

Professional training of importance of Fluoridated Tooth paste

Type of Research : Original Research

Running Title : Use of fluoridated dentifrice for children

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Abstract:-

Introduction:

Dental caries can begin early in life and the main ethology behind are frequent intake of sugars, improper feeding and lack of oral hygiene measures. Children suffering from caries as infants & toddlers have a greater probability of subsequent caries in both primary & permanent dentition, so in order to prevent this, dental practitioners have a key role in promoting preventive measures against dental caries. Among the various caries preventive strategies used, fluoride therapy has been the most effective method. During the last few years, there has been substantial decrease in caries and increased incidence of fluorosis and this has lead to greater attention and importance of topical fluoride therapy. Featherstone et al 1988 stated that the most important anti-caries effect of fluoride is considered to result from its action on tooth or plaque interface through promotion of remineralisation of early caries & reducing enamel solubility. Therefore, the aim of this study is to evaluate the knowledge and attitude among dental students regarding the use of fluoride toothpastes for children.

Materials and Methods:

A cross sectional descriptive, questionnaire based online survey was conducted among 10p dental students. A Self-administered, structured online questionnaire was sent to them for the assessment of their knowledge and attitude regarding the use of fluoride toothpastes in children and the data was analyzed using SPSS 27 software.

Results:

Among the study subjects, 40 % of the respondents considered that it is very important to brush a child's teeth with fluoride toothpaste. Whereas 66 % of them knew that 1000 ppm fluoride should be present in toothpaste for getting its benefit. 70 % of the respondents recommended Kids fluoride toothpaste for children and about 20.3 % of them think kid's toothpaste contains 1000 ppm fluoride. Only 18% of them recommended regular fluoride toothpaste for children. 60.7 % of the respondents knew about the symptoms seen when high amounts of fluoridated toothpaste were ingested. 52.3 % knew how to manage a child who had ingested high amounts of fluoride toothpaste and 64.7 % knew how to reduce the intake of toothpaste by children. 66 % of the respondents suggested twice daily brushing with fluoride toothpaste and 55 % of them suggested pea sized toothpaste for children below 3 years, p value is 0.001.

Conclusion:

By the above results if the survey it can be concluded that 5th year and PG students have a better knowledge about use of fluoride toothpaste for children than 3rd and 4th year students

Keywords: Attitude, Dental students, Fluoride Toothpaste, Knowledge, Innovative analysis

Introduction:-

Dental caries can begin early in life and the main etiology behind are frequent intake of sugars, improper feeding and lack of oral hygiene measures. Children suffering from caries as infants & toddlers have a greater probability of subsequent caries in both primary & permanent dentition, so in order to prevent this, dental students have a key role in promoting preventive measures against dental caries.[1]

Among the various caries preventive strategies used, fluoride therapy has been the most effective method. During the last few years, there has been substantial decrease in caries and increased incidence of fluorosis and this has led to greater attention and importance of topical fluoride therapy.[2] Featherstone et al 1988 stated that the most important anti-caries effect of fluoride is considered to result from its action on tooth or plaque interface through promotion of remineralization of early caries & reducing enamel solubility.[3]

Topical fluoride therapy can be given either by the use of fluoridated toothpastes, mouthrinses, gels and varnishes. Use of fluoride toothpaste has been the most recommended method to control and prevent dental caries.[4] The lack of knowledge and awareness among dental students regarding the use of fluoride toothpaste for younger children has led to inconsistent and conflicting recommendations to the caregivers of children thus limiting its efficacy. Our team has extensive knowledge and research experience that has translate into high quality publications[5–9][10–14][15–19][20–24]

Hence the goal of this study was to evaluate the knowledge and attitude among dental students regarding the use of fluoridated toothpaste for children. [25]

Materials and Methods:-

A web based cross-sectional survey was conducted among licensed dental students. A simple random sampling was done and a sample size of 100 dental students was decided. The survey ensured confidentiality as no personal information on the participants' identity was disclosed.

Ethical approval was obtained from the Institutional Review Board in Saveetha University.

The questionnaire was prepared by the researcher and consisted of 16 questions, which was organized into two parts: the first three questions elicited information on the demographic attributes of dental students including age, gender, and qualification.

The rest 13 close ended questions assessed the participant's knowledge and attitude regarding the use of fluoride toothpaste in children. The questionnaire included multiple-choice questions in which the respondents were instructed to choose only one appropriate response from a provided list of options.

