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Self reported knowledge about dental caries at young age and variations between dental practitioners in Tricity.

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INTRODUCTION

Dental caries is a prevalent health problem and a leading cause of tooth loss among children in India. They represent a chronic, infectious, multifactorial disease that can occur throughout a person's lifetime. All ages are at risk of developing dental caries but children and adolescents are at higher risk.[1] However, caries can be prevented by appropriate use of fluorides and pit and fissure sealants.

Caries prevention can be achieved through providing information to patients on diet, drinking habits, oral hygiene measures and using fluoridated toothpaste.[2] Correct knowledge and positive attitudes about dental care is important , especially for dentists as leaders.

A number of studies [3-10] have assessed the knowledge of and attitudes towards oral health among dental care providers. Some studies have reported that dental health care personnel might not be fully updated on effectiveness of preventive measures.

The objective of our study was to describe dental practitioners (practicing in tricity) self reported competency in giving preventive education and treatment and to assess their level of knowledge about preventive dental health.

MATERIALS AND METHODS A cross-sectional study was carried out among registered dentists and dental hygienists in Tricity (Chandigarh, Panchkula, and Mohali) that totaled up to 128 participants. A total of 115 dental practitioners (Dentist and Dental hygienist) submitted the duly filled questionnaire, with a response rate of 90%. The study was approved by the Ethical committee of Swami Devi Dyal hospital and dental college, Panchkula, Haryana.

A self-administered structured multichoice questionnaire was designed to examine dental practitioners' knowledge in several oral health prevention-related issues. The questionnaire comprised 14 questions related to the association between diet and dental caries, preventing dental caries in toddlers, caring for children's teeth, and the use of fluoride varnish. The items were responded to a five-point Likert scale (Table I). The original version of the questionnaire was pilot tested to determine the test-retest reliability of the survey questions, 15 private dental practitioners completed the survey during the initial administration. The respondents were also asked for feedback on the clarity of the questions and whether there was difficulty in answering the question or ambiguity as to what sort of answer was required. Cronbach's alpha of the questionnaire was found to be acceptable (0.84).

Due to the COVID-19 pandemic face to face data collection was not done. For data collection, the "Google Form" link was distributed on social media platforms, WhatsApp messenger, or sent by text messages and was collected by a semi-structured self-response questionnaire, followed by convenience and snowball sampling methods. Answering and submitting the questionnaire were taken as positive consent. The link was sent in October 2021 and a reminder was sent again after 15

days to improve the response rate. Statistical analysis SPSS 24 was used for data entry and analysis. The results were expressed in percentages. Descriptive statistics such as mean, standard deviations, and the proportions (% of subjects affected) were used. Regarding the knowledge and practice scoring, a score of one was assigned for correct knowledge or practice response. A score of zero was assigned to false knowledge or practice response. Hence, the higher the score, the greater level of knowledge or practice. The total score was computed for each scale for every participant. Then the total score was standardized by being divided by the number of questions on the scale and multiplied by 100. The chi-Square test was used to determine the association between two categorical variables. T-test and ANOVA were used to determine the difference in standardized mean scores of quantitative variables. In all statistical tests, a p-value of <0.05 was considered statistically significant.

Results

Out of 128 dental professionals (44 dental hygienists and 84 dentists), 100 responded (34 dental hygienists and 66 dentists) with a total response rate of 90%. Females make up the majority of the sample 73%. The respondents. 80% of respondents were <40 years. The highest proportion 50% have <6 years (Table:1).

Association between diet and dental caries: The question in this scale assessed dental practitioners' knowledge of sugars. Most of the respondents identified that the increased intake of sugars causes caries and that sweetened juices cause dental caries (Table 2). Significant variation between respondents was seen in the age, qualifications, and years of experience (Table:2).

Preventing dental caries in toddlers: The questions in this scale examined dental practitioners' knowledge on the relation between dental caries and child feeding methods, and knowledge on when to start using an open cup and mean to wean infants of feeding bottles when used. The question concerning formula milk as a risk factor for dental caries at a young age was the only question with a high correct response rate, all other questions had low correct response rates (Table 2).

A significant difference between standardized mean scores was seen within age subgroup, qualification, and years of experience (Table:3).

DISCUSSION

This study focuses on dental practitioners core knowledge about dental caries and its prevention in children. The result shows that dental practitioner in general have reasonable standardized mean score knowledge related to caries. In addition, variations in knowledge and practice were seen between dental practitioners.

Association between diet and dental caries

Majority of dental practitioners (94%) recognized sugars in general as the cause of caries. This is higher than the 80% reported by Lin et al. With regard to sweetened juices, 91% of respondents attributed it as a cause of dental caries. This is in accordance with a study done by Alrowaili EF in Bahrain.(91%).[11]

Females scored higher than males (44.7 ± 50.2 versus 35.2 ± 48.3). Variations between dentists and dental hygienist was seen in this scale. Dentists scored comparatively higher than dental hygienist.(49.2 ±50.7 versus 28.5 ± 45.0). Manski and Parker[10] assessed dental hygienists knowledge on caries and concluded that improvement in the same was needed.

