

**Awareness and perception of oral health services among Chifubu secondary school students in Ndola, Zambia**

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**ABSTRACT**

**Background:**

**Aim:** To determine awareness and perception of oral health services and their influence on the utilization of oral health services.

**Subjects and Methods:** A total of 353 simple randomly selected pupils aged 11-20 years at Chifubu secondary school in Ndola participated in the study. Data was collected using structured close ended self administered questionnaire which inquired on socio-demographics, awareness and perception of oral health services. Data entry and analysis was done using SPSS version 16.0. The chi square test was used to test for associations where significance was assumed when  $p \leq 0.05$ .

**Results:** Majority of respondents were aged 16 to 20 years (52.4%), 52.7% boys, and 51.8% were in grade 10 - 12. Most participants reported to have received some oral health information (81.6%) mainly from teachers but 86.7% were not aware of specific oral health procedures. The overall perception on oral health among those who agree was 58.6%, while 47% disagree on the overall perception on the utilization of dental services. The main reason for utilizing the service was pain and bleeding. The main reasons for not seeking care were that they never thought it was important (31.2%), distance (17.3%) and cost (15%). The utilization of services was associated with age  $p = 0.029$ . Overall awareness was associated with age  $p = 0.046$  and grade  $p = 0.007$ . Students with a positive utilization on oral health tended to be younger ( $p < 0.001$ ) and in lower grades ( $p < 0.001$ )

**Conclusion:** The majority of respondents were not aware of the dental services. Therefore, awareness campaigns are required on available oral health services. Perception of oral health was not statistically different by age, sex and grade. Most respondents had never utilized oral health services.

**Key words:** Awareness, Perception, Oral health services, students, Ndola, Zambia

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**Introduction**

Lack of adequate knowledge of the various available dental services alters the perception of utilization of oral health services. This leads to under utilization of oral health services which ultimately leads to poor oral health (1). It has been established that poor oral health negatively affects the rest of the body (1). Underutilization of oral health services results into accumulation of untreated oral diseases which may lead to tooth loss. Also un-restored edentulous space resulting from pathologic exfoliation or extraction of teeth could have profound effect on individual's self confidence. It may also affect the individual's choice of food thereby leading to weight loss (2) and also may affect speech; a social handicap related to communication (3). People's perceptions

are also shaped by their previous experiences of oral health services (4).

A study by Al-Swuailem et al. (2014) showed a positive relationship between knowledge and perceptions on utilization of oral health services and actual utilization of oral health services although Osuh et al (2014) showed no such relationship. The perception of oral health may influence oral health decisions and healthcare utilization patterns (5-6), though some have argued that the relation between dental service utilization and the perception of oral health in schoolchildren is inconclusive (5, 7). In view of these findings reported worldwide, oral health education in schools to improve knowledge and perceptions on oral health and oral health service utilization needs

to be intensified in order to enhance oral health among students (1). School health programs have proven effective in promoting health in many developed countries (8). Schools provide a platform for promotion of health and oral health not only for students, but also for staff, families, and members of the community as a whole (9).

A study done at Ndola Central Hospital which aimed at assessing distribution of oral diseases and disorders observed increasing levels of children and adolescents presenting with dental caries (10). There was no retrievable published data found on awareness and perception on health services and the actual utilization of oral health services among secondary school pupils in Zambia. Therefore, this study aimed at assessing awareness and perception of oral health services and their actual utilization of oral health services among secondary school pupils.

### **Subjects and Methods**

This was a cross-sectional descriptive study. Subjects were Chifubu secondary school pupils aged 11-20 years. According to the information obtained from the school administration, the population of regular pupils from grade 8- 12 was 4,321. The sample size of 353 was determined using Epi info version 3.5. A simple random sampling was used to select five senior classes and five junior classes from a total of 30 senior class and 30 junior classes. All pupils in the sampled class were recruited in the study.

Data collection was done by means of a self-administered questionnaire that consisted of 33 closed ended questions. The questionnaire consisted of demographic characteristics (age, sex and grade), questions on awareness and perception on oral health services. Pupils filled in the questionnaire in the presence of the researcher during regular class time.

The data was analyzed using SPSS version 16.0. Frequency distributions were generated to describe level of awareness and perception of dental services. Scores for perception were summed and

then divided by the total number of items for perception. They were then dichotomized into positive and negative perception. Chi-square test was used to detect associations between independent and dependent variables, where significance was set at  $p \leq 0.05$ .

Ethical clearance was granted by Tropical Diseases Research Centre, Scientific Technical committee. The District Education Board Secretary (DEBS) permitted the conduct of the study. Verbal consent was obtained from all the participants.

### **Results**

The majority of the respondents were of the ages between 16 to 20 years (52.4%). There were 186 boys (52.7%). A total of 183 (51.8%) pupils were in grade 10 to 12 as show in table 1.