Results:-

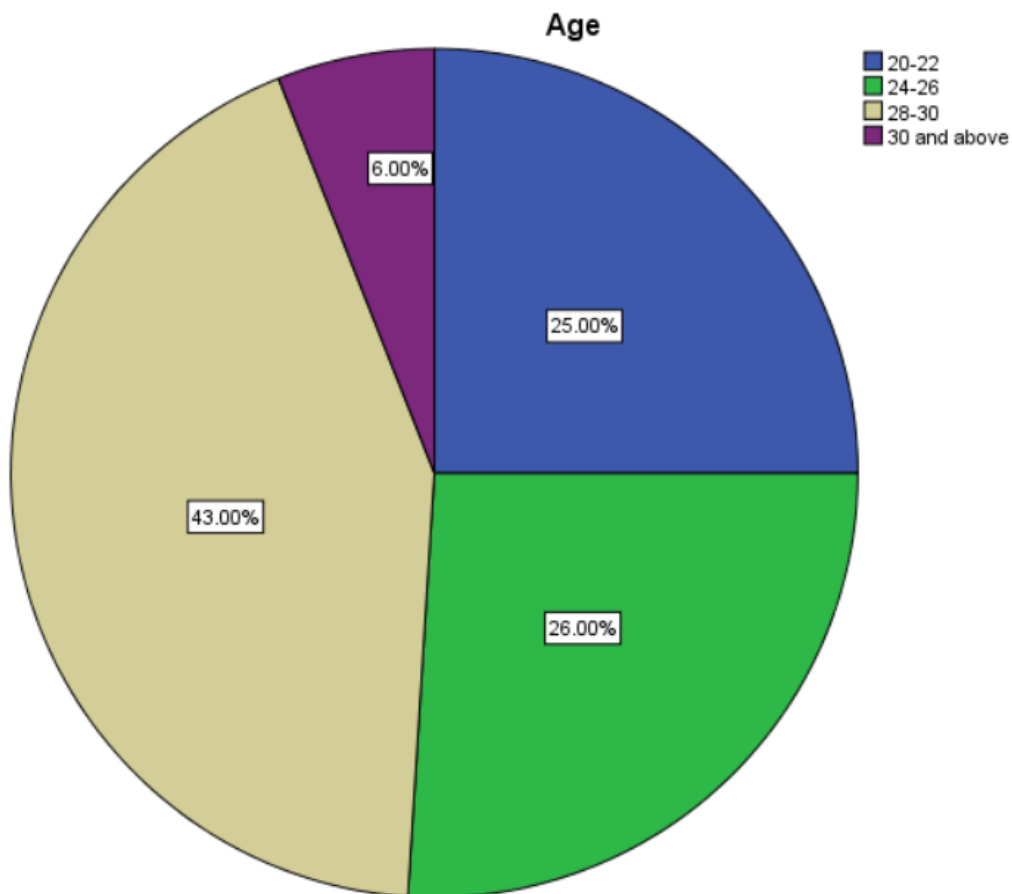


Figure 1 : The pie chart shows the percentage distribution of age group among dental students. 25% of the dental students belong to the age group of 20-22(blue), 26% of them belong to 24-26(green), 43% of them belong to 28-30 years of age group(cream) and the rest 6% belong to above 30 years of age group(purple).

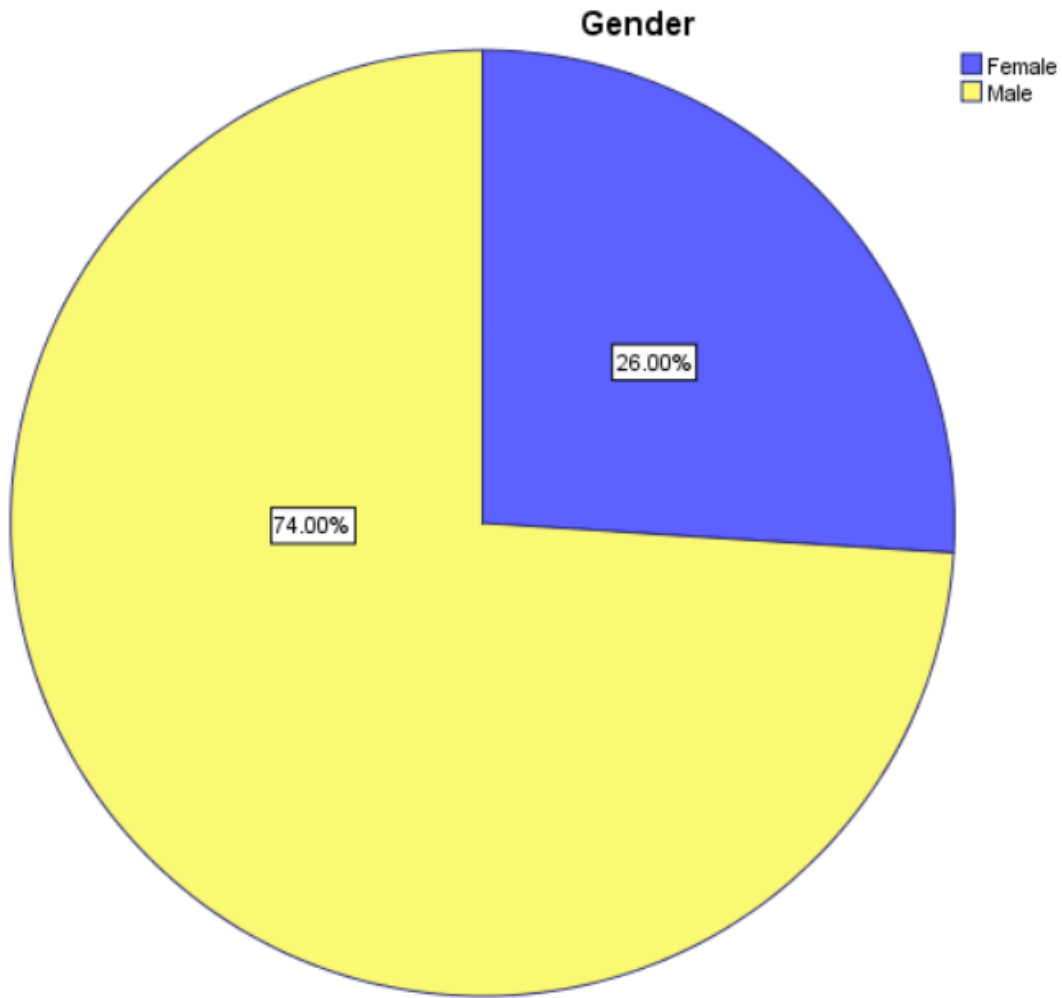


Figure 2 : The pie chart shows the percentage distribution of gender among dental students. 74% of them are males(yellow), and the other 26% are females(blue).