Preventing dental caries in toddlers

Maximum number of correct responses(92%) were seen for the question of association between milk formula and dental caries. However, practitioners knowledge on breast milk needs updating. Not many studies assessed dental practitioners knowledge on breastfeeding but a study that involved young dentists in East Midlands found that 81% lacked knowledge about it. [12] The respondents knowledge about when to start giving liquids and when to stop using feeding bottle was also low.

A significant difference in knowledge was seen between age groups, qualification and years of experience. Those who are less than or equal to 30 years of age had comparatively higher mean scores and with more years of experience. This comes in accordance to other studies[13] that also showed that younger dentists were more likely to provide better knowledge for children with dental caries.

Caring for children teeth

The respondents knowledge was acceptable in some domains where as lacking in others. Most dental practitioners recognized the importance of parental supervision, inquired about the parental use for their children and guided them on toothpaste amount. Only 24% of the respondents advised the correct type, which is lower than 48.3% reported by Yusuf et al.[13] This is worrying because it implies that children are not exposed enough to fluoride.

Another finding that raises concern is that almost half of dental practitioners (53%) thought brushing alone- without toothpaste can prevent caries. This is in contrast to a comparative better finding reported by Lin et al 5where only 29.2% thought brushing without toothpaste is effective in children. In regard to variation, significant difference in scores were seen between age -groups, qualification and years of experience, similar findings were reported elsewhere.[14-15]

Using fluoride varnish for preventing and managing dental caries in clinic.

Out of dental hygienists and dentists, 50% very often provided fluoride varnish, which in comparison is higher than the 25% reported by Maryland dental practitioners. No significant variation between practitioners but in comparison young females with less than 5 years of experience applied fluoride varnish more often than others. A similar finding was reported in a study by Yusuf et al.[13]

This study shows the overall need to improve and update dental practitioners knowledge about free sugars, causes and risks for dental caries, its prevention at young age and the need to increase fluoride varnish application for preventing caries. The basic knowledge of dental practitioners about dental caries can be considered reasonable but there is a need for improvement and updating.

CONCLUSION

Dental practitioners knowledge towards prevention should be improved to enable and encourage them to provide their patients with preventive care. There is also a need to reduce the variations seen between dental practitioners to aid in providing consistent and evidence based advices to parents to help them make better choices and aid in preventing caries in children.

REFERENCES

1. WHO. Guideline: Sugars Intake for Adults and Children. (World Health Organization, 2015). https://www.who.int/publications/i/item/9789241549028.
2. Jepsen, S. et al. Prevention and control of dental caries and periodontal diseases at individual and population level: consensus report of group 3 of joint EFP/ORCA workshop on the boundaries between caries and periodontal diseases. J. Clin. Periodontol. 44(Suppl. 18), S85—S93 (2017).
3. Ghasemi, H., Mrutomaa, H., Torabzadeh, H. & Vehkalahti, M. M. Knowledge of and attitudes towards preventive dental care among Iranian dentists. Eur. J. Dent. 1, 222–229 (2007).
4. Kaczmarek, U., Kowalczyk, W., Gozdowski, D. & Olczak-Kowalczyk, D. Dentists' knowledge of fluoride cariostatic mechanisms. Nowa Stomatol. 23, 102–109 (2018).
5. Lin, T. H. et al. Knowledge and practices of caries prevention among Taiwanese dentists attending a national conference. J. Dent. Sci. 5, 229e236 (2010).
6. Løken, S. Y., Wang, N. J. & Wigen, T. I. Caries-preventive self-care for children. Consistent oral health messages to the public. Int. J. Dent. Hyg. 15, 142–148 (2017).
7. Threlfall, A. G., Milsom, K. M., Hunt, C. M., Tickle, M. & Blinkhorn, A. S. Exploring the content of the advice provided by general dental practitioners to help prevent caries in young children. Br. Dent. J. 202, E9 (2007).
8. Forrest, J. L., Horowitz, A. M. & Shmuely, Y. Caries preventive knowledge and practices among dental hygienists. J. Dent. Hyg. 74, 183–195 (2000).
9. Francisco, E. M., Johnson, T. L., Freudenthal, J. J. & Louis, G. Dental hygienists' knowledge, attitudes and practice behaviors regarding caries risk assessment and management. J. Dent. Hyg. 87, 353–361 (2013). https://www.researchgate.net/publication/259395536_Dental_hygienists%27_knowledge_attitudes_and_practice_behaviors_regarding_caries_risk_assessment_and_management
10. Manski, M. C.& Parker, M. E. Early childhood caries: knowledge, attitudes, and practice behaviors of Maryland dental hygienists. J. Dent. Hyg. 84, 190–195 (2010). http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.966.9873&rep=rep1&type=pdf.
11. Alrowalli EF.Self reported knowledge about dental caries at young age and variations between dental practitioners in the

