

INTRODUCTION

Early Childhood Caries (ECC) is virulent form of dental caries affecting primary teeth of children under six years which damages the teeth and adversely affects oral and general health.¹ Prolonged bottle-feeding with milk or sugary fluids, frequent breast-feeding especially during sleep and delayed weaning are ECC risk factors.¹⁻⁴ The microbes are transferred from mother to child and through the sharing of spoons and soothers.^{5,6} Caries process starts soon after teeth eruption and progresses rapidly. Pain, infection, and early teeth loss caused by ECC affect children's nutrition, phonetics, cause malocclusion and adds financial burden in future. Thus, prevention of oral disease and maintenance of oral health is important.

Gynecologists and pediatricians are the doctors regularly visited by mothers during antenatal and after childbirth. Information provided by these doctors to mothers on ECC can help prevent it by avoiding the risk factors and maintaining oral hygiene.⁷ It is essential for gynecologists and pediatricians to have knowledge about ECC. The role of pediatricians in oral health was formalized in a policy issued by the American Academy of Pediatrics in 2003 and reinforced by another policy issued in 2008.⁸ However, there is sparse data on knowledge on oral health among medical practitioners in Nepal. Thus, the findings of the study done to assess knowledge and attitude towards ECC and need of oral health education among pediatricians and gynecologists is presented.

MATERIALS AND METHODS

A cross sectional quantitative study was conducted among 205 gynecologists and pediatricians working in various hospitals of Nepal from January 15 to March 15, 2020 after obtaining ethical clearance from institutional review board of Nepal Health Research Council (Reference no.1475).

Data from the participating Nepal Medical Council registered gynecologists and

pediatricians were collected after informed written consent. The self-administered questionnaire was used for data collection which included 23 close ended questions divided into two sections: the first section to assess the knowledge and the second section assessed attitude and practice in addition to personal details like name, gender, and medical specialty. Introduction about ECC in brief was also attached to the questionnaire.

The knowledge was assessed based on questions about ECC, factors causing caries. Besides these, knowledge regarding mode of transmission of bacteria and maintenance of oral hygiene and role of fluoride in prevention of caries and effect of untreated dental caries in other systemic diseases were assessed. Their attitude towards prevention of dental caries was assessed depending on the response to queries on first dental visit, frequency of dental visits, examination of the child's teeth for cavities, importance of tooth brushing and timing of tooth brushing, recommendation made to parents and referral of children with oral disease to pediatric dentists.

The data were analyzed using percentage and frequency.

Scoring criteria:

Scores was given to each question with respect to knowledge and attitude section. Score 1 was for the correct answer and zero for incorrect answer or not sure/don't know answer. The scores expressed in percentage were presented as follows: <50%: Poor, 50-75%: Moderate and >75%: Good Statistical Analyses descriptive statistics such as frequency and percentage were used to present the data. Data analysis was done by using Microsoft Excel.

RESULTS

Total participants were 205 out of which 132 were gynecologists and 73 were pediatricians. Personal details of respondents revealed 45% males and 55% females, age ranged from 30 to 70 years (mean age: 35 years). Majority (51%) were institutional based practitioners, 52.6% based in Kathmandu valley and 65.8%

had more than five years of medical practice (Table 1). Among the 205 medical practitioners, 35% of them were seeing 25-50 patients per day. Most of the pediatricians (62%) reported the frequency of Early Childhood Caries in their clinic to be more than one, 20% reported to be less than one and 18% pediatricians reported none in a week. Majority of pediatricians (74%) examined teeth for cavities in children and 88 % suggest cleaning the teeth twice daily. Most of the pediatricians (82%) always referred children with oral diseases and dental caries to pediatric dentist, 15% did so sometimes whereas remaining three percent never made any referral.

Table 1: General Information of the respondents

Variable	Frequency (N=205)	Percentage
Gender		
Male	93	45.36
Female	112	54.64
Age in years		
<30	9	4.39
30-39	133	64.87
40-49	41	20.00
>50	22	10.74
Specialty		
Gynecologist	132	64.39
Pediatrician	73	35.61
Academic Qualification		
MBBS, DCH/DGO		
MBBS, MD	7	3
MBBS, DCH/DGO & MD	190	93
	8	4
Type of Practitioner		
Academic Institutional Based	105	51
Hospital Based	80	39
Private	20	10
Place of Practice		
Kathmandu Valley	108	52.6
Outside Kathmandu	97	47.4

Years in Practice

< 5 years	70	34.2
> 5 years	135	65.8

Knowledge of pediatricians and gynecologists about ECC was obtained. Majority of them (78%) knew dental caries to be an infectious disease. All four factors: tooth, time, bacteria and sugar were reported to be factors involved in caries process by 91%. Regarding caries risk factor, 68% felt the frequent sugar was the most important one. Majority (56%) knew that night feeding may lead to caries and rest were not sure. 77% were not aware that exclusive breast feeding for more than 14 months could cause ECC. But 63% reported that bottle feeding could cause dental caries. Only 24% participants knew that caries causing bacteria could be transmitted from mother to child and 34% thought that child born to a pregnant woman with dental caries could have ECC. But 63% thought that family tendency could lead to ECC. Almost all, 96% respondents thought that inadequate tooth brushing and poor oral hygiene lead to ECC and 78% participants reported that fluoridated toothpaste prevents caries. Majority of respondents (91%) thought that untreated dental disease can lead to systemic complications (Table 2).

