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Knowledge, Attitudes and Practices of Parents on Fluorides in the Prevention of Dental Caries in Children In Yaounde

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ABSTRACT

Introduction: Fluoride exposure plays an important role in preventing and lowering the incidence of cavities with strong evidence for water and fluoride toothpaste. The preventative effect of fluoride on dental caries results from its topical contact with the surface of the enamel and through its antibacterial properties. The influence of fluoride on the oral health of children is at several levels. Studies have shown that parents have a low level of knowledge about the essential role of fluorides on teeth. The purpose of this study is to assess knowledge, identify attitudes and determine parental practices regarding fluorides in the prevention of dental caries in children.

Methods: This study was transversal CAP (Knowledge, Attitudes and Practices) with a descriptive aim. The source population consisted of parents of children aged 2 to 12 livings in Yaoundé who had given their consent. The sampling was consecutive. Collection was done using a 33-item questionnaire. It thus made it possible to collect socio-demographic data, parents' knowledge of fluorides, their attitudes regarding the importance of fluorides in preventing dental caries, their practices on the use of fluorinated substances and finally to collect their expectations. The collected data was entered and analyzed in SPSS software version 26.0. The statistical test used was Chi-square to look for associations between variables, results with a p-value less than 5% were considered statistically significant.

Results: 68% of the parents recruited were women. The sex ratio was a sex ratio of 0.46. The median age was 32. Half of our sample had reached a higher level of education; 44.3% of parents were married. 40% of parents were self-employed, 30% were working employees. 74.7% of parents defined decay as the hole in the tooth, while 3% had no idea. Most parents cited sweets as its main cause at a rate of 92.3%. 93.3% of parents agreed that there was a possibility of prevention. 76.8% of parents had heard of fluoride. 66.4% of parents cited "strengthening the tooth" as the role of fluoride. 97% recognized the role they had to play in their children's dental health. 36% of parents did not take any precautions to avoid fluoride overdose.

Conclusion: The majority of parents had an average knowledge of the use of fluoride in preventing tooth decay, with rough attitudes, and harmful practices.

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Introduction

According to the World Health Organization, caries is defined as a pathological process, localized, of external origin, appearing after the eruption, which is accompanied by a softening of the hard tissues and evolving towards the formation of a cavity. It is recognized as a pandemic with a prevalence in school-aged children of 60% to 90% [1]. It is a chronic and multifactorial disease. Bacteria, high carbohydrate diet, poor quality of enamel, poor oral hygiene and the duration of their association are the starting point [2].

Fluoride exposure plays an important role in preventing and lowering the incidence of caries with strong evidence for fluoridated toothpaste and water. The preventive effect of fluoride on dental caries results from its topical contact with the surface of the enamel and through its antibacterial properties. The use of fluoride in children should therefore be based on regimens that maximize topical contact, preferably at low doses and at high frequencies [3].

The influence on the oral health of the child is at several levels. It can be at the individual, family and community level. The level of family influence is mainly through the parents with whom the children spend the most time [4]. During this period, eating habits and oral health behaviors are instilled in the child. Researchers

have shown that parents had a low level of knowledge about the essential role of fluorides [5]. This study aims to assess knowledge, identify attitudes and determine parental practices regarding fluorides in the prevention of dental caries in children.

Methods

This study was cross-sectional KAP (Knowledge, Attitudes and Practices) with a descriptive aim. The source population consisted of parents of children aged 2 to 12 living in Yaoundé who had given their consent. Sampling was consecutive. Data collection was done using a 33-item questionnaire. It thus made it possible to collect socio-demographic data, parents' knowledge of fluorides, their attitudes regarding the importance of fluorides in the prevention of dental caries, their practices on the use of fluorinated substances and finally to collect their expectations. The data collected was entered and analyzed in SPSS version 26.0 software. The statistical test used was Chi 2 to look for associations between variables, results with a p-value less than 5% were considered statistically significant.

Results

68% of parents recruited were women. The sex ratio was a sex ratio of 0.46. The median age was 32 years old. Half of our sample had reached a higher level of education; 44.3% of the parents were married. 40% of the parents carried out a liberal activity, 30% were active employees. 74.7% of parents defined the cavity as the hole in the tooth, while 3% had no idea. Most parents cited sweets as its main cause at a rate of 92.3%. 93.3% of parents recognized that there was a possibility of prevention. 76.8% of parents had already heard of fluoride. 66.4% of parents cited "strengthening teeth" as the role of fluoride. 97% acknowledged the role they had to play in the dental health of their children. 36% of parents took no precautions to avoid fluoride overdose.

