

# Oral Health-related Knowledge of Nursing School Students in Zanzibar

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## ABSTRACT

**Aim:** The purpose of this study was to determine the level of knowledge of oral health care among nursing students.

**Materials and methods:** This was a descriptive cross-sectional study that was conducted at the College of Health Sciences, Mbweni Zanzibar, Tanzania, involving nursing students. Data were obtained using a self-administered open-ended questionnaire with questions concerning the knowledge, attitude, and practices of oral health care. The students were grouped into two groups: The junior students and the senior students. Data were summarized in the form of proportions and frequency tables for categorical variables.

**Results:** The study incorporated 210 nursing students, of which 67.1% were female and 52.9% of the participants were in the junior year of studies. Of all the participants, 80.5% were found to have an overall knowledge regarding dental caries, while only 26.7% of the study participants were found to have an overall knowledge regarding periodontal diseases. Almost all the participants, 96.7% agreed that having oral health knowledge is necessary for general patient care.

**Conclusion:** The participants had some knowledge on oral health care but they lacked its important elements expected of a nursing student. The most information they had was virtually through experience from clinical rotations in their senior years.

**Clinical significance:** By determining the oral health-related knowledge and practices among nursing students, this study gives insight of competence and dependability of future nurses in oral health promotion and preventive information dissemination, since nurses meet children and their parents regularly in primary health care.

**Keywords:** Knowledge, Nursing students, Oral health.

**How to cite this article:** Owibingire SS, Salehe F, Sohal KS. Oral Health-related Knowledge of Nursing School Students in Zanzibar. *J Oral Health Comm Dent* 2017;11(3):55-60.

**Source of support:** Nil

**Conflict of interest:** None

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## INTRODUCTION

Nursing personnel play a vital role in health promotion and preventive information dissemination, among their families, their patients, and community at large.<sup>1-3</sup> In primary care, apart from physicians, it is the nurses who meet children and their families regularly. Thus, they can play an important role in the oral health education of individuals and groups and act as role models for patients, friends, families, and the community at large, provided they have proper knowledge on oral health.<sup>4</sup>

Tanzania is a country in East Africa with estimated population of 51 million people, of which about 1.5 million are in Zanzibar isles.<sup>5</sup> Majority of the health facilities in the country are owned by government and rest are private and voluntary agency owned. Despite the prevailing public-private partnership in provision of health care, there is discrepancy in distribution of dental clinics. The privately owned clinics are concentrated in urban areas and in cities with very few in the rural areas where about 70% of population is found. Thus, the government-owned dental clinics play a major role in providing dental services to the largest section of the population.<sup>6</sup> According to the year 2014 data from the Ministry of Health of Tanzania, there were 131 practicing dental surgeons in the country,<sup>7</sup> though there is some improvement, but still the estimated number of dental surgeons practicing in public sectors is around 200. Thus, this makes the role of nurses in dentistry even more important as far as oral health promotion is concerned.

At present, the role of nurses in dentistry is negligible as they have less training and knowledge regarding oral health despite the fact that they play a vital role in health promotion and preventive information dissemination.<sup>1,2,8</sup> It is therefore, very important that nurses should be equipped with proper oral health knowledge which will subsequently require to be sustained.

Given the fact that nursing students are trained on disease prevention and health promotion, it is indispensable to assess whether or not their own oral health knowledge emulates professional recommendations. Currently, the level of knowledge on oral health care among nursing students in Zanzibar, and Tanzania at large, is not well documented. This study was, therefore, carried out to determine the level of knowledge about oral health care

among nursing students at the College of Health Sciences, Mbweni, Zanzibar, Tanzania.

### MATERIALS AND METHODS

This was a descriptive cross-sectional study that was conducted at the College of Health Sciences, Mbweni, Zanzibar, Tanzania, involving nursing students. All nursing students who were present at the college at the time of data collection were included in the study. A total of 210 nursing students who were in their first, third, and fourth year of study were recruited. The second year students were in their fieldwork, and hence could not be included.