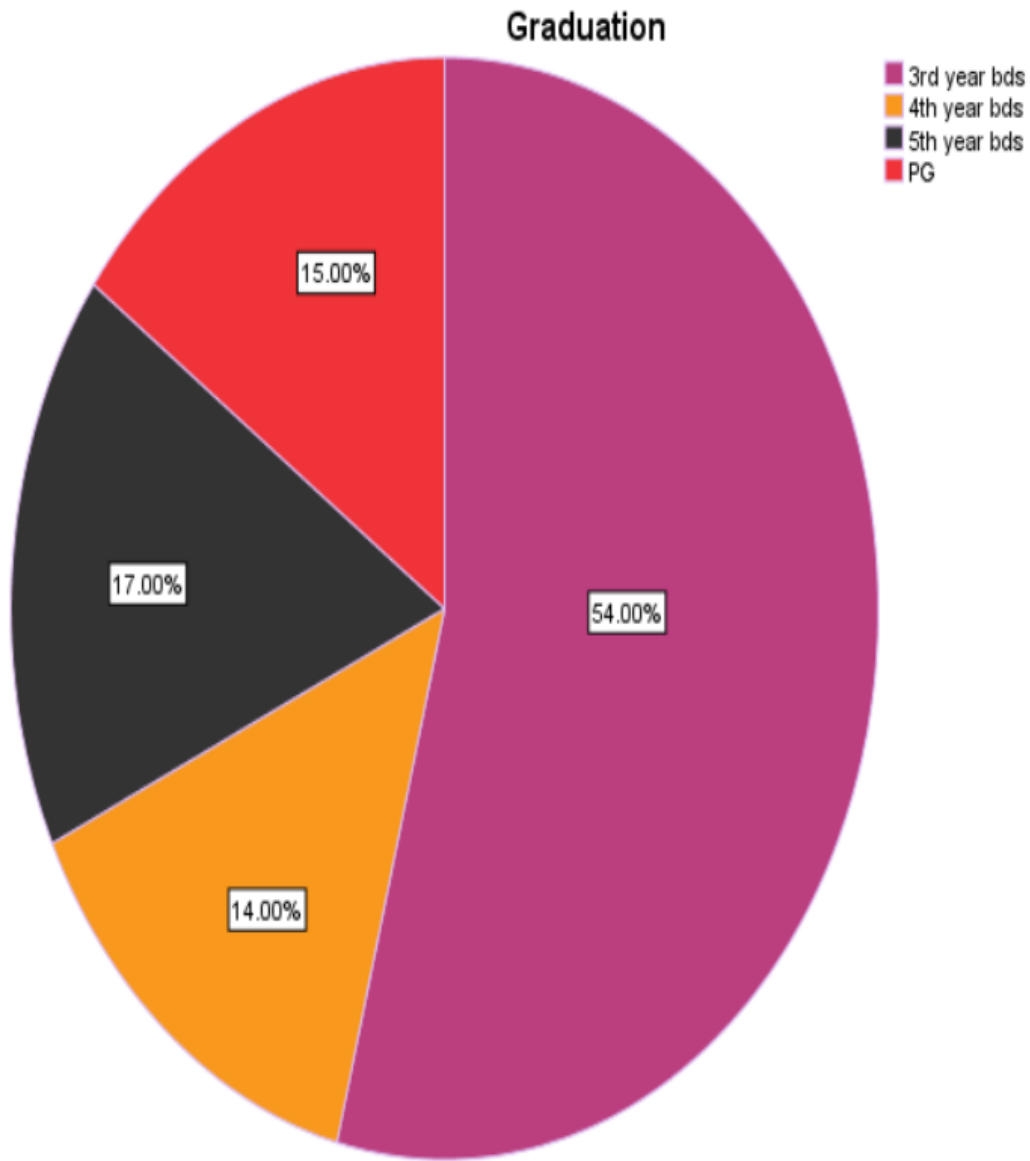


Figure 3 : The pie chart shows the percentage distribution of graduation among dental students. 54% of them belong to third year(pink), 14% of them belong to fourth year(orange), 17% of them belong to fifth year(black) and 15% of them belong to PG(red).

