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Expert Opinion Article

Knowledge And Awareness About Oral Health In School Going Children Of Chitwan District Of Nepal.

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ABSTRACT

Introduction: The oral health knowledge provided at early stage of life may help children to make healthy choices, adopt a better lifestyle and deal with the oral conditions. This study documented the knowledge and awareness on oral health in 12 year old school going children of Chitwan district of Nepal.

Methods: This is a descriptive cross-sectional study with stratified random sampling conducted with random selection of schools in Chitwan district of Nepal.Pre-validated questionnaires were used to collect information on oral health knowledge in 12 year old school going children in Chitwan district of Nepal.

Results: The results showed high level of knowledge on various aspects of oral health practices and habits ranging from 68% to 93% except for knowledge on the effect of misaligned teeth on oral health (44%). However, there was low level of awareness regarding cause of dental plaque, importance of fluoride, gum bleeding, and causes of dental caries with most of the responses not exceeding more than 45% among the 400 participants of the study.

Conclusions: The knowledge on various aspects of oral health care seems to be very high in school going students of Chitwan district of Nepal. The study highlights the need for better oral health lessons to students in primary school in selected areas of oral health.

Keywords: *awareness; dental health; knowledge; oral health; school going children.*

INTRODUCTION

Knowledge in oral health is an important factor for the development of the healthy oral habits and prevent oral diseases. (1,2)The oral health knowledge provided at early stage of life may help children to make healthy choices, adapt a better lifestyle and deal with the oral conditions.(3)Studies have shown that there is lack of proper knowledge on oral health and diseases in the developing countries.(4–7)

Studies done in Nepal shows that substantial number of children suffer from some form of oral conditions and there is paucity of data that documents knowledge and awareness of children on oral health. (8,9)

This article attempts to document knowledge and awareness on oral health in school-going children of Chitwan district of Nepal. Chitwan district is the commercial and service center of South-Central Nepal and a major destination of migrants from various parts of the country.

METHODS

This article is a subset of study done under the broader study protocol "Association of knowledge, attitude and practice regarding oral health and hygiene among twelve years old school students with their oral health status in Chitwan district of Nepal" as part of PhD thesis requirement of the author and approved by Nepal Health Research Council (Reg. 520/2023). The study duration for this subset of study was three months from January to March 2024. This is a descriptive cross-sectional study with stratified random sampling conducted with random selection of schools in Chitwan district of Nepal. Random selection of four municipalities was done from the total seven municipalities' then one public and one private schools from each of four municipalities were chosen randomly from the list of schools provided by the education department of Chitwan district. Fifty students of 12 years of age and willing to participate in the study were considered eligible and chosen from each school by confirming the age from the school register. The total sample size was 400 children of 12 years of age.

Pre-validated self-administered questionnaire on knowledge and awareness of children on oral health was adapted from published studies. (7) Prior permission from the authors were obtained to use the questionnaire through electronic

correspondence. These were validated by the expert and pre-tested on 20 students with similar demography of study population before the study. This was done to ensure reliability and validity of the questionnaire as well as to ensure its effectiveness and appropriateness. The participants who gave more than 50% correct answers to the total questions were categorized as having 'good knowledge and awareness' and those with score less than or equal to 50 % were categorized as having 'poor knowledge and awareness'.(10) (Table 1)

Table 1. Questionnaire on knowledge and awareness on oral health administered to students
Do you know health of mouth and teeth impacts overall health of the body?
Does sweets negatively affect dental health?
Do soft drinks negatively affect dental health?
Does smoking negatively affect dental health?
Does alcohol negatively affect oral health??
Does paan/tobacco chewing negatively affect oral health??
Does thumb-sucking negatively affect oral health?
Does mouth-breathing negatively affect oral health?
Does nail biting affect negatively oral health
Does mal-aligned teeth negatively affect oral health
Do dental caries affect aesthetics?
Is tooth decay avoidable?
Is care of teeth necessary?
Is regular dental check-up necessary?
Is it important to choose right toothbrush?
Interpretation of bleeding gums: Faulty brushing; inflamed gums; healthy gums; don't know; others:
What does dental plaque mean? Food debris; soft deposits; hard deposits; staining on teeth; don't know; others (specify)
Why is fluoride added to toothpaste? Make cost cheaper; improve taste; make teeth resistant to caries; mouth freshener; don't know
Infrequent brushing leads to? Dental caries; staining teeth; dental plaque; bleeding from gum; all of the above; don't know
What are dental caries caused by? Bugs; improper brushing; sweets; occur itself; don't know; others