Methodology

A cross-sectional KAP (Knowledge, Attitudes and Practices) descriptive study was carried out in Yaoundé in the Biyem-Assi health district for a period of 8 months from December 2019 to July 2020.Our source population consisted of parents of children aged 2 to 12 living in Yaoundé who had given their consent. Sampling was consecutive. The collection was made using a 33-item questionnaire, administered, anonymous and pre-tested. It thus made it possible to collect socio-demographic data, parents' knowledge of fluorides, their attitudes regarding the importance of fluorides in the prevention of dental caries, their practices on the use of fluorinated substances and finally to collect their expectations.

To carry out this study, we first submitted our research protocol to the Institutional Ethics and Research Committee of the Faculty of Medicine and Biomedical Sciences of the University of Yaoundé 1 in order to obtain a clearance. ethics. Subsequently, we submitted a request for authorization for recruitment to the head of the biyem-assi health district chosen for recruitment. In compliance with the principles and standards of medical ethics, informed consent was obtained before the start of the interview. The parent was then subjected to an interview of about 15 minutes, based on the administration of an anonymous questionnaire.

The data collected was entered and analyzed in SPSS version 26.0 software. The variables were expressed in the form of numbers and frequencies for the qualitative variables and of the median and interquartile range for the quantitative variables. Regarding data management, the data rating grids were made respecting the CAP as proposed by Essi et al in 2013 [6], the informants answered the questions and the percentages of correct answers were calculated. The statistical test used was Chi 2 to look for associations between variables, results with a p-value less than 5% were considered statistically significant.

Results

Of the 388 parents recruited, 68% (264) were women. The sex ratio was a sex ratio of 0.46. The median age was 32 years [IQR: 26-39], with a minimum of 17 years, a maximum of 70 years. The number of children per parent varied between 1 and 13 with a median of 2 [IQR: 1-3].Half of our sample had reached a higher level of education; and also 44.3% of parents surveyed were married. 40% of the parents carried out a liberal activity, 30% were active employees. The most represented age group was that of 25 to 35 years (41.2%; n=160).
The details are mentioned in the table below.

Table 1: Sociodemographic characteristics of the study population

Variables	Workforce (n)	Percentages
Sex		
Male	124	32
Feminine	264	68
Age (in years)		
< 25	60	15,5
[25-35]	160	41,2
[35-45]	112	28,9
[45-55]	46	11,9
≥55	10	2,6
School level		
Without studies	4	1
Primary	24	6,2
Secondary	166	42,8
Superior	194	50
Marital status		
Single	148	38,1
Married	172	44,3
Divorced	4	1
Widower widow	6	1,5
Concubinage	58	14,9
Profession		
Unemployed	38	9,8
Student/pupil	64	16,5
Liberal activity	156	40,2
Active employee	128	30
Retirement	2	0,5

With regard to the parents' knowledge, they were divided into knowledge on the generalities of dental caries and knowledge on fluorides.

Regarding generalities about cavities 74.7% of parents defined cavities as the hole in the tooth, while 3% had no idea. Most parents cited sweets as its main cause at a rate of 92.3%. 93.3% of parents recognized that there was a possibility of prevention.

The details are presented in the table below:

Citation: Moneboulou Mengong HP, Ndjoh jules, Nzokeum Pelagho, Njoumemi Zakariaou, Bengondo Messanga (2022) Knowledge, Attitudes and Practices of Parents on Fluorides in the Prevention of Dental Caries in Children In Yaounde. Journal of Pathology Research Reviews & Reports. SRC/JPR-151.
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Table 2: Knowledge on the generalities of dental caries

Variables N=338	Effectifs (n)	Pourcentages
Caries definition		
Black spot	122	31,4
Hole on the tooth	290	74,7
Disease consequences	12	3,1
No idea	12	3,1
Cause		
Sucrerie	358	92,3
Excess salt	4	1
No idea	6	1,5
Others	20	5,2
Possibility of prevention		
Yes	362	93,3
Non	8	2,1
I do not know	18	4,6

Regarding knowledge about fluorides, 76.8% of parents had already heard of fluoride. 66.4% of parents cited "strengthening teeth" as the role of fluoride. Toothpaste was mentioned as the main source of fluoride, i.e. 92.6% of parents. Regarding the side effects related to fluoride overdose, 22.1% of parents said that there were no consequences to using high doses of fluoride, while 31.5% of parents did not know.