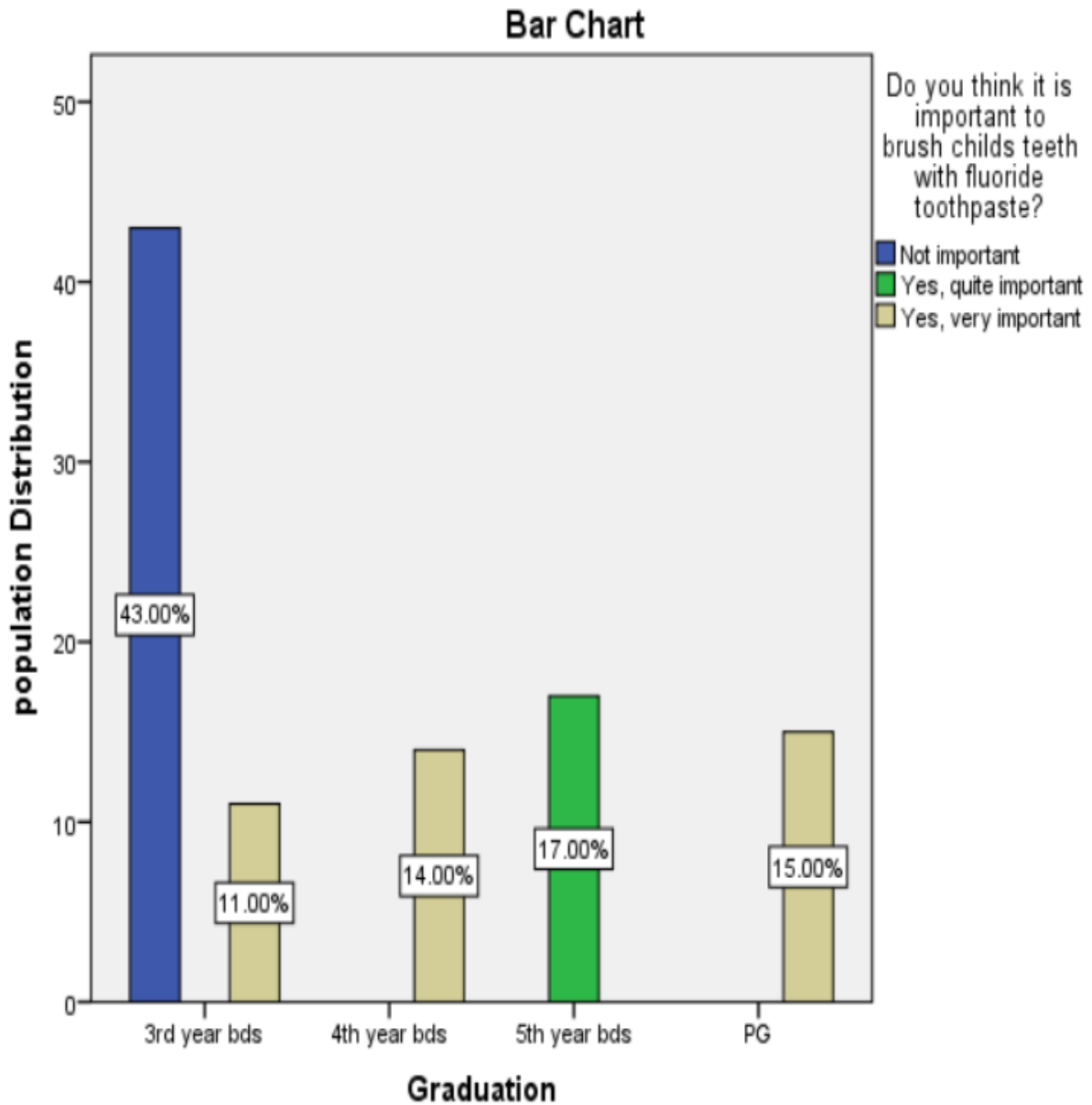


Figure 4 : The bar shows the correlation of graduation with awareness on the importance of fluoride in toothpaste for children. It shows that only 43% of third year students have said that it's not much important to brush the child's teeth with the fluoride toothpaste but 11% of them have accepted that it is more important to brush the child's teeth with fluoride paste , 14% of fourth year students and 24% of PGs say that it's very important. The pearson chi square value is 133.370, p value is 0.001 (<0.05), so it is statistically significant. Therefore PG have more knowledge.

