A survey of knowledge, attitude, and practice of oral hygiene amongst healthcare workers at a tertiary hospital in Northwestern Nigeria

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Abstract

The overall well-being of an individual cannot be complete without adequate oral health since the oral cavity is the gateway to the whole body and an integral part of the Gastrointestinal Tract (GIT). Many systemic illnesses manifest in the oral cavity and can be diagnosed easily by its simple clinical examination. The involvement of other healthcare workers in the hospital, such as medical doctors, nurses, and laboratory scientists, for effective and efficient dissemination of oral health education to the general populace, is of paramount importance by virtue of the large number of patients they come in contact with in their daily practice. However, this could not be arbitrarily assumed without calibrating their knowledge, perception, and practice of oral health to ascertain if they can truly impart positively to the patients.

This study determined the knowledge, attitude, and practice of oral hygiene amongst healthcare workers at the Federal Medical Centre Gusau, northwestern Nigeria.

A descriptive cross-sectional study was conducted amongst healthcare workers in Federal Medical Centre Gusau, Zamfara State, Nigeria. A total of 200 self-administered questionnaires were distributed using a convenient sampling technique. Data collected was analyzed using the Statistical Package for Social Sciences (SPSS; IBM Corp., Armonk, NY, USA) software for Windows version 25.0.

Of the 200 questionnaires distributed, 193 (96.5%) were retrieved. The mean age of the participants was 37.1±8.53 years, with a range of 21 to 60 years. Study participants comprised of 114 (59.1%) males and 79 (40.1%) females. The majority (79.3%) were Muslims, while about one-fifth (20.7%) were Christians. About half (48.2%) of the participants were nurses, followed by laboratory scientists (31.1%), while medical doctors were 40 (20.7%) of the population. Slightly above half (50.8%) obtained their oral health information from oral health workers, while 58 (30.1%), 24 (12.4%), and 13 (6.7%) obtained their information from leaflets, family and friends, and newspapers, respectively. The average knowledge, attitude, and practice score amongst all the participants was good, as about 75%, 69%, and 63% answered correctly in the knowledge, attitude, and practice domains, respectively. There was a statistically significant difference between the different cadres of health workers in the attitude and practice domains tested ($p<0.05$). The oral health knowledge attitude and practice in the studied health workers is satisfactory. However, there are other aspects of the attitude and practice that need to be modified through continuous medical and dental education to be anchored by the Preventive Dentistry Department in conjunction with the Public Health Department of the state Ministry of Health.

Introduction

The overall well-being of an individual cannot be complete without adequate oral health. The oral cavity is an important gateway to the whole body as it is an integral part of the Gastrointestinal Tract (GIT).[1] Many systemic illnesses manifest in the oral cavity and can be diagnosed easily by simple clinical examination.[2,3] Also, the prognosis of many systemic illnesses, such as Diabetes Mellitus, can be influenced positively or negatively by ensuring adequate oral hygiene or otherwise.[4,5] For effective and efficient dissemination of oral health education to the general populace, it is of paramount importance to involve other healthcare workers in the hospital, such as medical doctors, nurses, and laboratory scientists, in the oral health education program

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by virtue of the large number of patients they come in contact with in their daily practice. Hence, they can model the positive knowledge, attitude, and practice of oral health to the patients, family, and friends as well as the generality of the populace.[6] However, this could not be arbitrarily assumed without calibrating these three parameters from the health workers to ascertain if they can truly impart positively the knowledge, perception and practice of oral hygiene.[6] More so, there is a paucity of published research on the topic in the northwestern region of Nigeria, with none from the Federal Medical Centre Gusau. Therefore, the current study aimed to determine the knowledge, attitude, and practice of oral hygiene amongst healthcare workers at the Federal Medical Centre Gusau, northwestern Nigeria.

Materials and Methods

Study design

A cross-sectional descriptive type of study was conducted.

Study population

The study was conducted among consenting healthcare workers in Federal Medical Centre Gusau, Zamfara State, Nigeria, between January 2, 2023 and Feb 28, 2023. The health workers included were doctors, nurses, and laboratory scientists.