Regarding attitude of participants towards prevention of dental caries, about half (54.7%) felt that the first year would be ideal for the first dental visit. Similarly, 51.3% thought that a child should have dental visit once in six months. Majority (71.2%) usually counsel children and their parents on the importance of tooth brushing. 45% suggest commencement of tooth brushing after eruption of few teeth whereas 28% suggest it should be soon after eruption of first teeth and 26% suggest when all teeth eruption. Most of the practitioners (94%) think that they have a role in prevention of oral diseases. Similarly, 94% think that pregnant women need oral examination and routine dental checkup is important for prevention of oral diseases (Table 3).

Table 2: Knowledge about early childhood caries

Knowledge	Frequency(N=205)	Percentage
Knowledge on dental caries an infectious disease?		
Yes	159	78
No	32	16
Not sure	14	6
Factors involved in caries process		
Tooth	0	0
Time	0	0
Bacteria	8	4
Carbohydrates (sugar)	10	5
All	187	91
The most important cause of early childhood caries		
Amount of sugar intake	29	14
Frequency of sugar intake	139	68
Don't know	37	18
Night feeding associated to caries		
Yes	114	56
No	48	23.1
Not sure	43	20.9
Exclusive breast feeding >14 months cause ECC		
Yes	46	22.7
No	121	58.7
Not sure	38	18.6
Bottle feeding can cause early childhood caries		
Yes	130	63.5
No	34	16.5
Not sure	41	20
Dental caries in pregnancy may cause caries		
Yes	68	34
No	89	43
Not sure	48	23
Mother to child transmission of dental caries bacteria can occur		
Yes	49	24
No	115	56
Not sure	41	20
Family history can cause ECC		
Yes	130	63.2
No	43	21.2
Not sure	23	15.6
Inadequate tooth brushing & poor oral hygiene cause ECC		
Yes	198	96.5
No	0	0
Not sure	7	3.5
Untreated dental disease can lead to systemic complications		
Yes	187	91.2
No	3	1.4
Not sure	15	7.4
Fluoride dentifrices will help prevent dental caries		
Yes	160	78
No	8	4
Not aware	37	18

Table 3: Knowledge of pediatricians and gynecologist towards prevention of early childhood caries

Questionnaire related to Knowledge	Frequency (N=205)	Percentage
Time of first dental visit for a child		
At 6 months	60	29.4
At 1 year	112	55
When dental caries present	7	3.4
When pain present	16	3.4
Not sure	10	4.8
Frequency of dental visit for a child		
Once in 6 months	105	51.3
Once a year	79	38.7
When the problem arises	10	4.8
Not sure	11	7.3
Counsel children and their parents on the importance of tooth brushing		
Yes	146	71.2
No	14	6.8
Yes, occasionally	45	22
Commencement of tooth brushing		
After eruption of first milk teeth	57	28
After eruption of some milk teeth	93	45
After eruption of all milk teeth	55	27
Role in promoting oral health/in prevention of oral diseases		
Yes	193	94
No	4	2
No response	10	4
Need of dental checkup in pregnant women		
Yes	193	94
No	4	2
No response	8	4
Routine dental visit is important for dental caries prevention		
Yes	194	94.6
No	3	1.4
Not sure	8	4

Table 4. Dental practice among pediatricians.

Dental practice among	Frequency (N=73)	Percentage 100
Frequency of early childhood caries in OPD		
>once a week	45	62
<once a week	15	20.7
None in a week	13	17.2
Examine teeth for cavities in children		
Yes	54	74.15
No	2	2.7
Sometimes	17	23.6
Advice parents to wash/clean their children's teeth twice daily		
Yes	64	88.2
No	3	4
Sometimes	6	7.8

Refer children with oral diseases/dental caries to pediatric dentist		
Yes, always	60	82
No	2	3
Yes, Sometimes	11	15

Table 5. For Both Pediatrician and Gynecologist

Interest to receive oral health care training (N=205)		
Yes	170	83.3
No	25	12.19
Not sure	10	4.7

DISCUSSION

Early Childhood Caries in infants and children under six years damages the tooth and adversely affect oral cavity and general health.¹ Pediatricians and gynecologists are instrumental in preventing ECC and maintaining oral health of children as they attend the children regularly and are visited by the mothers during antenatal and after childbirth. As the message imparted by these physicians are important, the present study was done to evaluate the knowledge and attitude of Nepalese gynecologists and pediatricians regarding ECC and the findings are presented.