Written consent was taken from the parents of eligible participants and assent was taken from the participant. The students were instructed about the filling of questionnaires by the author who was present throughout the time during the filling of questionnaire to address the queries made by the participants.

The obtained data were checked for completeness, cleaned and then entered in the excel sheet and later imported to SPSS for further analysis. IBM SPSS Statistics 26 was used for the analysis of the data obtained.

RESULTS

A total 400 students participated and all of them submitted the response in the questionnaire, 200 from public schools and 200 from private schools.

Of the total participants 193 (48%) were male and 207(52%) were female. Among them, 119 out of 200 (60%) total participants of public schools were female and likewise 88 out of 200 (44%) of the total participants of private school were female. The ethnicity distribution of the participants showed that 362(90%) of the participants belonged to two major ethnic groups - Brahmin /Chhetri (162; 40%) and Janjati (200; 50%). (Table 2)

Table 2. Ethnicity distribution of participants of the study (n=400)		
	Frequency	
	(n)	**(%)**
Brahmin/Chhetri	162	40.5
Dalit	23	5.75

Janjati	200	50
Madhesi	12	3
Muslim	1	0.25
Other	2	0.5
Total	400	100

When asked if the participants knew that the health of mouth and teeth impacts overall health of the body, 225(56%) participants gave a positive response, around 114(28.5%) said no and 61(15.3%) said they did not know.

The overall knowledge of the participants in all the questions as mentioned in the tools was high with some variations. (Table 3)

Table 3. Does the following negatively affect oral health? (n=400)

	n (%)	**95% Confidence Interval**
Sweets		
Yes	373 (93.3%)	90.33% to 95.50%
No	17(4.3%)	2.5% to 6.7%
Don't Know	10(2.5%)	1.2% to 4.6%
Soft Drinks		
Yes	273(68.3%)	63.4% to 72.8%
No	87(21.8%)	17.8% to 26.1%
Don't Know	40(10%)	7.2% to 13.4%
Smoking		
Yes	357(89.3%)	85.8% to 92.1%
No	23(5.8%)	3.7% to 8.5%
Don't Know	20(5%)	3.1% to 7.6%
Alcohol		
Yes	334(83.5%)	79.5% to 87%
No	39(9.8%)	7% to 13.1%
Don't Know	27(6.8%)	4.5% to 9.7%
Chewing Paan/Tobacco		
Yes	373(93.3%)	90.33% to 95.50%
No	14(3.5%)	1.9% to 5.8%
Don't Know	13(3.3%)	1.7% to 5.5%
Thumb-sucking		
Yes	320(80%)	75.7% to 83.8%
No	46(11.5%)	8.5% to 15%
Don't Know	35(8.5%)	6.2% to 11.9%
Mouth Breathing		
Yes	131(32.8%)	28.2% to 37.6%
No	209(52.3%)	47.2% to 57.2%
Don't Know	60(15%)	11.7% to 18.9%
Nail biting		
Yes	350(87.5%)	83.9% to 90.6%
No	24(6%)	3.9% to 8.8%
Don't Know	26(6.5%)	4.3% to 9.4%

Mal-aligned teeth		
Yes	177(44.3%)	39.3% to 49.3%
No	151(37.8%)	32.9% to 42.7%
Don't Know	72(18%)	14.4% to 22.1%