Sample size determination

The sample size was determined using Slovin's formula[7] as follows:

$n = N/1+Ne^2$

where N = Population size, in this case 220 (As the total number of health workers in the selected category)

e = Margin of error, in this case 0.03
$n = 220/1+220\ (0.03)^2$
$n = 220/1+220(0.009)$
$n = 220/1.198$
$n = 183.6$

For more precision, a sample size of 193 was used.

Sampling technique

Due to the heterogeneous nature of the study population and the fact that there are several cadres of healthcare workers, a multi-stage sampling method was used to recruit participants into the study as follows:

Stage 1: selection of Departments. Out of the six major departments that are closely involved in patient management (Medical, Pharmacy, Nursing, Optometry, Laboratory, and Radiography), three departments (Medical, Nursing and Laboratory) were randomly selected

Stage 2: selection of units. In this stage, three units were randomly selected from each department with multiple units (Nursing, and Laboratory).

Stage 3: selection of respondents. Respondents were allotted to the selected units proportionately and recruited by a simple random sampling technique (Balloting method).

Study instruments

A self-administered questionnaire, which was pretested through a pilot study, was used to collect data, which consisted of four parts. The first part entailed the socio-demographic characteristics of the participants (age, gender, religion, cadre at work, years in service, marital status, and sources of health information). The second part of the questionnaire comprised seven questions related to knowledge of oral hygiene (knowledge of the role of sweet food in the etiology of dental caries, knowledge of gum bleeding being a symptom of gingivitis, knowledge of the role of regular tooth brushing in the prevention of gingivitis, knowledge of dental plaque, knowledge of the role of dental plaque in the etiology of dental caries, knowledge of role of fluoride in strengthening the teeth, knowledge of the relationship between general body health with oral health and oral diseases). The third part of the questionnaire consisted of seven questions related to attitude towards oral health (frequency of visiting the dentist, experience during the visit to the dentist, whether applying tobacco snuff on a decayed tooth is a bad habit, whether dentists only care about treatment and not prevention, whether treatment of toothache is as important as treating any other organ in the body, whether the participant is afraid to

Table 1. Socio-demographic variables of the respondents.

Variable	Frequency (percentage) n(%)
Gender	
Male	114 (59.1)
Female	79 (40.9)
Total	193 (100.0)
Age category	
21-30 years	54 (28.0)
31-40 years	84 (43.5)
41-50 years	46 (23.8)
51-60 years	9 (4.7)
Total mean age ± SD = 37.1±8.53 yrs	193 (100.0)
Marital status	
Married	154 (79.8)
Single	34 (17.6)
Widow	4 (2.1)
Other	1 (0.5)
Total	193 (100.0)
Religion	
Muslim	153 (79.3)
Christian	40 (20.7)
Total	193 (100.0)
Cadre	
Medical Doctor	40 (20.7)
Nurse	93 (48.2)
Laboratory Scientist	60 (31.1)
Total	193 (100.0)
Years in service	
Less than 5 years	63 (32.6)
5 to 10 years	55 (28.5)
More than 10 years	75 ()38.9
Total	193 (100.0)
Sources of health information	
Newspapers & magazines	13 (6.7)
Oral health workers	98 (50.8)
Family & friends	24 (12.4)
Oral health leaflets & posters	58 (30.1)
Total	193 (100.0)

Table 2. Showing the knowledge of the respondents about oral hygiene.

