

Knowledge, Attitudes and Practices on Oral hygiene among 12 years old school children in Luanshya, Zambia.

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Running Title: Oral hygiene among 12 years old

Abstract

Aims: To assess oral health knowledge, attitudes and practices among 12 years old pupils in Lunacy, Zambia. **Materials and Methods:** A cross-sectional descriptive survey was conducted involving 12 years old children from seven randomly selected urban and peri urban primary schools in Luanshya. A close ended self administered questionnaire adopted from Peterson and Stenberg was used to gather information pertaining to knowledge, attitudes, and practices. Data was analysed using SPSS version 16 and chi square test was used to test for differences in associations where significance was assumed when $p \leq 0.05$. **Results;** A total of 412 pupils with male to female ratio of 1.1:1.0 participated in this study. Majority (91.3%) had adequate knowledge on dental caries while 66.7% had adequate knowledge on periodontal diseases. Most of the participants (76.5%) knew plaque can be prevented by brushing and flossing. More than half of the participants (59.7%) knew causes of gum bleeding and majority (76.4) were aware that bleeding gums can be prevented by brushing and flossing. Only 10.9% were of the opinion that restoration is a better treatment of tooth ache compared to extraction. Majority (84.5%) agreed that regular dental visits are important, however only 10.0% of the participants reported to have visited their dentist regularly within the past one year. Only 11.4% brushed their teeth twice or more in a day and while (0.3%) reported to use dental floss as tooth cleaning gadget. **Conclusion:** Awareness on oral hygiene among participants in this study was generally adequate. Majority thought treatment of a tooth is as important as of any other organ in the body. Tooth extraction was reported as a better option than restoration. Oral health promotion programs are needed to improve oral health knowledge, attitude, and practices among pupils.

Key Words Knowledge, Attitudes, Practices, Oral hygiene, 12 years old pupils, Zambia

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Introduction

Oral health promotion through schools is recommended by the World Health Organization (WHO) for improving knowledge, attitudes, and behaviour related to oral health and for prevention and control of dental diseases among school children (1). Poor oral hygiene and frequent sugar consumption are key behavioural risk factors for dental caries and periodontal diseases (2,3). Early control of the behaviours is important for school going children due to the fact that lifestyles acquired during childhood are powerful predictors of adult health (4). Evidence exists showing strong knowledge of oral health demonstrates better oral

care practice (5) and positive attitude on oral health is influenced by better knowledge (6).

Tooth brushing and dental flossing are important self care practices for prevention of dental caries and periodontal disease (7). Brushing twice a day is a universally accepted recommendation for maintaining good oral health (7). Brushing habits have been shown to be influenced by sex (8) as studies report females adhere to brushing more than males (9-11). Flossing among school children is reported to be rare in most of studies (11,12).

Parents' role in daily oral care is important for child oral health as demonstrated by better oral hygiene and oral health among supervised than unsupervised children (13,14). Al Omiri et al reported that most parents advised on the importance of brushing but did not or rarely supervised their children (15).

Despite the fact that early childhood behaviour affects adult health, little is known about oral health knowledge, attitudes and practices among primary school children in Zambia. Therefore, this study aims at assessing oral health knowledge, attitudes and practices among primary school children. The study will serve as a baseline for oral health intervention programs in primary schools within the country.

Methodology

A cross-sectional descriptive survey was conducted involving 12 years old pupils from seven randomly selected primary schools from urban and peri urban areas in Luanshya. A convenient sampling was used to select three public and four private schools from a total 12 public and 5 private schools in Luanshya district. Approval to conduct the study was obtained from the department of clinical sciences of Copperbelt University and permission was obtained from the District Education Officer of Luanshya District. Consent was obtained from parents through primary school head teachers. A total of 450 pupils were requested to complete a close ended self administered questionnaire adopted from Peterson et al. (16) and

Stenberg et al (17). The questionnaire included questions designed to determine and estimate knowledge, attitudes, and practices of 12 year old school children regarding their oral health and dental treatment. Assessment of pupils' oral health knowledge included items on awareness, on causes, symptoms and treatment of dental caries as well as periodontal diseases. Attitudes and practices on oral health were also assessed by enquiring on the importance of oral health as part of general health and frequency of visits to a dentist in the past one year. The study participants were also requested to state their parents' role on oral health of the child in form of not advising, advising only and advising and supervising. Data was entered using Epi data version 3.1 and later exported to SPSS version 16 for analysis. Attitude and practices were analysed by generating frequency distributions. The Chi square test was used to test for differences in associations where significance was assumed when $p \leq 0.05$.

