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RESEARCH ARTICLE

KNOWLEDGE, ATTITUDE AND PERCEPTION TOWARDS HALITOSIS AMONG IN-SCHOOL ADOLESCENTS IN SOUTH-WEST NIGERIA

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Abstract

Background: Halitosis is common in both young and old populations. Adolescents are prone to halitosis which can affect their psychosocial aspects and general wellbeing. Studies on halitosis in adolescents are scarce in Nigeria despite existence of the problem in the general population. Thus, this study sought to investigate the knowledge, attitude and perception of halitosis among adolescents in a selected school setting.
Methods: The study was conducted using a cross-sectional design among 403 in-school adolescents. Data was collected using a structured questionnaire and analyzed using SPSS descriptive (frequencies and means) and inferential statistics (correlation).
Results: The mean age of the respondents was 14.88±1.91. Participants were females (49.9%) and males (49.6%). Knowledge was good ($\bar{x}$ = 16.7±2.09; SE= 0.10) on a 22-point scale. The Attitude was fair ($\bar{x}$ = 18.1±3.54; SE= 0.18) on a 32-point scale and perception of halitosis was high ($\bar{x}$ = 19.3±3.05; SE= 0.15 on a 28-point scale). Age was not associated with knowledge [r(401) = -.05, p = .283)] nor perception [r(401) = .04, p = .397)], but had positive association with attitude [r(401) = .18, p <0.001)]. No significant associations were found between gender and knowledge [r(401) = .06, p = .236)], attitude [r(401= -.05, p = .345)] and perception [r(402) = .003, p = .952)].
Conclusion: Participants were knowledgeable about halitosis and had a good perception, but fair attitude. There is need to improve the attitude of adolescents to fully promote positive behaviours towards the prevention of halitosis in adolescents.

Introduction:-

Oral health is a public health issue of concern as it is a key measure of the overall health, wellbeing and quality of life of people worldwide with over 3.58 billion people affected [14]. Good oral hygiene is necessary in many cases to maintain good oral health and prevent common oral ill health conditions such as dental cavities, gingivitis, periodontal (gum) diseases, and bad breath.

Bad breath also known as halitosis is one of the most common oral conditions that affects more than 50% of the population [3]. Although its causes are multifactorial, over 90% of cases are caused by problems with the oral cavity such as poor oral hygiene, periodontal disease, tongue coat, food impaction, unclean dentures, faulty restorations,

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oral carcinomas, and throat infections [3]. The remaining 9% is caused by non-oral factors such as respiratory system, digestive system or urinary system, and the rest 1% by diet or medication [3]. Other identified but less studied factors have been demographic factors such as age and sex [9]. It can be referred to as a medico-social problem as it affects the biomedical aspects and social aspects of one's life [5][8].

Adolescence is a transition period inundated by imperfections and is a time of great physical, emotional, and social changes [15]. Adolescence is also a time when behaviours and attitudes toward health are formed which can last throughout life [11] and affect the quality of life [6]. Dental caries occurs frequently and periodontal disease, all antecedents to halitosis may start during adolescence, affecting the daily comfort, self-esteem and other aspects of psychosocial being and leading to unhealthy actions to mask this condition [13] at a critical phase of growth, thus understanding of what adolescents, especially those in early adolescence know and perceive about their oral health status is an important step in promoting good oral health and general wellbeing in the short and long term.

The prevalence of halitosis have been reported by studies and range from 23.6% in Asia [9], 30% in the middle east [16], 23% to 50% in Africa [7][12]. In Nigeria, the only known study on adolescents has reported a rate of 13% which indicates the presence of halitosis in the adolescent population. Few other studies have been focused on other patients in the older category [13][15] reflecting scarce knowledge about halitosis in the general population. Furthermore, more attention has been paid to other oral health issues such as dental caries (tooth decay) and periodontitis (inflammation of the gum), neglecting the issue of halitosis. Hence, this study was conducted to assess the knowledge attitude and perception relating to halitosis and determine associations of these variables to selected sociodemographic factors among in-school adolescents.

Methods:-

Study design:

This study was a cross sectional study conducted among in-school secondary level/high school students within a population of 3500 students.

Study Population:

The study population consisted of 3500 adolescents in the age range 10 to 19 years in school during the study period.