**Table 1 Distribution of respondents by demographic characteristics**

Demographic characteristics	Number	Percent
Age		
• 11-15	168	47.6
• 16-20	185	52.4
Sex		
• Male	186	52.7
• Female	167	47.3
Grade		
• 8-9	170	48.2
• 10-12	183	51.8

Majority (81.6%) reported to have received oral health information in their school years. Source of information on dental services were; teachers (25.5%), dental staff (11.3%), doctors/nurses (14.7%), and the media (10.8%). Tooth cleaning (scaling) and tooth extraction were known by 47.3% and 43.6% respectively. Other dental procedures were known by less than 13% of the respondents, (Table 2).

**Table 2 Distribution of respondents by specific questions on source of information and awareness on dental services**

Responses to questions related to source of information and on awareness on dental services	Yes		No	
	n	%	n	%
<b>Where did you receive information on dental service</b>				
• Dental staff/Dentist	40	11.3	313	88.7
• Doctor/Nurse	52	14.7	301	85.3
• Teacher	90	25.5	263	74.5
• relative/family member	32	9.1	321	90.9
• Media (TV, Books etc)?	38	10.8	315	89.2
• Other sources	8	2.3	345	97.7
<b>Specific questions on awareness of dental services</b>				
• Ever heard of removing of teeth (extraction) as a dental services	154	43.6	199	56.4
• Ever heard of teeth cleaning (scaling) as a dental services	167	47.3	186	52.7
• Ever heard of sealing rotten tooth (filing) dental services	33	9.3	320	90.7
• Ever heard of tooth replacing (dentures) dental services	46	13.0	307	87.0
• Ever heard of correcting teeth that are not growing normally (braces) dental services?	17	4.8	336	95.2
• Ever heard of fixing gum problems (periodontics) dental services	31	8.8	322	91.2
• Ever heard of whitening of teeth dental services	45	12.7	308	87.3
• Overall awareness on dental services	47	13.3	306	86.7

About half (50.1%) of the respondents had never visited a dentist. Reasons for not visiting a dentist were; not important (31.2%), distance (17.3%) and cost (15%). Of those who had visited a dentist

32.4% did so due to toothache, 25% bleeding gums and 17.6% regular dental checkup. Only 2% of the respondents visited a dentist needing a tooth filling, (Table 3).

**Table 3 Distribution of respondents by dental visits and reasons for visiting the dentist**

	Number	Percent
Have you ever visited a dentist		
• Never	177	50.1
• Once or more	176	49.9
Reasons for visiting the dentist*		
• Toothache	57	32.4
• Bleeding gums	44	25.0
• Loose tooth	16	9.1
• Tooth injury	25	14.2
• Regular check up	31	17.6
• Tooth filling	7	4.0

\*Some participants reported more than one reason for visiting a dentist

Proportionately older students (55.7%) had visited a dentist than the young ones p=0.03. There were

no significant differences between sex and grade with visiting a dentist (Table 4).

**Table 4 Distribution of respondents by history of dental visit and demographic characteristics**

Demographic characteristics	History of dental visit		Chi-square	p-value
	Yes	No		
Age				
• 11- 15	73 (43.5)	95 (56.5)	4.762	0.029
• 16 - 20	103 (55.7)	82 (44.3)		
Sex				
• Female	83(49.7)	84 (50.3)	0.003	0.955
• Male	93 (50.0%)	93 (50.0)		
Grade				
• 8 - 9	78 (45.9)	92 (54.1)	2.380	0.123
• 10 - 12	98 (53.6)	85 (46.4)		

Table 5 summarizes the perceptions on oral health and utilization of oral health services. Majority agree that it is important to keep natural teeth (78.8%) and that oral health is an important part of overall health (71.4%). Only 58.4% agreed that it is important to brush teeth at least once a day.

Regarding oral health utilization; 61.1% agreed that dental visits are important in both dentate people without dental problems and edentulous individuals while 38.5% agreed that dental visits are important only in case of dental emergency (toothache).

**Table 5 Distribution of respondents by perception on oral health and on utilization of oral health services**

Response to specific question on perception	Disagree completely n (%)	disagree n (%)	neither/ nor n (%)	Agree n (%)	Agree completely n (%)
<b>Perception on oral health</b>					
• It is important to keep your natural teeth	29 (8.2)	40 (11.3)	6 (1.7)	145 (41.1)	133 (37.7)
• It is important to brush your teeth at least once a day	47 (13.3)	92 (26.1)	8 (2.3)	127 (36.0)	79 (22.4)
• The condition of my mouth is an important part of my overall health	25 (7.1)	56 (15.9)	20 (5.7)	169 (47.9)	83 (23.5)
• Overall perception on oral health	7(2.0)	66(18.7)	2(0.6)	207(58.6)	71(20.1)
<b>Perception on oral health utilization</b>					
• Dental visits are only important if you have a dental emergency	89 (25.2)	116 (32.9)	12 (3.4)	94 (26.6)	42(11.9)
• Dental visits are important even without teeth and dental problems	41 (11.6)	82 (23.2)	14 (4.0)	135 (38.2)	81 (22.9)
• Dental visits cause pain	91 (25.8)	133(37.7)	20 (5.7)	72 (20.4)	37 (10.5)
• Overall perception on oral health utilization	17(4.8)	166(47.0)	2(0.6)	146(41.4)	22(6.2)

Older pupils (16.8%) and those in higher grade (18.0%) were aware on available dental services than their counterparts,  $p= 0.046$  and  $0.007$  respectively. On the other hand, younger pupils

(85.7%) and those in lower grades (86.5%) had positive perception on utilization of oral health services, ( $p<0.001$ ), (Table 6).

