

Knowledge, attitudes and practices of physicians receiving children on early dental caries in 28 health facilities in Yaounde

Abstract

Background: dental caries in children can lead to pathologies of both temporary and permanent dentition. Its prevention and early detection depend on good communication between dental specialists and parents.

Objective: to assess physicians' knowledge, attitudes and practices regarding dental caries and its prevention in paediatric units.

Methods: This was a knowledge, attitudes and practices (KAP) study conducted in 28 hospitals at Yaoundé including physicians receiving children. A score was used to assess knowledge, attitudes and practices, assigning 1 point or 0 depending on the answer, right or wrong. Knowledge was scored as poor, insufficient, average or good, with points ranging from zero to 100%. Attitudes were rated as bad, wrong, approximate or right, and practices as bad, inadequate or adequate.

Results: Of 111 participants, 55% were General Practitioners. The definition of early tooth caries was not mastered (57.8%), only 29.7% mentioned the main risk factor, and 82.0% did not know the appropriate time to prescribe fluoride toothpaste. The knowledge score was poor (56.8%), insufficient (7.2%) and average (36.0%). As for attitudes, only 6.8% recommended dental check-ups, although 78.4% appreciated collaboration with dentists and 76.6% the need to raise awareness of tooth brushing. Attitudes were judged to be approximate (68.4%) regarding the importance of routine dental examinations during consultations. As for practices, 73.9% of doctors only examined children's teeth occasionally. Their practices were scored as adequate (33.3%), inadequate (54.1%) and harmful (12.5%).

Conclusion: Physicians lack of knowledge, attitudes, and practices regarding dental caries in children warrants improvement of their skills to optimise parents' awareness of early dental caries prevention.

Keywords: knowledge, attitudes, practices, physicians, child, dental caries, prevention, Yaoundé-Cameroon

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Introduction

Dental caries occurs mainly due to poor oral hygiene. Without early detection and management, it can lead to pathologies of temporary teeth with speech learning disorders, malocclusions of permanent teeth and aesthetic disorders.¹⁻³ Early dental abnormalities may also be due to inherited genetic disorders.⁴ Hereditary dental anomalies are not uncommon, and their management is often overlooked even by dentists, making early diagnosis essential. Caries disease is one of the most well-known chronic pathologies in children; its repercussions are significant on their health and quality of life, particularly in the African context where 60 to 90% of those who are in school suffer from it.^{5,6} The caries process can be controlled by promoting a healthy diet, water fluoridation, and the usage of topical fluoride in children or fluoridated toothpaste.⁷ This requires good communication with parents and to this end, doctors working in pediatric departments play a crucial role by requesting consultations from the first hours of life until adolescence.^{7,8} In a study conducted in Cameroon in 2011, the authors reported that children aged 7 to 11 years represented 67% of patients, with a prevalence of 54% of dental caries.⁶ Early demand for dental care by children is not common in the practice of dentists.^{9,10} In addition, spontaneous attendance at a dental services is low (20.7%),

it is motivated by pain, generally in children over 6 years old.¹¹ Thus, hygiene and recourse to dental care are very low in the population under six years old.¹² The lack of information on the role of child health professionals in dental care justifies this survey, which aimed to analyze the knowledge, attitudes and practices of the latter on early dental caries in children.

Methods

This was a knowledge, attitudes and practices survey conducted among doctors receiving children in 28 hospitals in the public, private secular and religious sectors of Yaounde, between January and May 2022. They consisted of Paediatric Residents, General Practitioners or Specialists present in the child departments who had completed at least 90% of the self-administered questionnaire. The socio-professional characteristics of the participants were described. The framework of a KAP survey made it possible to assign a knowledge, attitude and practice score by assigning 1 point or 0 each time depending on whether the answer was correct or incorrect.¹³

Knowledge included initial training on dental caries; definition of early dental caries, age of first teeth, age of toothbrushing, early use of fluoride toothpaste, personnel responsible for advising parents,

carious lesions and associated factors. Four levels of knowledge of respondents were considered: poor corresponding to a score <50%, insufficient <65%, average <85% or good with >85% correct answers.