The health professionals from the fields of dentistry, medicine especially pediatricians, gynecologists and related professions are extremely important to raising awareness regarding oral health and prevention.^{9,10} They need to have adequate knowledge for effective education and preventive therapies to be delivered to the parents to control childhood caries (ECC), prevent the dental rehabilitation need, and improve the oral health of their children. In the present study, knowledge about ECC is found to be moderate (mean score-63.88%) in a sample of Nepalese gynecologists and pediatricians. A study done in Kathmandu showed that the oral health related knowledge among nursing students was fairly adequate with some lack regarding oral cancer, fluorides and prosthetic rehabilitation.¹¹

Majority (78%) of the participants in the present study knew that dental caries to be an infectious disease. Regarding etiological factors, 91% answered all three factors could cause caries but only 68% knew that it is not the amount but frequency of sugar intake is crucial for caries. This finding is better than previously that reported 43% by Poornima et al.¹²

Breastfeeding, the best feeding method for infants if done more on nocturnal basis, demand basis, and over prolonged period beyond 14 months could adversely affect dentition like bottle feeding.^{13,14} Studies done by Sabbagh et al and Dhanu R et al reported 81.3% and 63% of pediatricians respectively being familiar with the harmful effects of night breast feeding.^{15,16} However, in the present study, 56% of pediatricians and gynecologists knew that nocturnal breast feeding is one of the causes of ECC. Seventy-seven percent of them were not aware that breast feeding beyond 14 months can predispose ECC which is like that reported by Poornima et al.¹² Majority (63%) in the present study were aware that bottle feeding could cause dental caries which was reported to be more than 50% by Murthy et al.¹⁷

Studies have documented maternal-to-child transfer of caries bacteria eventually leading to ECC.¹⁸⁻²⁰ In this study only 24% had knowledge about the above fact and only 33.7% identified prevalence and severity of dental caries during pregnancy predisposes to caries in their offspring but 63% knew about vertical transmission of bacteria which is similar to that reported earlier by Kumar et al,

among practicing gynecologists and Lewis C et al among pediatricians.^{21,22}

Regarding association of poor oral hygiene and caries, 96% respondents thought that inadequate tooth brushing can lead to ECC and 78% participants knew that fluoridated toothpaste prevents caries. Fifty three percent of the pediatricians felt that one year would be ideal for the first dental visit. This is in accordance with the guideline of American Academy of Pediatric Dentistry (AAPD) and American Academy of Pediatrics which recommends the first dental visit to be within 6 months of the eruption of the first tooth.²⁰ This is supported by similar earlier studies.²³⁻²⁶ Early visits to the dentist allow opportunity for preventive measures, early diagnosis, and education on diet and oral hygiene.²⁷⁻²⁹ Half of the respondents were aware of the biannual dental visit which is recommended by AAPD.³⁰ Majority (71%) usually counsel children and their parents on the importance of tooth brushing and 45% suggests commencement of tooth brushing after eruption of few teeth whereas 28% suggest it should be soon after the first tooth eruption and 26% suggest after all teeth eruption. Similar findings were reported by Sanket et al.³¹

In the present study 78% of pediatricians and gynecologists thought that they have role in prevention of caries and 94 % of them agree with the need of routine dental checkup during pregnancy as a preventive measure. This reflects an awareness of their role in promoting oral health care. Seventy four percent of pediatricians examining teeth in the present study for cavities in children is similar to that as

reported by Sabbagh et al.¹⁵ As in other studies, 88.2% pediatricians recommended cleaning of teeth twice daily.³²

In this study, 88% pediatricians refer children with oral diseases or dental caries to pediatric dentist which is like earlier reports except the one reported by Sabbagh et al.¹⁵ where only 47.7% of pediatricians made the referrals to pediatric dentist.

Realizing the importance, 83% of pediatricians and gynecologists revealed their interest in taking oral health training to obtain basic knowledge.

CONCLUSION

Moderate knowledge about childhood caries is reported among a sample of Nepalese gynecologists and pediatricians. However, there is lack of knowledge in harmful effect of prolonged breast feeding, vertical transmission of oral bacteria and importance of healthy oral health in expecting mother for prevention of dental caries in children. Hence, oral health education is recommended for both gynecologists and pediatricians for better health of children.

Limitations of the Study:

The present the study included close ended questionnaire survey which could have limitation in obtaining complete awareness of the participants on early childhood caries. This study was limited to the 205 of pediatricians and gynecologists from some major cities and may not be representative of the country.

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