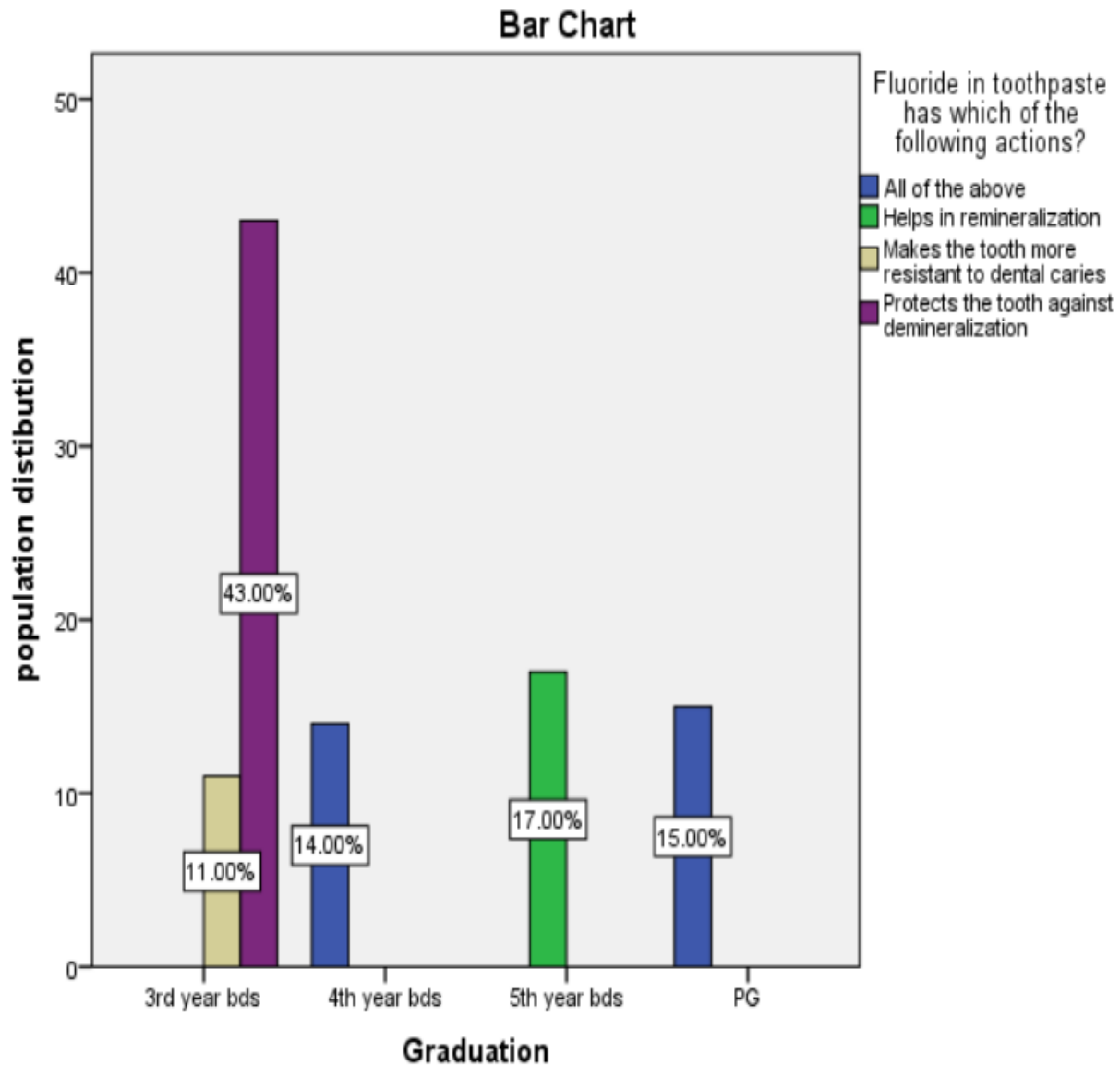


Figure 5 : The bar chart shows the percentage distribution of graduation with awareness on actions of fluoride in toothpaste. 11% of the third year students have said that the fluoride toothpaste makes the tooth more resistant to dental , but 43% said that it protects the tooth against demineralisation. 14% of the fourth years have accepted that the fluoride toothpastes are more useful. 15% of the fifth year students said that the fluoride toothpaste is more useful in remineralization. 15% of PGs said that it has multiple functions as mentioned above. The person chi square value is 0.20, p value is 0.001 (<0.05), so it is statistically significant. Therefore PG had more knowledge compared to others.