A questionnaire specifically designed for this study was used, in which the questions regarding dental caries and periodontal diseases were open-ended. The main aim of keeping these questions open-ended was to avoid directing the participants into choosing answers, thus they would provide just what they knew. After the questionnaires were filled, they were inspected before the students went away to ensure proper filling of information. The answers obtained were then matched to the preselected keywords to judge the response as correct or not, and then coding was done. All coded responses were eventually entered into the computer.

The students were grouped into two groups: The junior students (all students in their first year of study) and the senior students (all students in their third and fourth year of study). To be regarded as having knowledge about oral health, the criteria used were at least the student should know correctly the cause, the symptoms and management of dental caries and periodontal diseases. This was achieved by giving each response a single point, and in case the participant got below half of the total score, then they were regarded to have no knowledge and vice versa.

Data collected were analyzed using the Statistical Package for the Social Sciences (SPSS) for Windows version 20. Data were summarized in the form of frequency table and figures for categorical variables.

Ethical clearance was obtained from the Muhimbili University of Health and Allied Sciences and permission to conduct the study was obtained from relevant authorities, including the Medical College of Health Sciences, Mbweni.

### RESULTS

#### Participants' Background Information

The study incorporated 210 nursing students from the College of Health Sciences, Mbweni, Zanzibar. Out of all these participants, 69 (32.9%) were males and 141 (67.1%) were females. The male-to-female ratio was 1:2. Among study participants, 111 (52.9%) were in the junior year of studies and 99 (47.1%) in senior years.

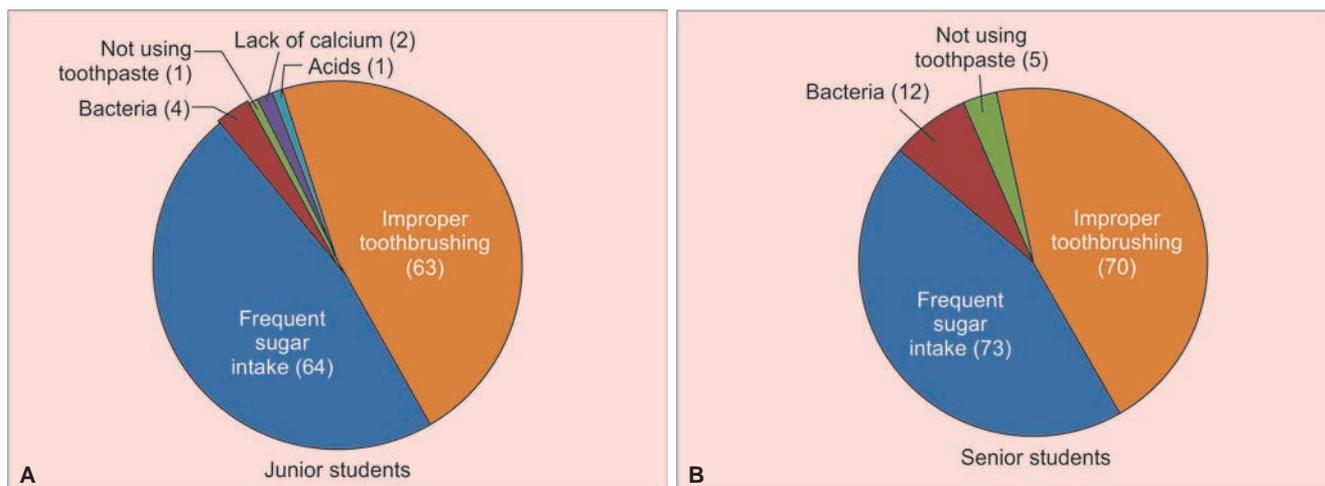
#### Knowledge of Students about Oral Health

