

# Awareness and Knowledge of Oral Health among Schoolchildren Aged 12 to 18 Years in Ndola, Zambia

Peace Uwizeye\*

Department of Public Health, Copperbelt University, Kitwe, Zambia

## Abstract

Oral diseases are considered a major public health problem as a consequence of the high prevalence and incidence observed in all regions of the world, and dental caries is reported to be the most common childhood disease and NCD worldwide. Awareness and knowledge are one of the major tools for improving health and must therefore be assessed. The objectives of this study were to determine awareness and knowledge of oral health and the dental caries experience among school children aged 12 to 18 in Ndola.

Simple random sampling from four schools chosen by convenient sampling was used to select the study participants. A total of 384 participants were issued consent forms. The study was conducted at Kansenshi High School, Dominican Convent Secondary School, Masala Secondary School and Kaniki Basic School in Ndola, Zambia. It was a school-based, descriptive, cross-sectional study conducted in September 2021. Data was collected using a self-administered questionnaire, and an oral examination using the DMFT index was carried out. Data was entered and analyzed using the IBM SPSS statistics software. Majority of the participants exhibited good awareness and knowledge towards oral health, and had healthy teeth. However, there was no significant association between level of knowledge and awareness and dental caries experience.

**Keywords:** Oral diseases • School children • Dental caries • Tooth decay

## Introduction

Oral health does not merely refer to clean and healthy teeth; it also encompasses the health of the gums and their supporting tissues, the palate, the lining of the mouth and the throat, the tongue, the lips, the salivary glands, the muscles of mastication, the nerves, as well as the bones of the upper and lower jaws [1]. The WHO defines oral health as 'a state of being free from mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing'.

Risk factors for oral diseases are similar to those associated with major NCDs, such as an unhealthy diet high in free sugars, tobacco use and harmful use of alcohol. Oral health practices such as brushing of teeth with fluoridated toothpaste at least twice daily and/or flossing (cleansing interproximal spaces and between contact areas of the teeth with dental floss) to remove plaque and food debris, consumption of fluoridated water, cessation of tobacco use and regular dental visits will aid in prevention of oral diseases [2]. Changes in diet and nutrition (e.g. reduced intake of foods with high

sugar content, increased consumption of fruits, vegetables and starches) can reduce incidence of oral disease.

Awareness and knowledge of good dietary habits and hygiene practices are one of the most important factors in attaining and maintaining good oral health. Having knowledge about oral health means that an individual has all the information necessary to understand what oral disease is and how it arises, as well as to understand the protective measures that need to be adopted to maintain proper oral health. This information can be learned from the home, schools, and dental offices or through media, as well as through experience. Oral health knowledge is an essential prerequisite for healthy oral health-related practices.

Awareness on the other hand means having perception of a situation or a fact. Awareness alone is not enough to achieve good oral health. An individual may be aware that oral disease can be prevented, but knowledge of oral hygiene practices, and when and how they should be put into practice to prevent oral disease and achieve optimum oral health could be lacking. Therefore, awareness and knowledge are both necessary to maintain good oral health. Oral health education is believed to be a cost-effective method for promoting oral health if done through schools, where all school

\*Address to correspondence: Dr Peace Uwizeye, Department of Public Health, Copperbelt University, Kitwe, Zambia; Tel: 260975788980; E-mail: peaceuwizeye@gmail.com

**Copyright:** © 2021 Uwizeye P. This is an open-access article distributed under the terms of the creative commons attribution license which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

**Received:** 27 August, 2021; **Accepted:** 10 September, 2021; **Published:** 17 September, 2021.

children irrespective of their socioeconomic status or ethnicity can be reached.

Health education programmes aim to strengthen disease prevention and health promotion. The outcome of an effective oral health education programme should be improved oral health awareness, knowledge, hygiene, and positive attitude and practices, and the overall result should be improvement in oral health status and decreased occurrence of oral diseases, particularly dental caries, one of the most prevalent oral diseases.

## Materials and Methods

The research was conducted in schools, both private and public, within the city of Ndola in the Copperbelt province of Zambia. The schools were selected by convenient sampling, and included Kansenshi High School, Dominican Convent Secondary School, Masala Secondary School and Kaniki Basic School.