Knowledge Domain	Yes n (%)	No n (%)	I don't know n (%)	Total
Consuming sweet food can cause tooth decay	172 (89.1%)	14(7.3%)	7(3.6%)	193(100.0)
Gum bleeding is a symptom of inflamed gum	115 (59.6%)	54(28.0%)	24(12.4%)	193(100.0)
Regular teeth brushing can protect from gum bleeding	163(84.5%)	14(7.3%)	16(8.3%)	193(100.0)
Dental plaque means soft debris on the teeth	141(73.1%)	19(9.8%)	33(17.1%)	193(100.0)
Dental plaque can lead to dental caries	155(80.3%)	11(5.7%)	27(14.0%)	193(100.0)
Use of fluoride strengthens the teeth	163(84.5%)	11(5.7%)	19(9.8%)	193(100.0)
General body health is related to oral health & dental diseases	171(88.6%)	10(5.2%)	12(6.2%)	193(100.0)

visit the dentist, whether immediate replacement of missing natural teeth by artificial is necessary). The fourth part of the questionnaire consisted of seven questions relating to the practice of oral hygiene (frequency of consuming carbonated drinks, aids used in cleaning the teeth, the use of fluoridated toothpaste, adherence to routine dental check-up, opening of bottled soft drinks with teeth, frequency of tooth brushing in a day, frequency of refined carbohydrates consumption per day). The primary investigator personally explained and delivered the questionnaires to the participants. They were then allowed to fill and return it to the investigator.

Data analysis

Data collected was initially stored and preserved in Microsoft Excel under strict confidentiality, and all records of the participants were kept in anonymity. The collected data was analyzed for descriptive as well as analytical statistics using the Statistical Package for Social Sciences (SPSS; IBM Corp., Armonk, NY, USA) software for Windows version 25.0.

Ethical considerations

Ethical approval was obtained from the ethical review committee of Federal Medical Centre Gusau before the commencement of the study. Also, informed consent was obtained from each and every participant prior to the commencement of the study.

Results

Socio-demographic characteristics

A total of 193 (96.5%) questionnaires were retrieved out of the 200 questionnaires distributed, giving a response rate of 96.5%. This comprised 114 (59.1%) males and 79 (40.1%) females with a male-to-female ratio of 1.5:1. The mean age of all the participants was 37.1±8.53 years with a range of 21 to 60 years. Out of the 193 participants, the majority, 153 (79.3%), were Muslims, while 40 (20.7%) were Christians. Close to half, 93 (48.2%), of the participants were nurses, followed by laboratory scientists 60 (31.1%), while the doctors had the lowest 40 (20.7%) population. The majority, 75 (38.9%), of the participants have been in service for over 10 years, while 63 (32.6%) and 55 (28.5%) were less than five years and between five to ten years in service, respectively. Over four-fifths (80.3%) are married. Slightly above half, 98 (50.8%), obtained their oral health information from oral health workers, while 58 (30.1%), 24 (12.4%), and 13 (6.7%) obtained their information from leaflets, family and friends, and newspapers, respectively (Table 1).

Knowledge of the respondents on oral hygiene

Over 80% of the respondents answered correctly in the majority of the questions asked, except for a single question where knowledge of symptoms of gingivitis was tested, and over 40% did not answer correctly. Despite this, the average knowledge amongst all the respondents was good, where 79.9% answered all the questions correctly. There was no statistically significant difference between the different cadres

Table 3. Showing perception of the participants about oral hygiene.

How often do you visit a dentist?	
1. Occasionally	38 (19.7%)
2. When I have dental pain	68 (35.2%)
3. Every six to twelve months	55(28.5%)
4. Never	32(16.6%)
What was your experience during the visit?	
1. Good	162(83.9%)
2. Poor	31(16.1%)
Do you think immediate replacement of missing natural teeth by artificial is necessary?	
1. Yes	75(38.9%)
2. No	83(43.0%)
3. I don't know	35(18.1%)
Do you think applying tobacco sniff on decayed tooth is a bad habit?	
1. Yes	158(81.9%)
2. No	18(9.3%)
Do you think dentist only care about treatment and not prevention?	
1. Yes	36(18.7%)
2. No	145(75.1%)
3. I don't know	12(6.2%)
Do you think treatment of toothache is as important as any other organ of the body	
1. Yes	166(86.0%)
2. No	23(11.9%)
3. I don't know	4(2.1%)
Are you afraid of going to the dentist?	
1. Yes	28(14.5%)
2. No	165(85.5%)

Table 4. Showing the oral hygiene practices of the participants.