##### Dental Caries

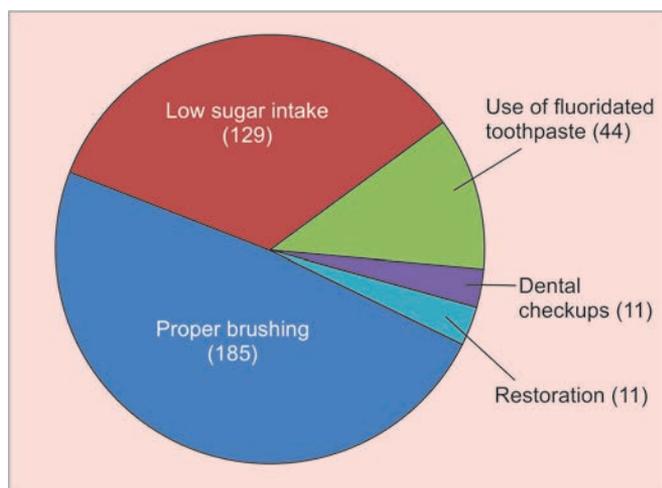
Out of all the participants, 156 (74.2%) were found to have an overall knowledge regarding dental caries as far as the causes, prevention, and treatment were concerned. The most common causes reported by the students were frequent sugar/sugary foods intake and improper toothbrushing (Graph 1).

The participants gave several responses regarding the means of preventing dental caries; the most common response among the participants were proper toothbrushing and low sugar intake (Graph 2).

More than three-quarters of all participants (162, 77.1%) reported tooth extraction to be the treatment of dental caries, and more than half (146, 69.5%) knew restoration is another treatment option (Table 1).



Graphs 1A and B: Distribution of the students according to their responses to causes of dental caries



**Graph 2:** Distribution of the students according to their responses to prevention of dental caries

**Periodontal Diseases**

Only about one-quarter (56, 26.7%) of the study participants were found to have an overall knowledge regarding periodontal diseases as far as the causes, symptoms, and prevention were concerned. The most common cause of periodontal diseases to be reported was improper toothbrushing technique (Graph 3). With regard to the signs and symptoms of periodontal diseases, most of the participants reported on swollen gum (110; 52.4%; Graph 4).

More than half of all participants reported proper toothbrushing techniques and use of mouthwash to be the treatment of periodontal diseases. Graph 5 shows the difference in frequency of responses between the junior and senior students.

**Source of Knowledge**

Regarding the source of oral health information, majority, 85 (40.5%), students reported to have obtained it through

**Table 1:** Responses of participants to the treatment of dental caries

Treatment of dental caries	Junior class n%	Senior class n%	Total n%
Extraction	81 (50%)	81 (50%)	162 (100%)
Restoration	63 (43.2%)	83 (56.8%)	146 (100%)
Root canal treatment	16 (45.7%)	19 (54.3%)	35 (100%)
Putting cloves	30 (56.6%)	23 (43.4%)	53 (100%)
Putting aspirin	18 (62%)	11 (38%)	29 (100%)

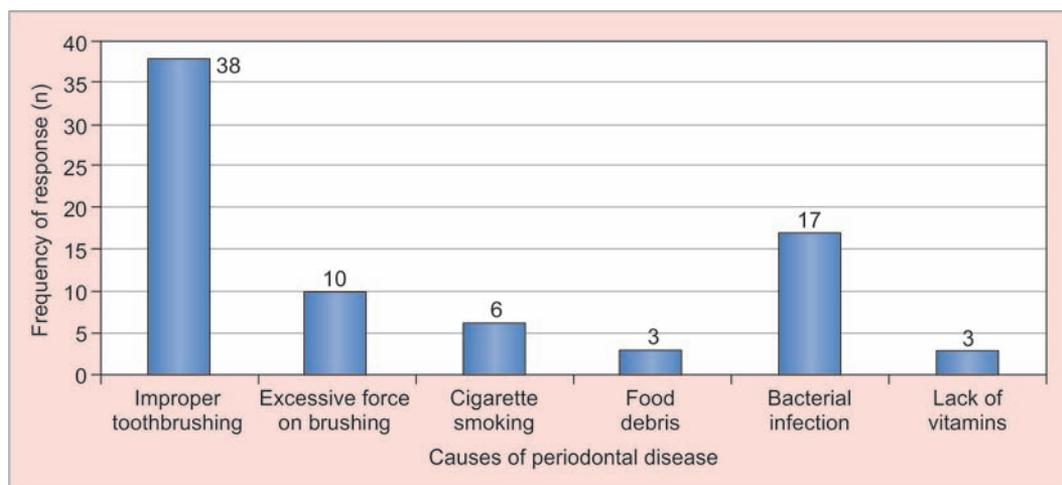
formal/class teachings during the course of their studies. Graph 6 represents the difference observed between junior and senior students with regard to the responses to common source of knowledge.