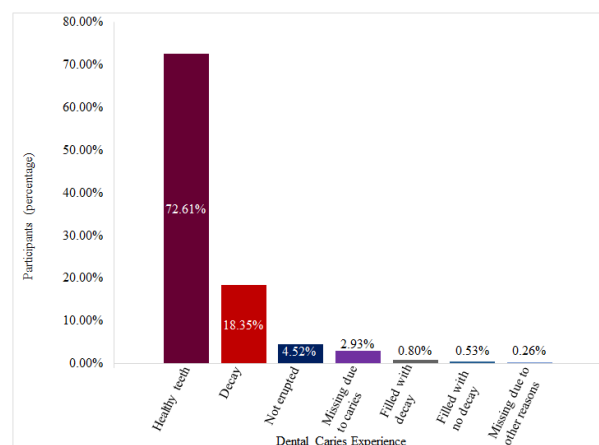
The sample size was calculated using the formula  $n = (z^2 pq)/d^2$ , where  $n$  is the sample size,  $z$  is the confidence level,  $p$  is the estimated proportion or baseline proportion,  $q$  is  $1-p$ , and  $d$  is the confidence interval.

For the purpose of this study, a confidence level of 90% and a confidence interval of 10% were selected. The degree of the level of awareness and knowledge among children in Zambia is unknown since no studies have been done; therefore, a standard baseline proportion of 50% was used.

Data was collected utilizing close-ended questions in a structured, self-administered questionnaire adapted from a WHO questionnaire, and other previously developed and tested questionnaires used in oral health research. An oral visual examination was carried out on the participants to determine absence or presence of dental caries, using the DMFT index. The examination was performed in the classrooms of the schoolchildren, with students sitting on the chairs. Infection control protocols were followed during the examination.

## Result

A total of 376 participants were enrolled in this study. Out of the 376 participants, 242 (64.4%) were females with males being 134 (35.6%), and majority (50.5%) were aged 16-18 years. 98 (26.1%) were in grade eleven, followed by 93 (24.7%) grade eights and 43 (11.4%) grade nines. Majority of participants 355 (94.4%) were coming from urban areas with only 21 (5.6%) being from rural areas (Figure 1).



**Figure 1.** Dental caries experience of participants.

Out of all the participants, 375 (99.7%) said it is important to take care of teeth. Only 1 (0.3%) participant said it is not important. 341 (90.7%) agreed that good oral health is vital for good general health and 35 (9.3%) said it is not. When asked whether certain body diseases involve the mouth, 303 (80.6%) said Yes and 73 (19.4%) said No. 276 (73.4%) of the participants said bacteria that cause rotten teeth are not transmitted from mother to child and 100 (26.6%) said it is transmissible. 305 (81.1%) of participants said frequent eating of sugar containing food mainly damage teeth and 71 (18.9%) said it does not. The majority knew that good dental hygiene prevents development of caries (81.1%), the purpose of cleaning teeth (97.6%), what plaque is (64.5%), that one has to clean teeth at least twice a day (97.9%), and that the use of a toothbrush and dental floss provides a healthy mouth (90.7%) (Table 1).

Assessment of awareness on oral health			Frequency	Percentage (%)
1	Is it important to take care of your teeth?	No	1	0.3
		Yes	375	99.7
2	Is good oral health vital for a good general health?	No	35	9.3
		Yes	341	90.7
3	Can certain body diseases involve the mouth?	No	73	19.4
		Yes	303	80.6
4	Bacteria (Germs) that cause rotten teeth are not transmitted from mother to child?	No	100	26.6
		Yes	276	73.4
5	Frequent eating of sugar containing food mainly damages teeth?	No	71	18.9
		Yes	305	81.1
6	Habits like thumb	No	122	32.4

sucking, lip biting, and nail biting affects the face and mouth?	Yes	254	67.6
---	-----	-----	------

**Table 1.** Awareness on factors associated with oral health.

The dental caries experience of participants. Of the total, 271 (72.5%) had healthy teeth, 69 (18.4%) had tooth decay and 1 (0.3%) had missing teeth due to other reasons. Participants who were not aware were only 2 (100%) and had healthy teeth. The p-value was 0.993 and hence, there was no association.

## Discussion

Oral health is an integral component of good general health and plays a major role in the child's life. Oral health imparts a major impact on one's quality of life, hence, this study focused on the awareness and knowledge of schoolchildren towards oral health [3]. In the current study, about two-thirds (64.4%) of participants were females and about half of respondents (50.5%) were aged 16-18 years. This finding was not analogous to the findings which documented 53.8% males and 2.5% of participants aged 16 years and above. Another study supported the findings above as it reported 70% of participants to be female but contrasted with the findings as most of them were aged 13-14 years (47%).