ministry of health in Bahrain. Br. Dent. J. E7, https://doi.org/10.1038/sj.bdj.2021.718 (2021).
12. Polglass, L., Leonardi-Bee, J., Morris, A.& Murray, D. Promotion of breastfeeding by dental teams: A survey of early career dentists. J. Health Visit 7, 24–29 (2019).
13. Yusuf, H. et al. Differences by age and sex in general dental practitioners' knowledge, attitudes and behaviours in delivering prevention. Br. Dent. J. E7, https://doi.org/10.1038/sj.bdj.2015.711 (2015).
14. Chen, M. S. Preventive dentistry in Texas, USA. Community Dent. Oral. Epidemiol. 18, 239–243 (1990).
15. Pakdaman, A., Yarahmadi, Z. & Kharazifard, M. J. Self-reported knowledge and attitude of dentists towards prescription of fluoride. J. Dent. 12, 550–556 (2015).

Table1 Demographic characteristics (total = 100) and the relationship between demographic characteristics and knowledge score of association between diet and dental caries

Demographic characteristics	N (%)	Association between diet and dental caries	p-value
Age in years			<0.001*
≤30	50(50%)	60.3 ± 50.2	
31-40	30(30%)	35.4 ± 48.3	
>40	20(20%)	6.9 ± 22.6	
Gender			0.401
Female	73(73%)	44.7±50.2	
Male	27(27%)	35.2±48.3	
Qualification			0.048*
Dental hygienist	34(34%)	28.5± 45.0	
Dentist	66(66%)	49.2± 50.7	
Years of experience since graduation			<0.001*
≤5			
6-11	50(50%)	60.3 ± 50.2	
11-15	20(20%)	21.9 ±41.3	
>15	15(15%)	49.0 ± 52.0	
	15(15%)	1.86 ± 0.51	

Table 2 Percentages of correct and false responses on questions of different scales

Percentage of correct and false responses on questions of different scales		
	Correct n (%)	False n (%)
The increase in intake of sugars causes dental caries	94 (94%)	6 (6%)
Sweetened juices cause dental caries	91 (91%)	9 (9%)
Fruits can cause dental caries	34 (34%)	66 (66%)
All types of carbohydrates can cause dental caries	40 (40%)	60 (60%)
Breastfeeding (mother's milk) can cause dental caries	33 (33%)	67 (67%)
Bottle milk formula can cause dental caries	92 (92%)	5 (5%)
At what age is it advised to start giving children liquids by an open cup	30 (30%)	70 (70%)
At which age, a child should stop using a feeding bottle?	25 (25%)	75 (75%)
How often do you ask parents about the type of toothpaste they use for their children?	74 (74%)	26 (26%)
What type of toothpaste do you usually advise for children?	24 (24%)	76 (76%)
How often do you advise parents/caretakers on the amount of toothpaste to be used for their children?	90 (90%)	10 (10%)
Is there an age until which parental supervision on a child's brushing is needed?	85 (85%)	15 (15%)
Do you think brushing without toothpaste can prevent dental caries?	53 (53%)	47 (47%)

Table 3 Relationship between demographic characteristics and knowledge score of preventing dental caries in toddlers and knowledge score of caring for children's teeth.

	Preventing dental caries in toddlers Mean ±SD	p-value	Caring for children's teeth Mean ±SD	p-value
Age in years ≤30 31-40 >40	 39.9± 49.8 21.5± 41.3 1.0± 0.32	0.002*	 92.5 ± 30.36 19.6 ± 37.9 17.8 ± 36.7	<0.001*
Gender Female Male	 30.4 ± 46.4 16.2 ± 36.7	0.15	 58.9 ± 49.8 47.1 ± 50.4	0.29
Qualification Dental hygienist Dentist	 13.1 ± 33.3 33.5 ± 47.7	0.02*	 29.2 ±44.5 69.3 ±47.4	<0.001*
Years of experience since graduation ≤5 6-11 11-15 >15	 39.9 ± 49.8 11.3 ± 31.3 28.3 ± 46.4 0.93 ± 0.25	0.006*	 92.5 ± 30.36 23.1 ± 41.11 9.5 ± 25.5 22.8 ± 41.5	<0.001*

Table 4 Relationship between demographic characteristics and placing fluoride varnish for caries prevention and management.

	Fluoride varnish application		p-value
	Rarely/occasionally n (%)	Very often n (%)	
Age in years ≤30 31-40 >40	 20(40%) 17(56.7%) 13 (65%)	 30(60%) 13(43.3%) 7(35%)	0.117
Gender Female Male	 36(49.3%) 14(51.9%)	 37(50.7%) 13(48.1%)	0.82
Qualification Dental hygienist Dentist	 17(50%) 33 (50%)	 17 (50%) 33 (50%)	1.0
Years of experience since graduation ≤5 6-11 11-15 >15	 20(40%) 13(65%) 7(46.7%) 10(66.7%)	 30(60%) 7(35%) 8(53.3%) 5(33.3%)	0.139