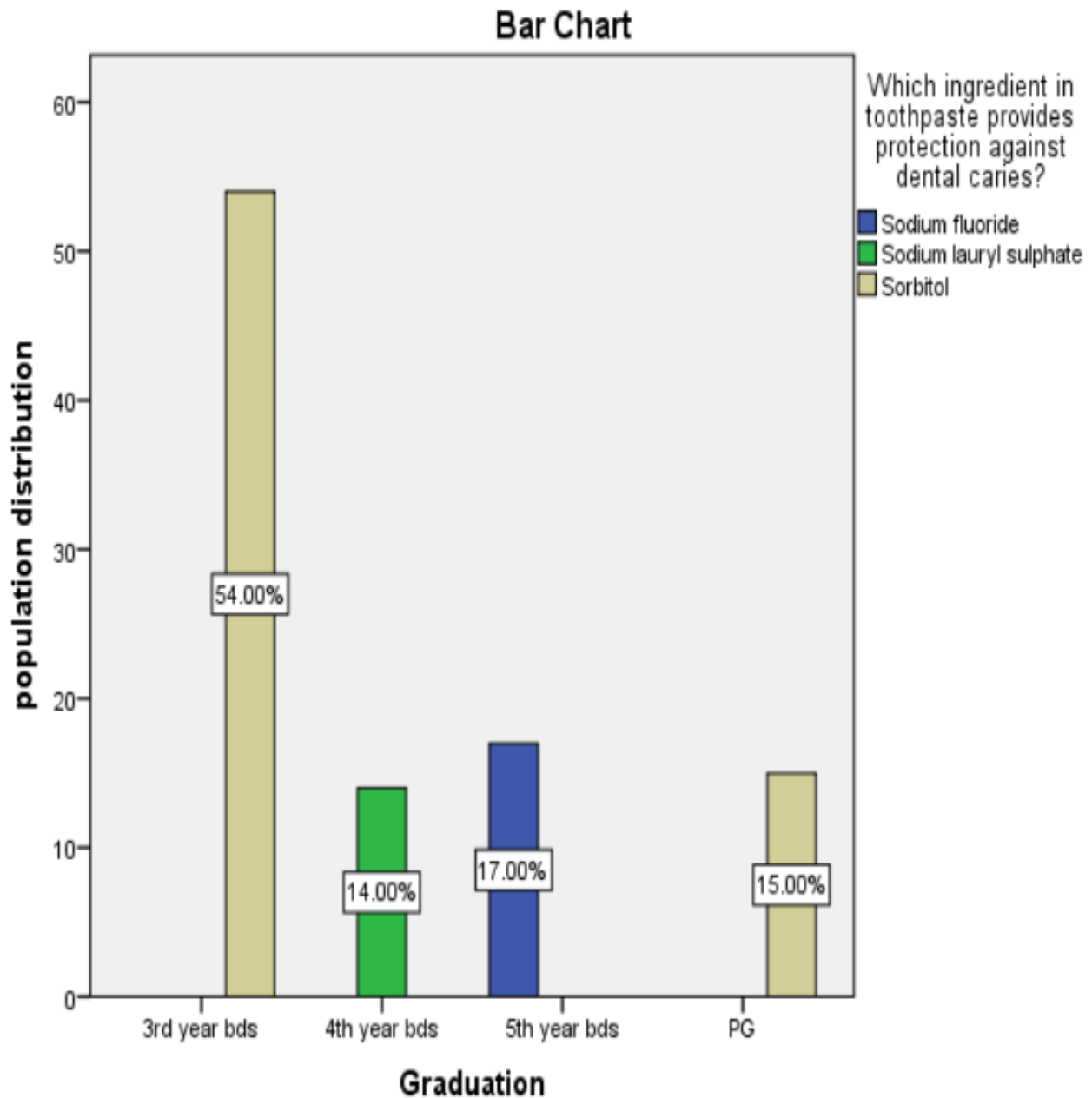


Figure 6: The bar chart shows the percentage distribution of graduation with awareness on which ingredient protects against dental caries. 54% of the third year students said that sorbitol. 14% of the fourth years said as sodium lauryl sulphate. 17% of 5 th year students said that sodium fluoride. 15% of pg students said that as sorbitol and remaining 12% said as sodium fluoride. The pearson chi square value is 140.278, p value is 0.001 (<0.05), so it is statistically significant. Therefore PG had more knowledge compared to others.