The physicians' attitude included their assessment of the importance of: avoiding medications and products that impact children's teeth; brushing teeth after a cariogenic meal; recommending cleaning infants' teeth; examining them, as well as collaborating with a dentist. Responses to the attitude questions were recorded as follows: strongly disagree, disagree, neither disagree, nor agree, agree. Considering the same response ratings as those applied to knowledge, attitudes were either harmful, wrong, approximate or correct.

The practice consisted of researching the average number of children consulted daily by the doctor, the routine prescription of systemic fluoride, the systematic examination of teeth, and the practice of current education on the use of fluoridated toothpaste in

children. These practices were classified into three orders: harmful, inadequate, or adequate, notably with < 33.3%, < 66.6% and > 66.6% of correct responses respectively.

The study received authorization No. 349/UY1/FMSB/VDRC/DAASR/CSD from the Institutional Ethics and Research Committee of the Faculty of Medicine and Biomedical Sciences of the University of Yaoundé I.

Results

A total of 111 physicians receiving children consisting of 24 Paediatricians (21.6%), 26 in specialization (23.4%) and 61 General Practitioners (55.0%) were surveyed in 28 health facilities. Women predominated (66.7%) with a sex ratio of 0.5. The majority (85.4%) had been trained in Cameroon with 46.8% having less than five years of professional experience (Table 1).

Table 1 Socio-professional characteristics of the study participants

Variable	Modality	Frequency	Percentage
Sex	Female	74	66.7
	Male	37	33.3
Age (years)	[20; 30]	45	40.5
	[31; 40]	52	46.8
	[41; 50]	13	11.7
	> 50	1	0.9
	≤ 5	52	46.8
Professional experience (duration in years)	6 – 10	46	41.4
	11 – 15	11	9.9
	≥ 16	2	1.8
Qualification of doctors	Paediatricians	24	21.6
	Residents	26	23.4
	General practitioner	61	55
Place of initial training	Cameroon	89	85.4
	Foreign	22	14.6
	Public	59	53.2
Place of practice	Private	25	22.5
	Mixed	27	24.3

Knowledge of dental care

More than half (57.8%) were unaware of early dental caries; only 29.7% were aware of the factors responsible for it and 36% knew that brushing began when the first tooth erupted and not the first molars.

Most (82%) also did not know that the use of fluoride toothpaste was recommended at the beginning of teeth cleaning. The rating score showed that doctors had poor (56.8%), insufficient (7.2%) and average (36.0%) knowledge about children's dental health (Table 2).

Table 2 Physicians' knowledge of early dental caries and its prevention

Variable	Modality	Effective (N=111)	Percentage
Assessment of basic dental care teachings received	Very sufficient	2	1.8
	Sufficient	21	18.9
	Neither sufficient nor insufficient	13	11.7
	Insufficient	47	42.3
Time to onset of carious lesion	Before 3 years	27	24.3
	Before 6 years old	11	9.9
	I don't know	73	57.8
The main risk factor for tooth decay	Amount of sugar ingested	52	46.8
	Frequent ingestion of sugar	33	29.7
	I don't know	26	23.5

Table 2 Continued....

	Around 3 months	6	5.4
	Around 6 months	94	84.7
	Around 9 months	8	7.2
	I don't know	3	2.7
	Dentists	2	1.8
	Paediatricians	1	0.9
Staff able to advise on daily tooth brushing	General practitioners	4	3.6
	All three	104	93.7
	As soon as temporary teeth erupt	19	17.1
	At food diversification	15	13.5
When to start brushing children's teeth	After the first temporary molars	40	36
	After the 2nd temporary molars	11	9.9
	I don't know	26	23.4
	< 6 months	3	3.5
	6-12 months	25	27.7
When to start using fluoride toothpaste	1-3 years	22	24.4
	After 3 years	40	44.4