**Table 6 Distribution of respondents by awareness, perceptions on oral health and dental services by demographic characteristics**

Awareness/Perceptions	Demographic characteristics					
	Age (yrs)		Sex		Grade	
	11-15	16-20	F	M	8-9	10-12
Awareness on dental services						
• Aware	16(9.5)	31(16.8)	25(15.0)	22(11.8)	14(8.2)	33(18.0)
• Not aware	152(90.5)	154(83.2)	142(85.0)	164(88.2)	156(91.8)	150(82.0)
	$\chi^2=3.999$ ; $p=0.046$		$\chi^2=0.753$ ; $p=0.386$		$\chi^2=7.330$ ; $p=0.007$	
Perception on oral health						
• Positive	152 (90.5)	165(89.2)	149(89.2)	168(90.3)	154(90.6)	163(89.1)
• Negative	16(9.5)	20(10.8)	18(10.8)	18 (9.7)	16(9.4)	20(10.9)
	$\chi^2= 0.159$ ; $p= 0.690$		$\chi^2= 1.116$ ; $p= 0.733$		$\chi^2= 0.222$ ; $p=0.638$	
Perception on utilization						
• Positive	144(85.7)	129(69.7)	128(76.6)	145(78)	147(86.5)	126(68.9)
• Negative	24(14.3)	56(30.3)	39(23.4)	41(22)	23(13.5)	57(31.1)
	$\chi^2= 12.835$ ; $p<0.001$		$\chi^2= 0.086$ ; $p= 0.769$		$\chi^2= 15.861$ ; $p<0.001$	

**Discussion**

The majority of the participants reported to have received oral health information mostly from teachers. This differs with studies conducted in Nigeria which reported the main source of information to be dentists (11) or media (12).

Tooth extraction and scaling were the most known oral health services. Low awareness on oral health services reported in the current study indicates that oral health services are not advocated in the studied population. This is supported by Osuh et al. (13) who stated that an individual's eventual choice of oral health care depends on his attitude, self perceived oral health care need the financial resources and information available to him. Most of the respondents utilized the services because of symptoms such as bleeding gums and toothache. This finding is in line with those of studies conducted in Nigeria (11, 14 - 16).

The fact that negligence of oral health issues, distance and cost of services were main reasons for lack of routine dental visit imply that oral health is not given a due priority. Our findings are similar to those of other studies which reported the barriers to utilization of dental services to be lack of perceived needs, poor access to dental clinic (11, 13, 14) and high cost (11, 13, 14, 17- 20). Our results differ from those reported in a Brazilian study, where 18.4% of children aged between 10 and 14 years had never visited the dentist (21) and those of Shenoy and Sequeira (22) who reported majority of the students (95%) to regard oral health as important.

In the current study, majority of participants showed agreement on the importance of keeping

natural teeth, oral health to have similar importance as general health while only about half agreed that it is important to brush teeth at least once a day. This implies that participants did not know that maintaining good oral hygiene is a prerequisite for good oral health. Our results are contrary to those of Patria who reported that the respondents thought dental health was isolated from general health, (23), and those reported by Varenne et al 2006 in Burkina Faso whereby only 40.0% reported that oral health was as important as general health (24).

The general perception on oral health was generally positive but that of utilization of oral health services was negative. This implies that people like to have good oral health but the services do not meet their expectations. These findings differ from those reported among Nigerian school children where positive perception was directly associated with utilization of dental services (25)

Older students to have visited a dentist more often than the young ones is likely to be explained by the fact that older children's dentition have experienced challenges for a longer period of time compared to those of young ones. These findings are similar to those reported among school children in Nigeria by Folayan et al 2014 (26). Similarly, older students and those in higher grades being more aware on dental services than the young ones as was also reported by Folayan et al 2013 (27). This may be explained by the longer the time they have been to school and been exposed to oral health information when visiting dentists.

Whereas, younger pupils and those in lower grades having positive perception on utilization of oral health services may have something to do with

their less exposure to oral health services as it is known that previous dental experience contribute to somebody's attitude towards the services. Similar findings were also reported by

### Conclusion and recommendation

Majority of respondents were not aware of available dental services and had positive perception on oral health. About half of them had never visited a dentist and had a negative perception on dental services. Therefore, awareness campaigns are recommended.

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