The study also investigated knowledge on various aspects and determinants of oral health which were at appreciably high levels. (Table 4)

Table 4. Knowledge on various aspects of oral health care (n=400)		
	n (%)	**95% Confidence Interval**
Do dental caries affect aesthetics?		
Yes	286 (71.5%)	66.8% to 75.9%
No	87(21.8%)	17.8% to 26.1%
Don't Know	27(6.8%)	4.5% to 9.7%
Is tooth decay avoidable?		
Yes	333(83.3%)	79.2% to 86.8%
No	47(11.8%)	8.8% to 15.3%
Don't Know	20(5%)	3.1% to 7.6%
Is care of teeth necessary?		
Yes	385(96.3%)	93.9% to 97.9%
No	7(1.8%)	0.7% to 3.6%
Don't Know	8(2%)	0.9% to 3.9%
Is regular dental check-up necessary?		
Yes	340(85%)	81.1% to 88.4%
No	41(10.3%)	7.5% to 13.7%
Don't Know	19(4.8%)	2.9% to 7.3%
Is it important to choose right toothbrush?		
Yes	355(88.8%)	85.2% to 91.7%
No	25(6.3%)	4.1% to 9.1%
Don't Know	20(5%)	3.1% to 7.6%

Students were also asked on their interpretation of bleeding gums, 41.8% mentioned this indicated faulty brushing, while 34.3 % mentioned inflamed gums, 4.3% mentioned it was indicative of healthy gum and 19.3% mentioned they did not know what gum bleeding meant.

Students' knowledge on dental plaque, reason for adding fluoride in the toothpaste, outcome of infrequent brushing and causes of dental caries were variable. (Table 5)

Table 5. Awareness on various aspects of oral hygiene in children (n=400)			
	N	**%**	**95% Confidence Interval**
What does Dental plaque mean? (n=400)			
Food debris	118	29.5	25.1% to 34.2%
Soft deposits	56	14	10.8% to 17.8%
Hard deposits	42	10.5	7.7% to 13.9%
Stain in teeth	74	18.5	14.8% to 22.7%
Don't know	105	26.25	22% to 30.9%
Others	5	1.25	

What does infrequent brushing lead to? (n=400)			
Staining in teeth	170	42.5	37.6% to 47.5%
Dental Plaque (Hard and soft	98	24.5	20.4% to 29%
Food debris	118	29.5	25.1% to 34.2%
Gum bleeding	0	0	0
Don't know	63	15.8	12.3% to 19.7%
Others	13	3.3	1.7% to 5.5%
Why is fluoride added to toothpaste? (n=400)			
make cost cheaper	13	3.25	1.7% to 5.5%
improve taste	10	2.5	1.2% to 4.6%
make teeth resistant to caries	166	41.5	36.6% to 46.5%
mouth freshener	134	33.5	28.9% to 39.4%
Don't know	77	19.25	15.5% to 23.5%
What is dental caries caused by? (n=400)			
Bugs	57	14.3	10.9% to 18.1%
Improper brushing	38	9.5	6.8% to 12.8%
Sweets	288	72	67.3% to 76.4%
Occurs itself	4	1	0.3% to 2.5%
Don't know	9	2.3	1% to 4.2%
Others	4	1	0.3% to 2.5%

However, on the overall knowledge and awareness by participants, the average score per participant on the questionnaire was 14.19 out of 21 with mode at 16 and median at 14. The maximum score obtained was 19 and the minimum score obtained was 1 out of 21.