Table 3: Knowledge about fluorides

Variables	Effectifs	Pourcentages
Fluor	(**n**=388)	
Heard	298	76,8
Unheard	90	23,2
Fluorine role	(**n**=298)	
Reinforces tooth	198	66,4
Causes caries	6	2
Whitens tooth	36	12,1
Prevent cavities	92	30,9
I do not know	18	6
Source fluor	(**n**=298)	
Dentifrice	**276**	**92,6**
Tablets	14	4,7
Mouthwash	34	11,4
Water	12	4
No idea	10	3,4
How to use	(**n**=298)	
Food	6	2
Dentifrice	268	89,9
Water	16	5,4
Fluoride gel	44	14,8
Blood injection	**4**	**1,3**
Possibility of Overdose	(**n**=298)	
Yes	138	46,3
Non	66	22,1
I do not know	**94**	**31,5**

The level of knowledge of the parents has been represented on the following diagram:

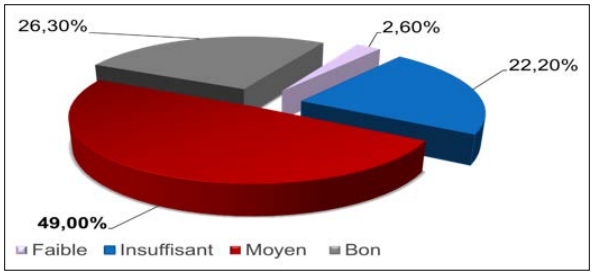

Figure 1: Level of knowledge

Concerning the attitudes, the evaluation was done in two parts: parents' perception on the prevention of dental caries and their perceptions according to the mode of use of fluoride.
The need for prevention during deciduous teeth was perceived by 60% parents.

Most parents, 97%, recognized the role they had to play in the dental health of their children. The details are presented in the following table:

Table 4: Perception of parents on prevention

Variables	Workforce n(388)	Percentages
Need for prevention		
Yes	**234**	**60,3**
Non	98	25,3
I do not know	56	14,4
toothpaste advertising		
Importance	204	52,6
Commerce	98	25,3
Comprehension		
Doesn't matter		
Parent role		
Yes	**378**	**97,4**
Non	10	2,6

Regarding the perception of how fluoride is used, in general common fluoride substances such as fluoride toothpaste, and fluoride baths or gels, i.e. 73% and 53.6% respectively, were perceived as the means of prevention for those in parents who had heard of it. Only 19% of parents perceived fluoridated water as a means of prevention, while nearly 46.9% had no idea. See figure

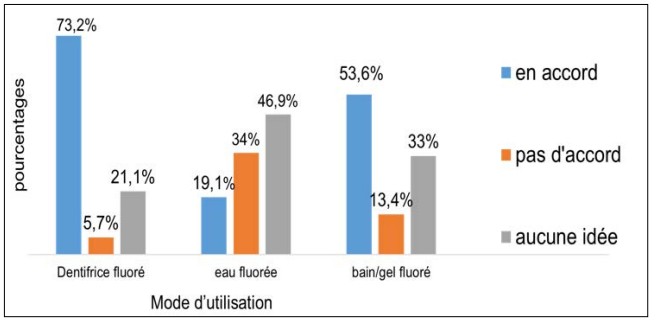

Figure 2: Perception of parents according to the mode of use of fluoride

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The quality of parents' attitudes has been represented on the following diagram:

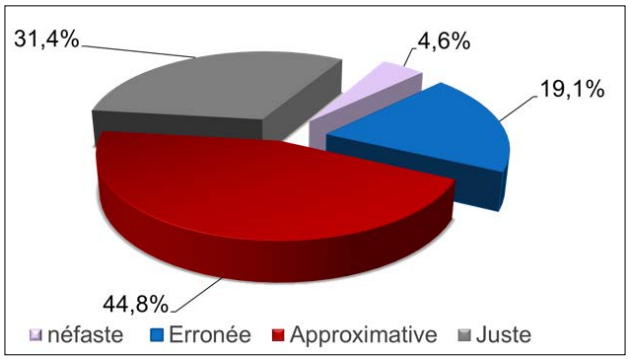

Figure 3: Quality of attitudes

Regarding the practices, they were classified as parental practices according to the method of use of fluoride and according to the different reference sources.