**Attitude of Students regarding Oral Health**

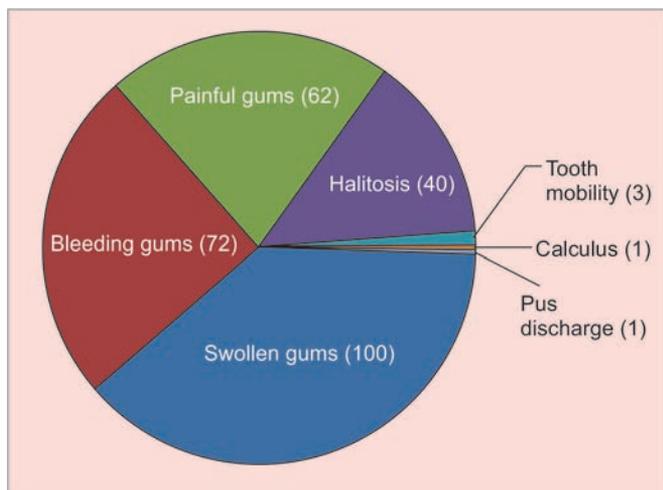
All participants agreed that going to the dentist for dental checkup is important and 86% agree that use of fluoridated toothpaste is very important. Also, most of the participants, 203 (96.7%), agreed that having oral health knowledge is necessary for general patient care.

**DISCUSSION**

The oral cavity is an integral part of the human body, so its health cannot be ignored as it can affect general body health.<sup>2</sup> It is recommended that whenever health education is being given, then oral health information should be incorporated into it. In the modern world, medical field has become a joint venture of various health care professionals, requiring doctors, nurses, pharmacists, and technicians to work in collaboration so as to provide complete medical care and education to the patient and society at large.<sup>4</sup> This study assessed the level of knowledge, attitude, and practice of oral health care among nursing students in Zanzibar, Tanzania.



**Graph 3:** Frequency distribution of students according to their responses to causes of periodontal diseases



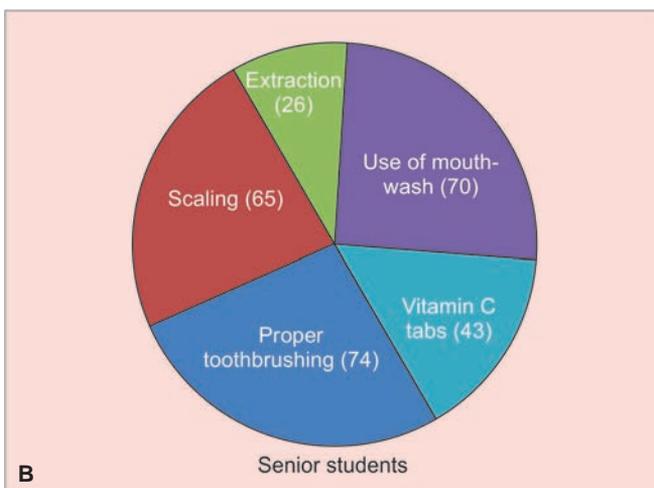
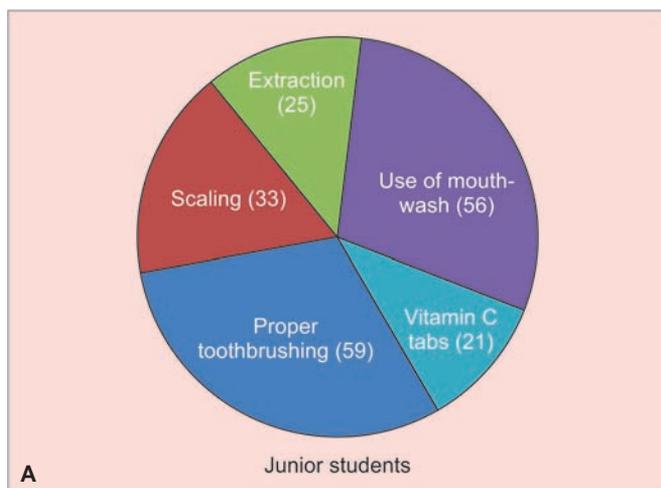
**Graph 4:** Distribution of students according to their responses to the symptoms and signs of periodontal diseases