Attitudes of doctors towards dental care

The correct attitudes were the majority (62.2%), approximate (26.1%), erroneous (10.8%) and somewhat harmful in 0.9% of the doctors concerning the recommendations in dental care. Among the 91 doctors who did not find education on the systematic use of fluoride toothpaste necessary, 44.4% thought that fluoride would

be recommended from 1 to 3 years (Table 2) and 57.6% did not recommend daily teeth cleaning. More than 3/4 (78.4%) found collaboration with dentists important and 76.6% saw the need to raise awareness among parents on brushing their teeth after consuming cariogenic sugars (Table 3). Only 6.8% recommended a dental visit and in case of necessity, only problems or a caries risk factor motivated 97.3% to refer the child to a dentist.

Table 3 Physician's attitudes towards dental care during consultations

Variable	Modality	Effective	Percentage
How do you assess the systematic examination of the teeth of young patients?	Very important	76	68.4
	Important	31	28
	Not important	4	3.6
	I don't agree at all	0	0
Are you in favor of working with the dentist to prevent cavities?	Disagree	0	0
	Neither disagree nor agree	14	12.6
	All right	87	78.4
Do you give any advice on cleaning infant teeth?	Yes	85	76.6
	No	26	23.4
Do you recommend cleaning children's teeth?	Yes	47	42.3
	No	64	57.6
Do you recommend brushing children's teeth after sugary or cariogenic meals?	Yes	6	5.4
	No	61	55
	Sometimes	44	40
	I don't agree at all.	0	0
What do you think about brushing children's teeth after meals rich in cariogenic sugar?	Disagree	5	4.5
	Neither disagree nor agree	26	23.4
	All right	80	72
What is your opinion on the prescription of systemic fluoride in children?	Useful	7	6.3
	Not necessary	14	12.6
	Necessary	90	81
	I don't agree at all.	5	4.5
What do you think about children's abstraction of drugs that affect teeth?	Disagree	22	19.8
	Neither disagree nor agree	29	26.1
	All right	55	49.5

Table 3 Continued....

When do you send a child to his/her first dental visit?	Between the 1st teeth - 1st birthday	6	5.4
	Between 1 and 2 years	12	10.8
	Between 2 and 3 years old	12	10.8
	Entry into primary school	29	26.1
	Never	52	46.8
	Dental problem	108	97.3
For what indication(s) do you refer a child to a dentist?	A cavity	109	98.2
	Multiple cavities	109	98.2
	Toothache	109	98.2
	Dental trauma	109	98.2
	Tooth infection	110	99.1
	Soft tissue abnormality	95	85.6
Do you educate children about the use of fluoride toothpaste?	Bad breath	1	0.9
	Yes	20	18
	No	91	82

Practices in dental care

The survey found that 73.9% of physicians examined children's teeth only occasionally (Table 4). According to the rating score,

their practices were adequate in one-third of cases (33.3%), mostly inadequate (54.1%) or harmful (12.5%).

Table 4 Physicians' practices regarding dental care

Variable	Modality	Effective	Percentage
Do you examine your young patients' teeth?	Systematically	27	24.3
	Occasionally	82	73.9
	Never	02	1.8
Do you routinely screen children for caries?	Systematically	12	10.8
	Occasionally	87	78.4
	Never	12	10.8
Do you prescribe systemic fluoride to children?	Systematically	3	2.7
	Only in case of high caries risk	15	13.5
	Never	93	83.8
At what age do you stop prescribing fluoride to children?	2 years	52	46.8
	3 years	08	7.3
	I don't prescribe it.	51	45.9