The knowledge and awareness among students disaggregated by sex, ethnicity, school type and location was generally "GOOD". (Table 6)

Table 6: Knowledge an awareness on oral health among children aged 12 years of age in Chitwan district, Nepal disaggregated by sex, school type, location and ethnicity

		Knowledge and Awareness			
	Total	**Good**		**Poor**	
		n	%	n	%
Sex					
Male	193	177	92%	16	8%
Female	207	192	93%	15	7%
School type					
Public school	200	191	96%	9	5%
Private school	200	178	89%	22	11%
Location					
Urban	100	87	87%	13	13%
Periurban	300	282	94%	18	6%
Ethnicity					
Brahmin/Chettri	162	150	93%	12	7%
Dalit	23	22	96%	1	4%
Janjati	200	186	93%	14	7%
Madheshi	12	11	92%	1	8%

Muslims	1	0	0%	1	100%
Others	2	0	0%	2	100%

DISCUSSION

The study demonstrated overall Good knowledge and awareness of students on oral health when analysed as per the number of response given by the students as well as for individual questions in frequency table.

This is similar to the finding from Kathmandu where knowledge and awareness was higher in the participant groups.(10)

Most participants were aware that consumption of sweets (93.3%), soft drinks (68.3%), smoking (89.3%), alcohol (83.5%), and chewing paan/tobacco (93.3%) had negative effect on oral health. Though the knowledge in these areas are high, there are students who are still unaware and thus there is a need for dedicated sessions in schools on oral health.

The participant students were aware of the effect of various habits on oral health like thumb-sucking (80%), mouth-breathing (32.8%), and nail biting (87.5%). Some students were also aware that misaligned teeth (44.3%) could negatively affect oral health. More activities to enhance knowledge and awareness are required in this area to promote good oral health practice at young age.

There seems to be high level of knowledge on the effect of caries on aesthetics (71.5%). (83.3%) Students also knew that tooth decay was avoidable and the care of teeth is necessary (96.3%).Students were also knowledgeable on the need for regular dental check-up (85%) and the importance of choosing the right toothbrush (88.8%).

These findings were different than the study done in government-aided missionary school in 11-12 years old children of Bangalore city where the knowledge and awareness was comparatively lower .(11) Another similar study in Panchkula India has shown similar results to this study where knowledge and awareness on oral health was equally good in both boys and girls.(12) Our study is also comparable to that from the study done by Varenee et al and Wyne et al where knowledge and awareness on oral health was relatively higher.(13,14)

Our study also showed lack of awareness regarding periodontal diseases as compared to dental health habits as, almost 50% of the respondents did not know the significance of bleeding from gums and were unaware of the term "dental plaque". The response was quite limited compared to that reported by Al Omari et al., and Humagain in similar populations in North Jordan and Nepal respectively.(15,16)

These observations can be related to the lack of appropriate oral health education programs which might not have talked about the various preventive aspects of oral health programs. It is important to review the existing curriculum in primary schools and ensure availability of appropriate oral hygiene related educational materials and well trained teachers to deliver these messages.

As estimated by WHO, approximately 3.5 billion population suffer from oral diseases leading to the one among five most prevalent non communicable diseases.(17) About 67.5% to over 80% of the school going children in some countries are estimated to be suffering from untreated caries and periodontal problems.(7) However, these conditions can be improved and reversed by continuous oral care and various preventive interventions.(15,18,19)

There is paucity of data on knowledge and awareness on oral health in Nepal. Although this study is not representative of all children of 12 years of age of the entire country, it provides an insight to the level of knowledge on oral health in this age group

The study has few limitations. The study does not include knowledge of out of school children on oral health. The study also has the limitation on how the questions were interpreted by the students to respond to the questionnaire though adequate efforts were made to ensure uniform understanding among students. The same person was involved in data collection to reduce inter-observer variation, but the effect of intra-observer variation has not been calculated. The study only looked at the knowledge on oral health and triangulating with oral health practice would have provided more insight.

CONCLUSIONS

The knowledge on various aspects of oral health care seems to be very high in school going students of Chitwan district of Nepal. There are still some areas that could be improved and will need local level efforts to enhance knowledge of the students on oral health. The study has identified these areas which include knowledge and awareness related to effect of mouth breathing, mal aligned teeth and causes of dental plaques, this will require ensuring appropriate chapters on oral health in school curriculum starting right from primary school and having regular school activities related to oral health.

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