Results

A total of 412 pupils filled in the questionnaires, giving a response rate of 91.6%. Generally male to female ratio was almost equal (1.1:1.0). There was significant difference in sex distribution of participants by residence and type of school. The sample constituted more males (65.6%) than females (44.0%) in urban areas ($p < 0.001$). Public schools had significantly ($p = 0.028$) greater proportion of females (78.0%) than males (68.4%) (Table 1).

Table 1: Distribution of study participants by socio-demographic characteristics (n=412)

Factor	Sex						p Value
	Total		Male		Female		
	n	%	n	%	n	%	
Residence							
Urban	227	55.1%	139	65.6%	88	44.0%	<0.001
Periurban	185	44.9%	73	34.5%	112	56.0%	
School type							
Public	301	73.1%	145	68.4%	156	78.0%	0.028
Private	111	26.9%	67	31.6%	44	22.0%	

Generally, 91.3% of the participants had adequate knowledge on dental caries while 66.7% had adequate knowledge on periodontal diseases. Specific knowledge on causes, symptoms and prevention of dental caries and periodontal diseases is as shown in table 2 below. Participant's knowledge on dental caries was high as majority knew causes (99.5%), symptoms (98.3%) and prevention (91.3%) of dental caries. More than half of the participants (59.7%) knew the cause of gum bleeding and majority (76.4) were aware that bleeding gums can be prevented by brushing and

flossing. Only 10.9% were of the opinion that restoration is a better treatment of tooth ache compared to extraction, (Table 2).

More than half (60.7%) of the participants reported that treatment of a tooth is as important as treatment of any organ of the body. Majority (84.5%) agreed that regular dental visits are important, however only 10.0% of the participants reported to have visited their dentist regularly within the past one year.

The major reason for not visiting the dentist was fear of dentist's instruments (94.8%). Majority (99.5%) agreed that tooth brushing is important for good oral health. All of the participants reported brushing their teeth with fluoridated tooth paste but only 11.4% brushed twice or more in a day. There

was a significant difference ($p < 0.035$) in reported brushing practice whereby the proportion of males (14.6%) brushing twice or more in day was higher than that of females (8%) as shown on table 4.

Table 2: Frequency distribution of participants according to knowledge on periodontal diseases and dental caries questions (n=412)

Knowledge on periodontal diseases			
Question	Response	Frequency	%
Plaque can be prevented by:	Brushing and flossing	315	76.5
	Will disappear on its own	10	2.4
	Medicines in stores	79	19.2
	I don't Know	8	1.9
bleeding gums is cause by:	Eating sweet food staff	115	27.9
	Not brushing at all/ improper brushing	246	59.7
	Eating hard fruits/ food	47	11.4
	I don't know	4	1.0
Bleeding gums can be prevented by:	Brushing and flossing	315	76.4
	Use of medicines from drug stores	79	19.2
	I don't know	18	4.4
Knowledge on dental caries			
Tooth decay is caused by:	Frequent eating of sweet food staff and not brushing with fluoride tooth paste	410	99.5
	Eating fruits	1	0.25
	I don't know	1	0.25
Dental caries is associated with:	Cavity on tooth, pain, sometime swelling	405	98.3
	Bleeding gums	5	1.2
	I don't Know	2	0.5
Dental caries can be prevented by:	Avoiding sweets and brushing with fluoride tooth paste	376	91.3
	Medicines from drug stores	35	8.5
	It cannot be prevented	1	0.2
What is the best treatment of decay:	Tooth extraction (removing tooth)	353	85.7
	Filling of the decayed part	45	10.9
	Use of medicines from drug stores	14	3.4

About 1 in 10 (14.3%) of the participants reported that parents watched and advised them when brushing their teeth. A greater proportion ($p < 0.001$) of male (20.3%) than females reported to be watched and advised during tooth brushing as shown in table 4.

Discussion

Knowledge on dental caries among the participants was high and for periodontal disease was found to be slightly lower. The reason for the difference could be attributed to more emphasis on dental caries given by most oral health promotion programs conducted by tooth paste selling companies and in media advertisements hence attracting more attention to children. Our findings are consistent with studies done in North Jordan(15) and Saudi Arabia(18) where children were more aware of dental caries than periodontal diseases.

Majority had good knowledge on prevention of dental caries whereas extraction was reported by most participants as a better option than restoration. Poor knowledge on restoration as the best treatment option could be attributed to underdeveloped restorative services in Zambia whereby extraction is the dominant treatment in most of the clinics within the country (19). A study done in North Jordan reported a higher knowledge on treatment of dental caries whereby about 32% of participants knew restoration as the best treatment of dental caries(15).