Nursing students are the future professionals who train to provide care to the patient and society and they spend more time with patients than any other health care professional. Therefore, the future nurses should

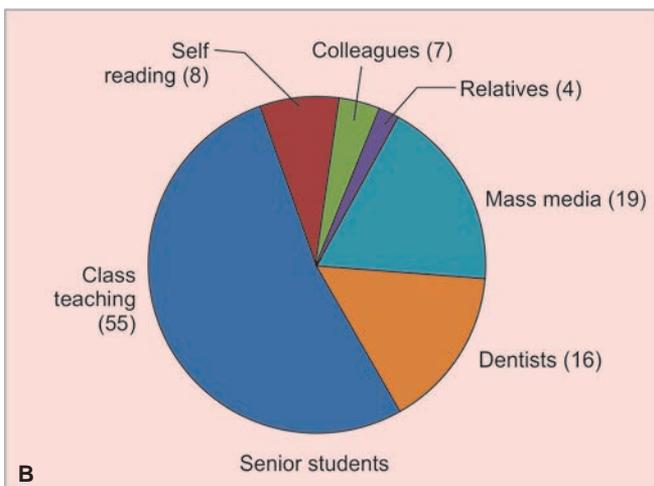
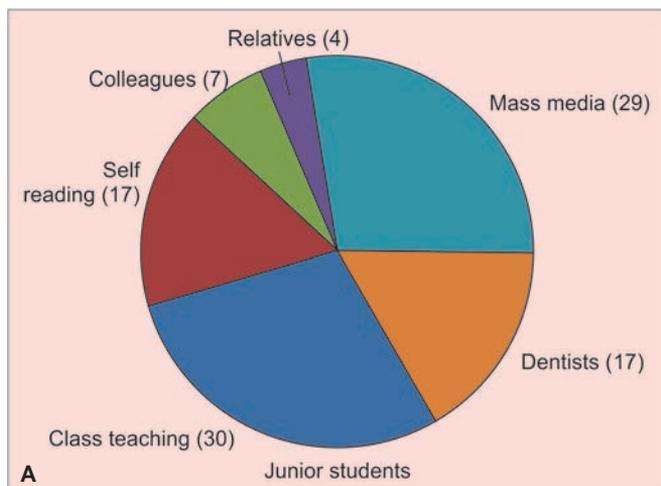
be equipped with basic knowledge on different diseases of the human being, including oral diseases, given the fact that they play a vital role in health promotion and preventive information dissemination.<sup>2,8</sup>

In this study, there were more female nursing students compared with the male counterparts. Similar results were reported by Udoye and Aguwa<sup>9</sup> in a study from Nigeria, while in a study done by Mahmoud<sup>1</sup> all the study participants were females. The findings of this study do correspond to the existing situation in the health care setting in Tanzania, whereby majority of the nurses are females.

Dental caries is a multifactorial chronic disease resulting from an association between factors, such as accumulation of dental biofilm (plaque), time, and exposure to sugars.<sup>10,11</sup> In this study, more than half of the participants had knowledge on causation of dental caries, despite the fact that health behavior and lifestyle are identified as the main factors affecting human health.<sup>12</sup> Knowing about the causes of a disease and subsequent ability to



**Graphs 5A and B:** Distribution of the students according to their responses to treatment of periodontal diseases



**Graphs 6A and B:** Distribution of the students according to their response to source of oral health knowledge

use knowledge to promote health depends on access to or awareness of reliable health information. Since nurses do aid in disease prevention through providing reliable information to society, these results are encouraging.