Frequency of eating refined carbohydrates per day	
1. None	115(59.6%)
2. Two to four times	66 (34.2%)
3. Five to six times	5(2.6%)
4. More than six times	7(3.6%)
Frequency of taking carbonated drinks per day	
1. None or once in a while	71(36.8%)
2. Once in a day	55(28.5%)
3. Three to five times daily	32(16.6%)
4. More than five times daily	35(18.1)
Frequency of tooth brushing	
1. None	15(7.8%)
2. Once daily	64(33.2%)
3. Twice daily	114(59.0%)
Do you open bottled drinks with your teeth?	
1. Yes	103(53.4%)
2. No	90(45.1%)
Aids used in cleaning teeth	
1. Chew-stick	8(4.1%)
2. Toothbrush	139(72.0%)
3. Toothbrush and chew-stick	46(23.8%)
Do you use fluoride containing toothpaste?	
1. Yes	140(72.5%)
2. No	10(5.2%)
3. I don't know	43(22.3%)
Do you go for routine dental check-up?	
1. Yes	138(71.5%)
2. No	55(28.5%)

of health workers in terms of their knowledge of oral health (p>0.05) (Table 2).

Attitude of the respondents on oral hygiene

Over one-third (35.2%) of the respondents visit the dentist only when they have dental pain, 81.9% believed that applying tobacco sniff on a decayed tooth is a habit, 75.1% do not think dentist only care about treatment and not prevention, the majority (83.9%) described their last dental experience as good, 86.0% believe that treatment of toothache is as important as any other organ of the body, the majority (43.0%) believed that immediate replacement of missing natural tooth by artificial one is necessary, and 85.5% of the respondents were not afraid of going to the dentist (Table 3). There was a statistically significant difference regarding the last dental experience and how often the participants visited their dentist amongst different cadres (p 0.00 & 0.03, respectively) (Table 4).

Practice of the respondents on oral hygiene

It is important to note that 59.6% of the participants reported that they do not frequently consume refined carbohydrates; however, a significant number (53.4%) open bottled drinks with their teeth. The majority (72.0%) uses toothbrush as an aid in cleaning their teeth, 72.5% uses fluoride-containing toothpaste, and 59.0% brush twice daily (Table 5). There was a statistically significant difference in the aids used in teeth cleaning when compared with cadre and gender (p 0.005 and 0.001, respectively). Also, there was a statistically significant difference in whether a respondent uses his/her teeth to open bottled drinks when compared with the cadre and gender of the participants (p 0.00 and 0.02, respectively) (Table 6).

Discussion

Teamwork in medical practice is inevitable since it entails the provision of healthcare services through a multidisciplinary approach involving different subspecialties in medicine as well as other paramedical health workers such as nurses, pharmacists, and laboratory scientists, among others. It is on this premise that it would be suggested, for effective and efficient dissemination of oral health education to the general populace, it is of paramount importance to involve other healthcare workers in the hospital, such as medical doctors, nurses, and laboratory scientists in the oral health education program by virtue of the large number of patients they come in contact with in their daily practice. Hence, they can model the positive knowledge, attitude, and practice of oral health to the patients, family, and friends as well as the generality of the populace.[6] However, this could not be arbitrarily assumed without calibrating these three parameters from the health workers to ascertain if they can truly impart positively the knowledge, attitude and practice of oral health.[6] More so, there is a paucity of published research on the topic in the northwestern region of Nigeria, with none from the Federal Medical Centre Gusau. Therefore, the current study aimed to determine the knowledge, perception, and practice of oral hygiene amongst healthcare workers at the Federal Medical Centre Gusau, northwestern Nigeria.