In this study, 88.77% of participants had good knowledge pertaining to oral health and almost all participants (99.47%) were aware about oral health. This agreed with a study in Davanagere, India, in which all participants reported to be aware of oral health. However, another study found only 25.8% of children had a high level of oral health knowledge.

Almost 90.7% of participants had knowledge on the importance of good oral health. This is comparable among schoolchildren in Qatar with a documentation of more than 90.9% of participants having satisfactory understanding of the importance of good oral health and information about the functions of teeth, and partly supported by a study in Gujarat, India which documented 53%.

Majority of participants (81.1%) knew that frequent eating of sugar-containing foods has more damaging effects to the teeth than the amount taken in one occasion. In line with these findings, a study in Chandigarh reported that most of respondents knew sweets (92.7%) and soft drinks (67.8%) affected dental health. And from the study, about 64.1% knew what dental plaque was, while another study revealed that 63.5% had no idea about dental plaque [4]. About 65.5% of participants were aware of teeth brushing and flossing every day that it prevented gum disease. The findings were like the findings in Jeddah, Saudi Arabia which documented that 65.7% were aware that flossing prevented gum disease. This may be due to increase in media coverage about dental health and increase in the use of dental floss compared to days of old.

The mean oral health knowledge score of females was significantly higher than that of males. Those girls had better knowledge than boys pertaining to oral health. This agreed with the finding in this study even though the difference was very marginal (0.7%) and no statistical significance was observed. This may have resulted from

greater aesthetic awareness among girls compared to boys. In addition, greater proportion of female and urban children presented better oral health knowledge, beliefs, and practices.

More than two thirds of participants with good knowledge (72.61%) had healthy teeth; however, there was no statistical significance between level of knowledge and oral health. In disagreement with the findings above, a significant relationship between the children's level of oral health knowledge and their oral health status. In addition, a descriptive study conducted in India that 53% of the participants had average knowledge regarding oral health and there was a significant association between the two variables.

A great proportion of the participants (89%) from urban areas had quite good knowledge compared to rural counterparts (11%) pertaining to oral health, and there was significant association between the knowledge of children and location ( $p=0.008$ ). This was partly supported by a study which reported that urban school children (70.24%) had more knowledge on oral health than rural counterparts and found a significant relationship between the level of knowledge and location of participants [5]. The current study also showed that there was no association between level of knowledge and socio-demographics of the participants. This contrasted with the findings of a study done in Bangalore which found a significant association between age of children and level of knowledge. In addition, significant association between level of knowledge and socio-demographics except for location. The discrepancy in data findings would be attributed to difference in time periods when the studies were conducted, cultural practices and beliefs towards oral health, and availability of information about oral health. The latter studies documented that knowledge increases with age while the findings in this study do not agree with that hypothesis.

## Conclusion

Majority of the participants exhibited good awareness and knowledge towards oral health, and had healthy teeth. However, children in the rural area had a lower level of knowledge and awareness compared to the urban counterparts. There was no significant association between the level of knowledge and awareness of oral health and dental caries experience.

## References

1. Hachombwa, Chitinti, Malambo Holden, Anthony Severine Nyerembe. "Awareness and Perception of Oral Health Services Among Chifubu Secondary School Students in Ndola, Zambia." *Tanzania Dent J* 20 (2017): 9-15.
2. Hamoonga, Abel, Anthony Severine Nyerembe, Siziya Setter. "Knowledge, Attitudes and Practices on Oral Hygiene Among 12 Years old School Children in Luanshya, Zambia." *Tanzania Dent J* 19 (2015): 5-10.
3. Chambisha, Lilian, Severine Nyerembe Anthony, and Seter Siziya. "Oral Hygiene Practices and Oral Health Care Seeking Behaviours Among Primary School Teachers in Ndola, Zambia." *Tanzania Dental J* 20 (2017): 16-21.
4. Munsanje, Mainza M, Anthony SN, Rukoma AM, and Siziya S. "Traumatic Dental Injuries and Associated Factors in Permanent Incisors among 8 to 14 years old Pupils in Ndola, Zambia." *Tanzania Dent J* 20 (2017): 22-26.

5. Halwiindi, Trevor, Mulenga D, Siziya S. "Awareness on the Availability of Legal Safe Abortions Among Female Adolescents Attending Secondary School in Ndola District, Zambia." *Asian Pacific J Health Sci* 3 (2016): 11-16.

**How to cite this article:** Uwizeye Peace. "Awareness and Knowledge of Oral Health among Schoolchildren Aged 12 to 18 Years in Ndola, Zambia." *J Clin Res* 5 (2021) : 31421