of dental stains were found in 30.91% (n=64) children. Moreover, talking about children who used to take tea 100% (n=226), among them 32.30% (n=73) children had dental stains. While talking about tea intake frequency, 13.71% (n=31) were taking tea more than two times, among them, 32.25% (n=10) were having dental stains. 70.79% (n=160) children were taking tea twice daily, among them, the Prevalence of dental stains was 35% (n=56).

DISCUSSION

Black tooth stain is a characteristic of superficial pigmentation, which occurs along with the cervical third of the lingual or buccal surfaces of teeth, particularly in the primary dentition. However, the permanent dentition may be also concerned.¹² In the current study we find out dental stain, which statistically reveals that (32.30%) of children were having dental stains, while (67.70%) were not affected. A study that was conducted in UAE finds out that (42%) of tooth discoloration, which is nearly supporting our findings.¹³ Another study was conducted in Bangalore states that 25% of children were found with dental stains, which supports the current study findings.⁴ A study conducted in Italy concluded that dental stains were found in (37%) children. This study is in favor of the current study.¹⁴ A research conducted in India reveals that the overall prevalence of stains was (18%) and on the basis of gender-wise (50.8% females and 49.2% males) were having dental stains¹⁰. This study in contrast to the current study. A research was conducted in Spain in which the Prevalence of black stains was 3.1% in the total sample⁶. The higher prevalence of dental stains in the current study may be more risk factors indicators in present study. Furthermore, about risk factors for dental stain. We notice gender-wise; the female was more affected than male students. A study that was conducted in UAE to find out tooth discoloration among students of Gulf Medical University, gender-wise they find out the female were more affected than male students, 43.7% of female were affected from dental stains, this study supports the present study findings.¹⁵ Many other studies have been conducted throughout the globe to find out dental stains gender-wise, they find out that male was more affected than female. A study that was conducted in China, they find out that males were more affected than females, Dental stain was noted (10.1%) male children and (9.6%) in female children, which is in contrast to the current study.⁹ Female being more affected with the dental stain in the present study may be due to a lack of education and prevention. Another risk factor was smoking. Students who were smoking were more affected than those who were not smoking. Several studies conducted on dental stains also find out smoking as a risk factor for dental stains, which supports current study findings. A study was conducted at University of Bristle Dental School UK, and they find out smoking is a risk factor for dental stains. After studying many articles, we did not find any evidence about tobacco as a non-risk factor for dental stains.⁹ Another risk factor that we find out was brush frequency for tending teeth; children

who used to clean their teeth more than two times daily or twice daily were less affected than those who were cleaning their teeth one time daily. Several studies concluded that brushing frequency or bad oral hygiene is a risk factor for dental stains. A study in Bangalore states concluded the bad oral hygiene is a risk factor for dental stains, this study supports the current result.⁹ Several studies show in contrast to the present study that brushing frequency is not a risk factor for dental stains. A study, in UAE Ajman was conducted, and they did not find out brush frequency as a risk factor for dental stains, the Prevalence of brush frequency was 0.586, which is more than 0.05.¹⁵ A research conducted in China, brush frequency was checked in children, they also did not find out brush frequency as a risk factor for dental stains.⁹ We also find out family history as a risk factor for dental stains, tool of cleaning for teeth was also find out as a risk factor, and the type of brush used because their P values were less than 0.05.

CONCLUSION

Dental stains affected almost every third children. The prevalence was higher in females as compared to males. Accordingly, very little concentration has been given to follow up of Dental stains of children affected by these dental stains. Government should put its every effort on creating on mobile dental clinic and oral health promotion for prevention of dental stains to cause dental diseases because high prevalence of dental stains was found in school-going children.

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