There were more males (59.1%) than females (40.9%) with a male-to-female ratio of about 1.5:1, which is in keeping with other studies[1,7] and in contrast with a study conducted in Malaysia,[2] Nepal,[3] and India.[8] This has demonstrated that our workforce is being dominated by male workers which is an extension of an anecdotal finding which suggests that medical courses are being dominated by males compared to females due to their perceived difficulty in our environment. The majority (79.3%) of the participants in the study were Muslim, which represents the demography of the study location since the northern part of Nigeria is dominated by the Muslim population.

The average level of oral health knowledge amongst the healthcare professionals is good, as 79.9% of them answered the knowledge questions correctly, such as the role of refined carbohydrates consumption in the etiology of caries, the role of regular teeth brushing in the prevention of gingivi-

Table 5. Showing the relationship between the last dental experience, frequency of dental visit, and cadre.

	Last dental experience			Chi-square	df	p
	Good	Poor	Total			
Medical doctor	27	13	40	3.5	1	*0.006
Nurse	82	11	93			
Lab scientist	53	7	60			
How often do you visit your dentist?						
	Every 6-12 months	Occasionally	When I have dental pain			
Medical doctor	11	3	14	13.4	6	*0.03
Nurse	24	18	37			
Lab scientist	20	17	17			

Table 6. Showing the relationship between gender, cadre, and habit of opening bottled drinks with teeth.

	Do you open bottled drinks with your teeth/Gender			Chi-square	df	p
	Yes	No	Total			
Male	68	46	114	7.76	2	*0.02
Female	35	44	79			
	Do you open bottled drinks with your teeth/Cadre					
	Yes	No	Total			
Medical doctor	26	14	40	16.2	4	*0.003
Nurse	47	46	93			
Lab scientist	30	30	60			

tis, the meaning of dental plaque, the role of dental plaque in the causation of dental caries, the role of fluoride in strengthening the teeth, the relationship between oral health and diseases with the general body health. The question with the lowest correct answer is regarding the knowledge of gum bleeding as a symptom of gingivitis, where over 40.4% of all the participants answered wrongly. Medical doctors had the lowest percentage of wrong answers in this question, as only 31% answered wrongly, while nurses and laboratory scientists had 32% and 31.9%, respectively. There is, however, no statistically significant difference among the three groups (p-value=0.117). This could be attributed to the fact that medical doctors routinely perform clinical examination for their patients which includes the oral cavity, prior residual dental knowledge which they had accrued during their undergraduate training and above all, continuous medical and dental education courses,[6] which are part of the requirement for renewal of annual practicing license in our clime.

Male participants had a higher knowledge of oral health compared to females, though not statistically significant (p-value>0.05), except for the knowledge of the role of fluoride in strengthening the teeth, where males had a statistically significant higher knowledge than females (p=0.018). This is similar to findings by Harender *et al*.,[3] but in contrast with the study conducted in Riyadh, Saudi Arabia, by Baseer *et al*.,[6] Khami *et al*.,[9] as well as Pellizer *et al*.,[10] where they reported a higher score of oral health knowledge in females compared to males.