Discussion

Tooth are put in place and grow according to a complex genetic and environmental system.¹⁴ Depending on the stage where alteration occur, dental anomalies could concern their number, structure and shape. Regarding the dental structure, common inherited conditions are associated with early dental abnormalities, such as amelogenesis imperfecta, dentinogenesis imperfecta, hypophosphatasia, and ectodermal dysplasia.¹⁵ Adding to the genetic conditions, environmental influence of the dental development is common in the resources limited setting. Dental caries remains a health crisis to be addressed, however, it is insufficiently integrated into primary health care. There is currently a lack of clinical guidelines for the diagnosis and treatment of tooth developmental anomalies, this situation is usually associated with the difficulties in clinical practice.¹⁶ Many studies have noted the inadequate knowledge of child health professionals about dental caries, and its prevention, including the importance of fluoride use.¹⁷⁻¹⁹ In southern India, a study of primary healthcare staff revealed knowledge deficiencies of nearly 41–53% about oral care and the origins of dental caries in early childhood.²⁰ The knowledge of many paediatricians is reported to be poor, particularly about the age of first dental consultation, dental caries, and assessment of oral

health risks.^{19,21} Although the Tai Medical Personnel had high levels of knowledge about oral care instructions, they experienced less knowledge about recommendations for timing of the first dental visit.²² In the United Arab Emirates, 47.6% of paediatricians reported that the age of starting toothbrushing corresponded to the time of eruption of the first molar, that is, between 2-3 years.²³ In the present study, as in Lagos, nearly 59% of paediatricians had average knowledge.¹ Thus, 57.8% of physicians responsible for children's health were unaware of early dental caries; only 29.7% were familiar with the factors responsible for it. Among the obstacles, the following were mentioned: lack of education and training, time constraints due to workload and the absence of a referral system for optimal reference.¹⁹ In addition to the inadequacy of basic training on oral care, there is also a lack of continuous education on the subject.¹⁸ Paediatricians are nevertheless aware of their crucial role in preserving children's oral health.^{17,24} Faced with the difficulties in responding to the problem of oral care, they are very keen to strengthen their skills.¹⁸ This is undoubtedly one of the reasons why courses on this discipline are recommended during the basic training of Paediatricians and General Practitioners.^{1,18,25} In the United States, an evaluation of the evolution of knowledge, confidence, attitude and clinical practice after 10-week interprofessional courses on children's oral health

interested dental students, in osteopathic medicine and nursing at the University of California and San Francisco. This resulted in significant improvements in their overall knowledge, confidence in their ability to provide oral health care, and clinical practice.²⁶ In a resource-limited country such as Cameroon, such teaching would help to address the deficits in children's knowledge, attitudes, and referrals for appropriate dental care. In addition to physicians' knowledge gaps about the a etiology and prevention of dental caries, their attitudes and practices regarding routine dental examination and management are also problematic.²⁷ In North Carolina, healthcare workers were more likely to refer children rather than provide advice on dental care.²⁸ Elsewhere, they were more likely to refer children at risk of dental disease or with teeth in the early stages of decay to dentists than to provide advice.²⁸ However, an improvement in awareness among General Practitioners was found only after a one-hour seminar on the topic.²⁹ This would only be optimal if there were referral guidelines between these Practitioners and Dentists. This is generally not available and one study found inconsistencies in dentists' views on how doctors should promote the oral health of young children.³⁰ The present study found that 78.4% of the practitioners surveyed did not routinely screen for caries, but occasionally, and they only referred a child to a dentist if there was a proven dental problem. In the United States, when a child with a high risk of caries arose, more than 90% of respondents recommended that the child consult a dentist as soon as possible.³¹ Similarly, a meagre proportion of paediatricians (14%) and family physicians (19%) recommended an early visit to a Dentist for a child with a low risk of caries.³¹ Even if they did recommend it, the first visit would occur around the third birthday according to the majority.³¹ Similar results were noted in the present study.

Conclusion

Doctors in charge of children's health have inadequacies in knowledge, attitudes, and practices regarding early dental caries. Their skills require enhancement to ensure optimal parental awareness of its prevention and optimal management in collaboration with dentists. Integrating oral health into the general medicine teaching program in Cameroon would overcome these inadequacies.

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Conflicts of interest

The authors declare that there are no conflicts of interest.

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