Regarding practices according to the mode of use, fluoridated toothpaste was used by 67% of parents. Fluoride tablets were used by 12% of parents. Fluoridated mouthwash was used by 13% of the study population (see figure).

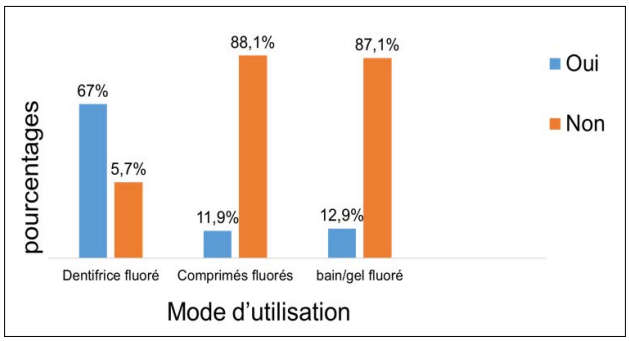

Figure 4: Parents' practices by method of fluoride use

Concerning the reference sources of the different practices, only 13.9% of the parents made regular consultations with a dentist. Justifying the fact that a minority had the dentist as their source of information, i.e. 20.6%. Thirty-six percent of parents took no precautions to avoid fluoride overdose. (See table)

Table 5: Breakdown of parents' practices according to the different reference sources

Variables	Workforce (n=388)	Percentages
Source d'information		
Any	142	36,6
Dentiste	80	20,6
Media	118	30,4
Close	28	7,2
Others	20	5,2
Regular consultation		
Yes	54	13,9
Non	**334**	**86,1**
Precautions		
Read manual	100	25,8
See dentist	56	14,4
Nothing	140	36,1
Rinsing	104	26,8

The quality of parents' practices has been represented on the following diagram:

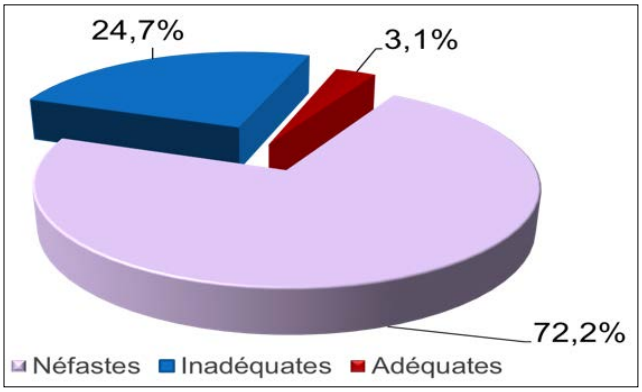

Figure 5: Quality of practices

Discussion

Parents have a central role in the well-being of young children, hence the need to explore their skills on the oral health of their children. Skills can affect the preventive dental care children receive at home and their use of professional dental services. The aim of our study was to determine parents' knowledge, attitudes and practices about fluorides in the prevention of dental caries. A total of 388 parents were included in our study. The population was mainly made up of women (sex ratio 0.46) Among the parents, 92.8% were educated because they had attained at least secondary education, a result that comes close to that of Blumer et al in 2018 in Israel who found that 88% of parents had attained at least secondary education [3] .Regarding knowledge, the answer "hole on the tooth" was mentioned by 74.7% of parents as a definition of dental caries. This result was similar to that of Ngada in Yaoundé in 2019, which found 75% of people who had given a "tooth disease" response that was close to ours [7]. Most (92.3%) mentioned sweets as the cause. 93.3% expressed the possibility of prevention. These results show us a certain mastery of the basics concerning the carious disease, of the main etiological factor and of the possibility of prevention. Result which is similar to that of Prabhu et al in India 2013 [8], for whom 94% of people mentioned sweets as an etiological factor of caries. Concerning the side effects linked to fluoride overdose, 46.3% of parents affirmed that there were consequences to using high doses of fluoride, 22.1% affirmed the opposite while 31.5% of parents did not didn't know anything about it. This result is different from that of Alshehri et al in Saudi Arabia who found rather 26.6%, 42.6%, 8.2% respectively at the values cited above [9].