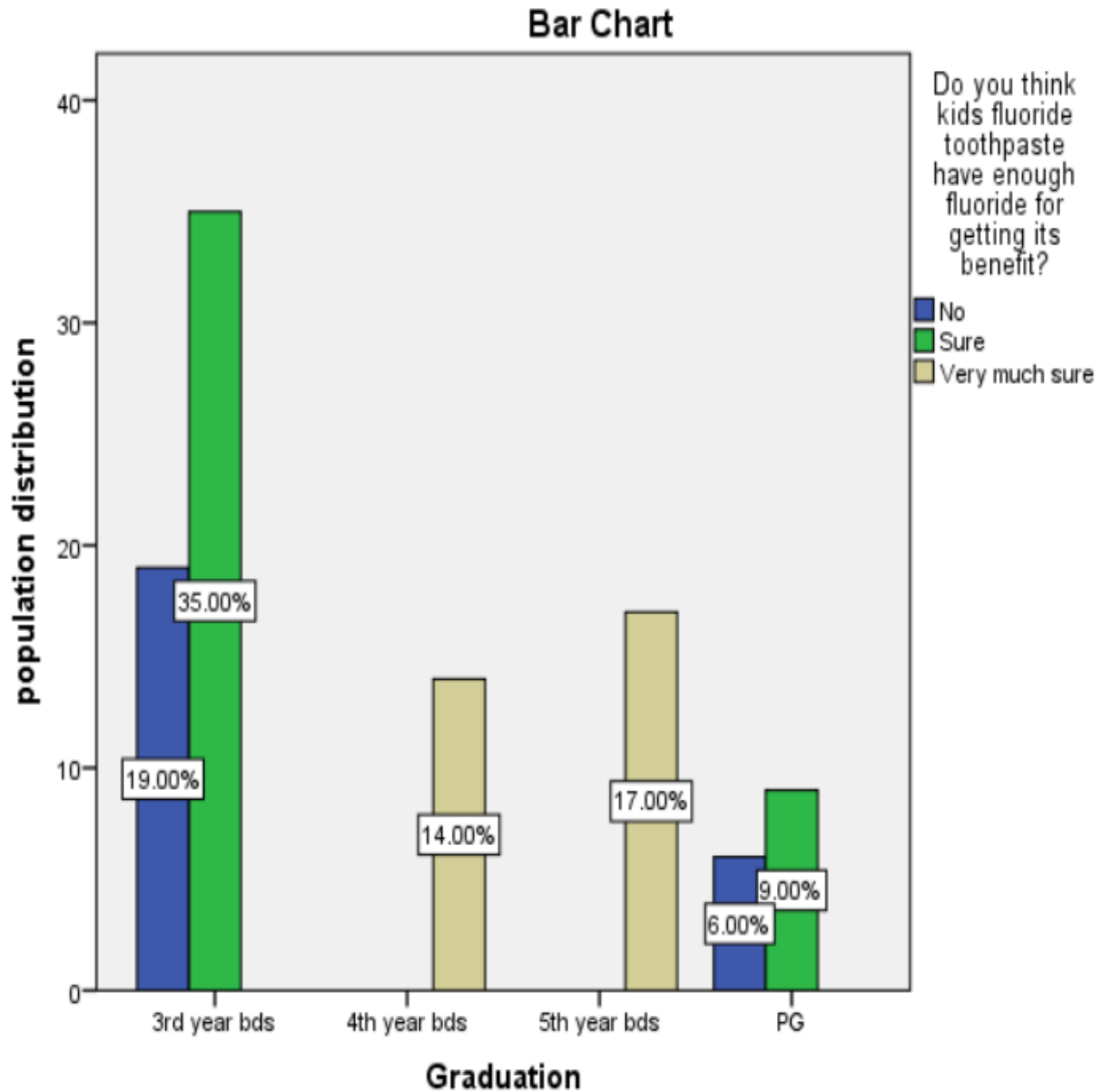


Figure 7: The bar chart shows the percentage distribution of graduation with awareness on whether kids' toothpaste have enough fluoride. 35% of the third year students said that sure and 7% said no. 14% of the fourth year said very much. 17% of 5 th year students said as very much sure. 15% of pg students said that as sure and the remaining 12% said as no. The pearson chi square value is 109.211, p value is 0.001 (<0.05), so it is statistically significant. Therefore PG had more knowledge compared to others.

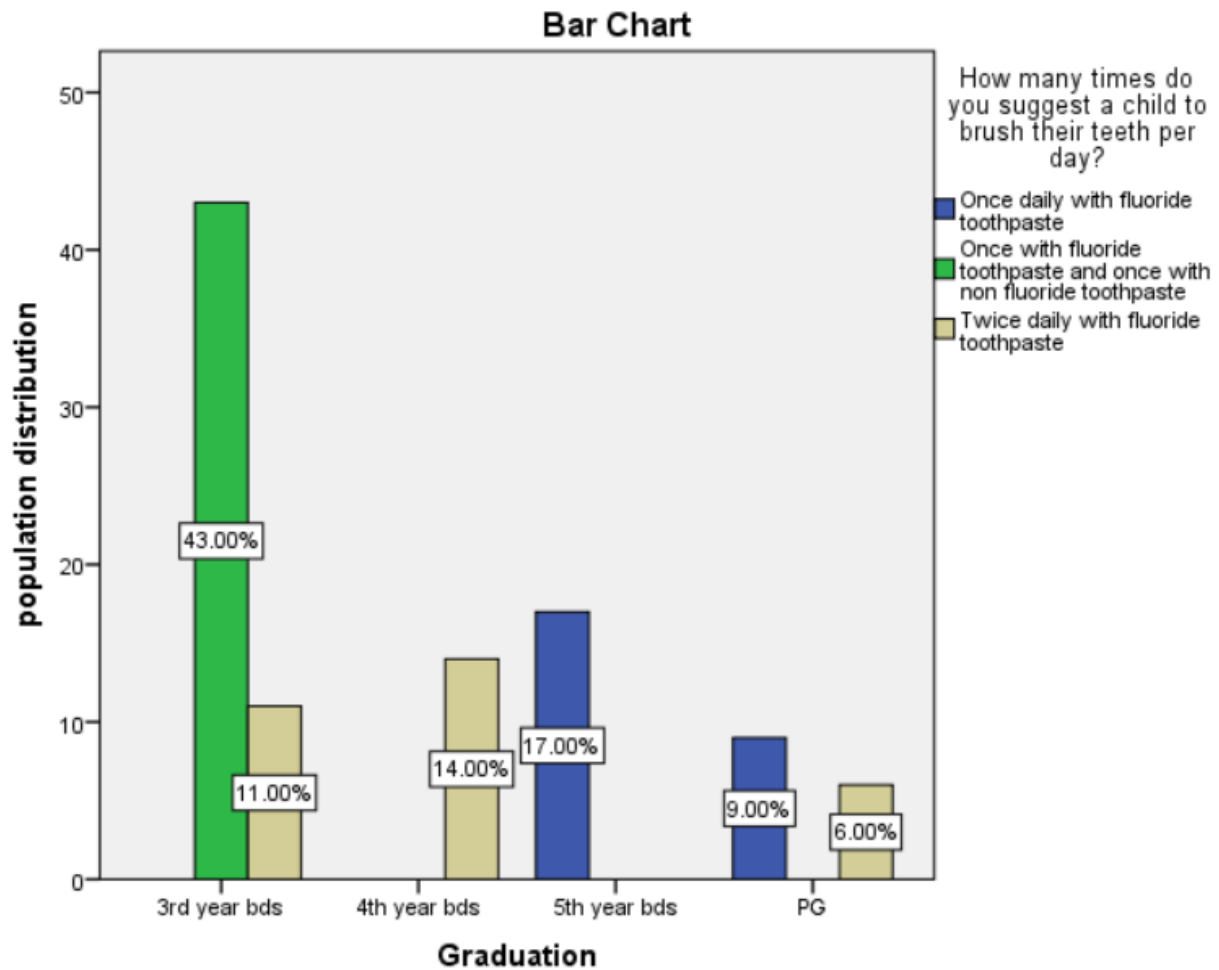


Figure 8: The bar chart shows the percentage distribution of graduation with awareness on the number of times a child should brush their teeth per day. 43% of the third year students said that once with fluoride toothpaste and once with non fluoride toothpaste and 11% said twice daily with fluoride toothpaste. 14% of the fourth year said twice daily with fluoride toothpaste. 17% of 5 th year students said as once daily with fluoride toothpaste. Pg students said that as once with fluoride toothpaste and once with non fluoride toothpaste, 6% said twice daily with fluoride toothpaste and 9% said once daily with fluoride toothpaste. The pearson chi square value is 101.293, p value is 0.001 (<0.05), so it is statistically significant. Therefore PG had more knowledge compared to others.