The findings of this study depicted that more than three-quarters of all participants reported tooth extraction to be the treatment of dental caries. It is not surprising since the misconception prevails among community members in different parts of this country that extraction is the sole treatment of dental caries. Despite this, more than half of the participants knew restoration is another treatment option, the majority of those who had such knowledge were senior students, and this can be credited to the clinical rotations in different departments by the senior students.

Unlike for dental caries, only about a quarter of the study participants were found to have an overall knowledge regarding periodontal diseases. About half of the participants reported correctly on symptoms and signs of periodontal disease with most pointing out correctly swollen gums, bleeding gums, painful gums, and halitosis as some of the clinical presentation in descending order. Contrary to the findings of this study, in a similar type of study done in India by Gupta et al,<sup>13</sup> the majority of the nursing students mentioned halitosis and bleeding gum. More than half of all participants in this study reported proper toothbrushing techniques and use of mouthwash to be the treatment of periodontal diseases.

Regarding the source of oral health information, the majority reported to have obtained it through formal teachings during the course of their studies, followed by mass media, dentists, and relatives. In their study, Gupta et al<sup>13</sup> found that the commonest source of oral health knowledge was by teachers and parents/relatives followed by mass media. This is a promising finding as it reflects that the nursing students obtain oral health knowledge through right source.

Although the majority of the senior students had higher oral health knowledge compared with the junior students, the source of information was more through the experience in the clinical rotations rather than formal class teachings in oral health. This portrays that the nursing education curriculum hardly imparts oral health knowledge as a part of formal class teaching. In addition to this, primary and secondary school education activities minimally compound oral health knowledge at any school level that could have translated into long-term optimal preventive oral health knowledge.<sup>14</sup>

Very few respondents mentioned dentist to be a source of oral health information. This finding is not surprising given the fact that nursing students have poor attendance rates for dental check-ups, which is evident from the

results of this study that revealed less than half of the students paid a visit to the dentist in past 12 months. Despite majority of them claiming it is very important to attend dental clinic for oral health check-ups, yet still very minimum number of the students did so. It is common finding that people rarely implement what they know, and this kind of attitude has to be changed among the nursing students considering that they are the future role models in the promotion of health in the community.

All the participants in this study reported to have been using a toothbrush and toothpaste for cleaning their teeth. This is attributed to the easy affordability and availability of toothpaste and toothbrushes in the country. Upon asking the student other adjuvants that they had been using for cleaning their teeth, a wide range of materials were mentioned including charcoal, ashes, ginger, cloves, and salt which are as well easily available, unlike other adjuvants, such as dental floss which are expensive and hardly available.

From the findings of this study, it is recommended that:

- There is a need to evaluate and revise the curriculum based on the identified training needs of the nursing students. It is preferable to have a section on oral health education added to the first year of the nursing curriculum.
- It is necessary to determine the extent of oral health knowledge among nursing students in other nursing colleges in Tanzania.
- There should be continuing education programs for nurses in the practice with regard to oral health to ensure sustainability of knowledge among them.

## CONCLUSION

This study shows that the participants had some knowledge on oral health care but they lacked its important elements which are expected of a nursing student to have, since they are the future professional models. The most information they had was not through formal lectures but rather through clinical rotations in their senior years, which reveals that the curriculum of nursing study does not include important aspects of basic oral health care knowledge. Their reported practices on oral health were judged as fair. All participants appreciated that having oral health care knowledge is of paramount importance for general patient care.

## Clinical Significance

By determining the oral health-related knowledge and practices among nursing students, this study gives insight of competence and dependability of future nurses in oral

health promotion and preventive information dissemination. Emphasis is made on nurses because in primary care, apart from physicians, it is the nurses who meet children and their families regularly.

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