Overall, the health workers who participated in this study have a positive attitude towards oral health, as 81.9% believe that applying tobacco sniff on a decayed tooth is a bad habit, 75.1% did not agree that dentists only care about treatment and not prevention which is in contrast to Harender *et al*.,[3] Baseer *et al*.,[6] Manjunath and Kumar,[12] who reported 46%, 50% and 45.5% of their study participants believing that dentist only care about treatment and not prevention respectively. Furthermore, 86.0% believed that treatment of toothache is as important as any other organ of the body, 85.5% are not afraid of going to the dentist, and 83.9% had a good experience during their last dental visit. However, the ideal attitude about visiting a dentist every six to twelve months is poor in this study; only 28.5% visit the dentist for a routine dental check-up every six to twelve months, while 71.5% either visit a dentist occasionally (19.7%), when they have dental pain (35.2%), or never ever visited a dentist before (16.6%). This is in agreement with the submission made by Harender *et al*.,[3] and Reddy *et al*.,[8] who reported about 48% and 30% of the study participants only visited the dentist when they had dental pain, respectively, but in contrast to the findings by Baseer *et al*.,[6] and Zhu *et al*.[11] The former reported over 50% of health workers showing positive attitude towards regular visit to the dentist while the later reported 81% positive attitude towards regular visit to the dentist. This high percentage of poor attitude to regular dental visits could be linked to a general poor health-seeking behavior found in developing and underdeveloped nations due to the low socioeconomic status of the citizens,[3] out-of-pocket expenditure due to lack of an effective and efficient health insurance scheme that can ensure universal health coverage, resulting in patients deferring visit to the doctor unless when he/she is in pain. However, there is no statistically significant difference between age groups, gender, marital status, and years in service (p>0.05), but there is a statistically significant difference when compared with the cadre at work (p=0.03) wherein more nurses have a poor attitude towards visiting a dentist followed by laboratory scientists and finally medical doctors in that order. It is also interesting to note that the majority (61.1%) of the participants do not have a positive attitude towards the need for immediate replacement of missing natural teeth by artificial ones, with a statistically significant difference when compared with age (p=0.042) and marital status (p=0.043); consequently, the older the participants, the poorer their attitude, also, married participants tend to have poorer attitude than single ones. This could simply be explained by the fact that the need for esthetics naturally reduces with age, and most patients seek artificial replacement of missing natural teeth due to esthetics rather than function; also, single individuals tend to be more conscious about their esthetics than married.

The oral health practices among the studied groups appear to be good, with 63% exhibiting good oral health practices. The majority (59.6%) do not consume refined carbohydrates, which is almost similar (53.7%) to the report by Onwobu *et al*.;[1] 36.8% do not consume carbonated drinks, which is lower than Onwobu *et al*.[1] It is alarming to note that amongst the healthcare workers, 7.8% do not brush their teeth at all, 33.2% brushes only once daily in the morning, but yet interestingly, 59.0% brushes their teeth twice daily (in the morning and at night) which is higher than the 43.8% reported by Onwobu *et al*.,[1] 42.20% by Baghat *et al*.,[13] and significantly higher than 3.9% reported by Baseer *et al*.,[6] but relatively lower than other studies by Harender *et al*.,[3] Tangade *et al*.,[14] Sharda & Shetty,[15] Selvaraj *et al*.[16] More than half of the participants (53.4%) said that they open bottled drinks with their teeth, which is higher than the 42.4% put forward by Selvaraj *et al*.,[16] with a statistically significant difference when compared with age, gender and cadre (p 0.01, 0.02, and 0.00, respectively). Close to three-quarters of the health workers uses toothbrush as an aid for cleaning their teeth, 23.8% uses a combination of both toothbrush and chew-stick, while only 4.1% uses chew-stick alone, closer to the 5.6% found by Onwobu *et al*.[1] Culture and religion can have a bimodal effect on oral health attitudes and practices,[6] which is evident in the result found in this study. It is symbolic in Islamic religion and part of the teachings of the Prophet to routinely clean teeth with a chew-stick otherwise known as Miswak, which could probably be the reason why all those that chose chew-stick as an aid for teeth cleaning were Muslims, and among the forty-six health workers who chose a combination of chew-stick and toothbrush, forty-three of them were Muslims. There is a statistically significant difference when aids used in cleaning the teeth was compared with religion (p=0.00). The use of fluoride-containing toothpaste is also appreciable, as 72.5% of the health workers attest to using it for cleaning their teeth, which has a positive impact on the prevention of caries initiation and progression even though it is slightly lower than the results obtained by other authors.[1,4,13,16]

This study is certainly not devoid of some limitations, part of which are: the use of self-reported data, which is known to bring about bias, and the small sample size, which is a reflection of the human resources available at the time of conducting the research. Notwithstanding these limitations, this study filled a vacuum in the existing literature and provided a solid foundation for future research in the subject matter.

Conclusions

The oral health knowledge attitude and practice in the studied health workers is satisfactory. However, there are other aspects of the attitude and practice that needs to be modified.