Discussion:-

The use of fluoride toothpaste is the most cost- effective fluoride homecare measure and there is strong evidence for a dose-response relationship.² Many researchers have found that brushing with fluoride toothpaste reduces dental caries in school- aged children but fluoride toothpaste use at an early age can be associated with dental fluorosis.³ Younger children less than 3 years are likely to ingest toothpaste while brushing; this is the reason why many dental students hesitate to prescribe fluoride toothpaste. Although many studies are evaluating the efficacy of fluoridated toothpaste in children, still there is a lack of information within the dental community regarding the use, safety and

efficacy of fluoridated toothpaste for younger children.(B *et al.*, 202[26] Hence the present study evaluated the knowledge and attitude among dental students regarding the use of fluoride toothpaste in children. [25,27]

In this study, about 40 % of them considered that it is very important to brush the child's teeth with fluoride toothpaste. 70 % of the respondents knew about the protective action of fluoride on teeth against dental caries. A meta-analysis by Marinhoet al 2 observed a significant reduction in caries with the use of fluoride toothpaste when compared with non- fluoride toothpaste or no toothpaste at all.[28] A meta- analysis of eight clinical trials on caries increment in preschool children also showed that tooth brushing with fluoride toothpaste significantly reduces dental caries prevalence in the primary dentition 3. Researchers have shown that using fluoride toothpaste containing at least 1000 ppm is essential for getting its benefit against dental caries. A review by Wong et al 4 found evidence of a statistically significant benefit of using 1000 ppm fluoride or more toothpaste relative to 250 ppm fluoride toothpaste for caries prevention in the mixed/permanent dentition. Similar results were found in the other two reviews. In this study, 66 % were aware that at least 1000 ppm fluoride should be present in toothpaste for getting its benefit, 70 % of them suggested Kid's fluoride toothpaste which has less than 1000 ppm fluoride whereas only 18 % suggested regular fluoride toothpaste for children.

The commercially available Kid's fluoridated toothpaste contains less than 1000 ppm of fluoride which is of less benefit for the teeth against dental caries. In this study, 20.3 % of them thought that Kid's fluoridated toothpaste contained 1000 ppm of fluoride. About 14.4 % were very much sure that kid's toothpaste has enough fluoride for getting its benefit whereas only 13.6 % did not think Kids toothpaste has enough fluoride for its benefits. This shows the lack of knowledge among dental students regarding the concentration of fluoride in Kids toothpaste. Nausea, vomiting, diarrhea, and fall in blood pressure are some of the symptoms seen when fluoride toothpaste is ingested in high amounts. 60.7 % of the respondents were aware of these symptoms. In this study, 66 % of the respondents suggested twice daily brushing with fluoride toothpaste for children.[29] To maximize the beneficial effect of fluoride in the toothpaste, AAPD suggests supervised tooth-brushing twice daily and rinsing after brushing should be kept to a minimum or eliminated altogether 7. Parental supervision while tooth brushing, using toothpaste with low fluoride and using the right amount of toothpaste can reduce the incidence of fluoride toxicity in children. In this study, 64.7 % of the respondents were aware of how to reduce the intake of toothpaste by children and 52.3 % of them knew how to manage a child who had ingested high amounts of fluoridated toothpaste which shows moderate knowledge and attitude in this regard. American Academy of Pediatric Dentistry (AAPD), AAPD recommends using no more than a smear or rice-size amount of fluoridated toothpaste for children less than three years of age may decrease the risk of fluorosis. Therefore PG have more knowledge.

Using no more than a pea-size amount of fluoridated toothpaste is appropriate for children aged three to six 9. The ADA currently advises to brush with water and to consult with a dentist or physician before using fluoride toothpaste, for children younger than 2 years.[30] ADA Council recommends the use of smear of fluoride toothpaste (approximately 0.1 gram of toothpaste or 0.1 milligram of fluoride) from eruption of the first tooth to age 3 years followed by the use of pea-sized amount (0.25 g of toothpaste or 0.25 mg fluoride) for children aged 3 to 6 years. This regimen is intended to maximize the caries preventive benefits of fluoride while further reducing the risk of developing fluorosis. The optimal dose of fluoride is 0.05 mg per kg per day 10. In this study, 55 % of the respondents suggested pea-sized toothpaste and 41 % suggested smear sized/size of grain for children below 3 years which shows a lack of knowledge among dental students regarding the recommended amount of fluoride toothpaste for young children.[31]

Conclusion:-

By the above results if the survey it can be concluded that 5th year and PG students have a better knowledge about use of fluoride toothpaste for children than 3rd and 4th year students

This study shows that dental students(third and final year BDS) lack knowledge regarding the use of fluoride toothpaste in children which needs appropriate steps to improve their knowledge by conducting dental health education. Better knowledge in this regard will enable dental students to make appropriate decisions on the use of fluoride toothpaste in children.

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