Regarding attitudes, the need to treat milk teeth was perceived by 60.3% parents. This result is similar to that of Prabhu et al who found 48.7% of parents who perceived milk teeth as important. Chala et al in 2018 found a different result putting as an observation 53.3% of parents who gave no importance to baby teeth [10]. This difference can be explained by the fact that her study consisted mainly of illiterate mothers. The importance of toothpaste, 52.6% of parents said toothpaste advertising was important, 27.8% of parents found it necessary to better understand and 2.6% found it unimportant. This reflects the willingness of parents to want to learn more about the issue. Most parents (97.4%) recognized the role they had to play in the dental health of their children, as also found by Liu et al in 2010 in China where 93% of parents

recognized their role in promoting the oral health of their children [11]. In general, common fluoride substances (fluoride toothpaste, fluoride baths and gels; 73.2%, 53.6% respectively) were perceived as the means of prevention for those parents who had heard of it. This result is in perfect agreement with that of Liu et al in 2010 in China who found the same percentage [11]. Only 19.1% of parents perceived fluoridated water as a means of prevention, while nearly 46.9% had no idea. Hendaus et al in 2019 in Qatar found a result of 33% of parents who had a positive opinion of fluoridated water [12]. This result can be explained by the fact that in our context water fluoridation is not effective.

Regarding practices, only 100 (25.8%) parents had done the first dental check-up for their children; 20 of these parents (20%) had had a check-up less than 6 months old. This result is slightly below that found by Prabhu et al in 2013, India where 32% of parents had already done the first dental check-up for their children [8]. This reflects an inadequate level of practices of these parents requiring a permanent emphasis on the awareness campaign. Fluoride toothpaste was used by 67% of parents. This toothpaste could be adult type (46.4%) or child type (41.8%), a result slightly higher than that found by Ashehri et al who found 55% of parents who used fluoridated toothpaste for their children [9]. Liu et al in 2015 in China instead found 86% of parents who used fluoridated toothpaste [11]. These differences in figures could be explained by the difference not level of education but also the socio-professional status of the different target populations. Indeed in the study of Liu et al nearly 88% parents had reached the next level and the majority of parents had an average standard of living which allowed them a better practice. However 11.8% of parents did not know if the toothpaste was child or adult type. For Naidu et al in 2008 in India, 27% of parents did not know if their child's toothpaste contained fluoride or not [13]. Regarding fluoride tablets, 46 parents (11.9%) had already had to give them to their children. And for the most part it was an oral doctor who had prescribed them. Fluoride mouthwash was used by 12.9% of the study population. This reflects a lack of information from parents about fluorinated substances such as mouthwashes. It is therefore necessary to increase the level of awareness. Only 13.9% of parents made regular consultations with a dental doctor, this justifies the fact that a minority had the dental doctor as their source of information (20.6%). These results are similar to those of Chala et al in 2018 in Morocco where less than 10% of its study population had the dentist as their source of information [10]. Contrary to these results Blumer et al in 2018 in Israel found that 83% of parents had the dentist as their source of information [3]. This difference in result would be linked to the socio-economic level of each of the regions concerned.

The precautions taken to avoid fluorosis were mainly rinsing the mouth thoroughly after brushing (26.8%) and reading the instructions for toothpaste (25.8%); while only 14.4% of parents consulted an oral doctor to avoid an overdose, nearly 36.1% parents took no precautions at all. Knowing the consequences of dental fluorosis parents should take more precautions to avoid it. This requires constant awareness raising in order to increase the level of knowledge on the risk of a possible overdose. Practices were strongly influenced by knowledge and attitudes, showing that by acting on these last two elements, it will be possible to significantly improve the level of practice, which is undoubtedly the most important in the prevention of dental caries.

Conclusion

This study allows us to conclude that: The majority of parents had average knowledge of the use of fluorides in the prevention of dental caries;Their attitudes were approximate; And harmful practices which made their health skills average.

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