Recommendations

Oral health education through continuous medical and dental education of the health workers such that they can be relied upon to act as role models in the dissemination of accurate oral health information to

the teaming patients they come in contact with on a daily basis and the general population. This could be anchored by the Preventive Dentistry Department in conjunction with the Public Health Department of the state Ministry Of Health.

Further research on the subject matter with a more robust sample size through the inclusion of the numerous public and private hospitals in the state.

References

1. Onwubu SC, Ogwo KC, Onyenu UP, et al. Evaluating the oral health knowledge, attitude and practice among undergraduate students and staff at selected federal university in Imo state, Nigeria. SADJ 2022;77:610-9.
2. BenGhasheer HF, Saub R. Oral health knowledge, attitude, practice, perceptions and barriers to dental care among Libyan parents. J Oral Res 2022;11:1-14.
3. Harender S, Sanjeeb C, Abhishek G, Anusha B. Oral health knowledge, attitude, and practices among school teachers in Chitwan District, Nepal. Hindawi International Journal of Dentistry 2021;10:1-7.
4. Chisnoiu RM, Delean AG, Muntean A, et al. Oral health-related knowledge, attitude, and practice among patients in rural areas around Cluj-Napoca, Romania. Int. J. Environ. Res. Public Health 2022;19:68-78.
5. Deeksheetha P, Pavithra P. Knowledge, attitude and perception of oral diseases presenting to general medicine practitioners. J. Pharm. Sci. & Res 2019;11:2133-8.
6. Baseer MA, Alenazy MS, AlAsqah M, et al. Oral health knowledge, attitude and practices among health professionals in King Fahad Medical City, Riyadh. Dental Research Journal 2012;9:386-92.
7. Huang S, Liu Y, Li M et al. Oral health knowledge, attitudes, and practices and oral health-related quality of life among stroke inpatients: a cross-sectional study. BMC Oral Health 2022;22:410-6.
8. Reddy V, Bennadi D, Gandupati S, et al. Oral health related knowledge, attitude and practice among the pre-university students of Mysore city. Journal of International Society of Preventive and Community Dentistry 2014;4:154-8.
9. Khami MR, Virtanem JI, Jafarian M, Murtomaa H. Prevention-oriented practice of Iranian senior dental students. Eur J Dental Educ 2007;11:48-53.
10. Pellizer C, Pejda S, Spalj S, Plancak D. Unrealistic optimism and demographic influence on oral health-related behavior and perception in adolescents in Croatia. Acta Stomatol Croat 2007;41: 205-15.
11. Zhu L, Petersen PE, Wang HY, et al. Oral health knowledge, attitudes, and behavior of adults in China. International Dental Journal 2005;55:231-41.
12. Manjunath G, Kumar N. Oral health knowledge, attitude, and practices among school teachers in Kurnool-Andhra Pradesh. Journal of Oral Health and Community Dentistry 2013;7:17-23.
13. Bhagat T, Shrestha A, Agrawal SK, et al. Knowledge, attitude, practice and perception towards maintenance of oral health among pregnant women in Eastern Nepal. J Dent Res Rev 2022;9:131-5.
14. Tangade P, Jain M, Mathur A, Prasad S. Knowledge, attitude and practice of dental caries and periodontal disease prevention among primary school teachers in Belgaum City, India. Pesqui Bras Odontopediatria Clin Integr 2011;56:77-83.
15. Sharda AJ, Shetty S. A. Comparative study of oral health knowledge, attitude and behavior of non-medical, Para-medical and medical students in Udaipur city, Rajasthan, India. Int J Dent Hyg 2010;8:101-9.
16. Selvaraj S, Naing NN, Wan-Arfah N, Abreu MHNG. Assessment on oral health knowledge, attitude, and behavior and its association with socio-demographic and habitual factors of South Indian Population. Pesqui Bras Odontopediatria Clin Integr 2021;21: e0135.
17. Barlett JE, Kotrlik JW, Higgins C. Organizational research: Determining appropriate sample size for survey research. Information Technology, Learning and Performance Journal 2001;19:43-50.