The fact that slightly more than half of the participants were aware of the causes of gum bleeding indicates that gingivitis is not well known. This implies that this community cannot make informed decision on prevention of bleeding gums. Similar findings were reported in Saudi Arabia(18),

while other studies reported higher knowledge (70%) in North Jordan(15) and very low (6.4%) in Iran(20).

Table 3: Frequency distribution of participants according to attitude on oral health

Question	Responses	Frequency	%
Treatment of toothache is as important as any organ in the body	Strongly agree	250	60.7
	Agree	138	33.75
	Neutral	22	5.3
	Disagree	2	0.5
How often do you visit the dentist?*	Regularly	41	10.0
	When in pain	21	5.1
	Occasionally	34	8.3
	Never	308	74.8
Are regular visits to the dentist necessary? #	Yes	348	84.5
	No	6	1.5
	I don't know	55	13.4
Reasons for visiting the dentist last time	Toothache	51	49
	Parents/ friends advice	20	19.2
	Dentist advice	33	31.7
Reasons of not visiting the dentist	Fear of dentists instrument	344	94.8
	No clinic nearby	3	0.8
	I just don't want	13	3.6
	Other reasons	3	0.8
What do you think about tooth brushing	It is good	410	99.5
	Boring	1	0.2
	Time consuming	1	0.2
Do you think dental health educational lessons are important at your school	Yes	253	61.4
	No	7	1.7
	I don't Know	152	36.9

Foot note *8 pupils (1.9%) did not respond to this question and # 3 pupils (0.6%) did not respond

In the current study most participants regarded treatment of a tooth as important as treatment of any organ in the body indicating that the studied community value their teeth. Our results are similar to those of Al-Omiri et al in Jordan(15) and Kuppuswamy et al India (21).

Regular dental visits were reported by only 10.0% of the participants. Lack of education on the importance of regular dental visits, fear of dentists and inaccessibility of services may explain this finding. Studies conducted in some Asian countries (15, 18, 22) reported higher dental visits than ours ranging from 25%-33%. Although those conducted in India (21) and Iran (20) reported lower findings than in the current study.

Contrary to recommended brushing frequency of twice per day, we found very low proportion (11.4%) of participants adhering to the recommendation. The reason behind this may be

lack of knowledge on the importance of tooth brushing among both parents and children. Similar findings were reported by other researchers in Iran (7.3 %) and India (17%), (20,21). On the other hand, studies in Jordan and China (15,22) reported more than half of participants brushing two times per day. Almost all (92%) reported brushing on the outside of the teeth only. The finding is contrary to other studies(21,22) reporting less percentage of pupils brushing on the outside only. Similar to other studies(15,18) use of dental floss was very low whereby in this study only one pupil reported using dental floss. A study in India(21) reported higher (18%) use of dental floss than our finding. The reason for not flossing may be lack of awareness on the gadget, availability and cost. On average a dental floss costs around 2 USD (24K) in Zambia.

There was significant difference in reported brushing practice whereby the proportion of males

(14.6%) brushing twice or more per day was higher than that for females (8%). This could be coincidental because at 12 years of age sex differences in tooth brushing habits are unlikely to

have occurred between the sexes. Our finding is contrary to other studies(23,24) whereby females were likely to brush more than boys.

Table 4: Oral hygiene Practices by sex among the study population

Factor	Total		Male		Female		P value
	n	%	n	%	n	%	
Brushing frequency							
Once a day	365	88.6	181	85.4	184	92.1	0.035
Twice or more a day	47	11.4	31	14.6	16	7.9	
Parents role on oral hygiene							
Watch and advice	59	14.3	43	20.3	16	8.0	<0.001
Only advice	353	85.7	169	79.7	184	92.0	

Parental role on oral hygiene has a significant effect on children’s oral health. In this study 14.3% of the participants reported that parents advised and supervised them when brushing their teeth. This shows that some parents are concerned of their children’s oral health even at the age where children would be expected to take care of their oral hygiene. Other studies have reported higher percentage of children being supervised during brushing than our finding (15, 18).

Conclusions

Awareness on oral hygiene among participants in this study was generally adequate. Majority thought treatment of a tooth is as important as of any other organ in the body. Tooth extraction was reported as a better option than restoration.

Recommendation: Oral health promotion programs are needed to improve oral health knowledge, attitude, and practices among pupils.

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