Sample size determination and sampling technique:

The Leslie Kish [10] formula was used to determine the sample size of 403 for this study where, n= minimum sample size; p= Proportion of students (0.5); d=precision; q= (1-p); q= 1-0.5=0.5; Z=confidence level @ 0.5% (1.96) n=([z2]×pq)/d2 =(〖(1.96)〗 ^2×(0.5)×(0.5))/ 〖0.05〗 ^2 , to obtain a sample of 384.16. A 5% attrition rate was computed to derive a final sample size of 403 students.

Multi-stage sampling technique was used to obtain the sample. All arms of classes within the selected school were identified and number of students obtained from the class register. To obtain the total number of participants in each class the formula x/y*(Sample size/1) was used. To further determine the number of instruments to be distributed in the arms of the class, the number of participants derived for each class was then divided by the number of arms of each class. Simple random sampling was then used to select participants in the classroom aided by the table of random numbers until the desired number was reached.

Data instrument and collection:

A structured 31-item questionnaire with four sections was used to collect data from participants. The questionnaire was composed of 5 questions on sociodemographic variables, 10 questions on knowledge about halitosis, 8 questions on attitude towards halitosis, and 7 questions about perception of halitosis.

Instrument was pretested among a similar sample of 10% of the study participants (40) and found to be reliable with a Crohnbach's alpha coefficient of 0.72. Validity was assessed by assessing potential ambiguities of the instrument and adjusting the instrument accordingly. Ethical clearance (NHREC/24/01/2018) was obtained from the Babcock University Health Research Ethics Committee prior to the commencement of the study. Informed consent was also obtained from each participant.

Data analysis:
Data were coded into and analyzed using SPSS v. 25 to derive descriptive and inferential statistical data. Frequency distributions and means were used to describe sociodemographic variables, while chi-square and correlation were used to determine relationships amongst variables. To determine the level at which respondents were on the variablesknowledge, attitude and perception, each of these were computed on various point scales. Knowledge was computed as a composite variable by summing up the 11 questions related to knowledge. Knowledge was then computed on a 22-point scale given dichotomous responses (Yes/No). The mean levels were thus noted as points 0-5.5 (poor level of knowledge), 5-6-11.1 (fair level of knowledge), 11.2-16.7 (good level of knowledge) and 16.8-22.3(very good knowledge). A composite Attitude variable was computed by summing up the 8 questions related to attitude on 4 likert scales. Attitude was then computed on 32-point rating scale. Points 0-8 (bad attitude), 8.1-16.1 (fair attitude), 16.2-24.2 (good attitude), 24.3-32.3 (excellent attitude). A composite Perception variable was computed by summing up the 7 questions related to perception on a 4 likert scale. Perception was then graded on a 28 point-scale. Points 0-7 (very low perception), 7.1-14.1 (low perception), 14.2-21.2(high perception) and 21.3-28.3(very high perception)

Results:-

Demographic characteristics of student respondents:
The mean age of the respondents was 14.88±1.91. Females and males were equal at 50%. SS 2(Senior secondary school level 2/first year senior level students were in the majority (21.2%). The most represented tribe was Yoruba (71.6%). Majority were Christians (82.0%) (Table1)

Table 4.1:- Demographic Distribution of Secondary School Student Respondent's.

Demographic variables for consideration	Respondents in this Study =403	
	Frequency (n)	Percentage (%)
Age(in years)	Mean age 14.9±1.92	
10-14	164	40.5
15-19	241	59.5
Gender		
Male	201	49.6
Female	202	49.9
Class		
JSS1	65	16.0
JSS2	57	14.1
JSS3	55	13.6
SS1	85	21.0
SS2	86	21.2
SS3	57	14.1
Religion **Christian**	332	82.0
Islam	68	16.6
Traditional	4	1.0
Ethnicity		
Yoruba	292	72.1
Igbo	76	18.8
Hausa	5	1.2
Others	32	7.9

Levels of Knowledge, attitude and perception about Halitosis:
The mean level of knowledge was 16.70±2.09. Given the mean score, knowledge was considered good. The level of attitude was fair at a mean value of 18.14±3.54, while the perception was high towards halitosis at a mean value of 19.30±3.05 (Table 2).

Table 2:- Summaries of Descriptive statistics of mean and standard deviation for variables in the study as measured from participants.

VARIABLES	Maximum point on Scale of Measure	Respondents in the study N= 403
		X (SE) ±SD
Knowledge	22	16.7022 (.10388) 2.08541
Attitude	32	18.1365(.17616) 3.53641
Perception	28	1.9380 (.15204) 3.05223

Relationship of age and gender to knowledge, attitude and perception:
Results of the Pearson correlation indicated that there was no significant association between age and knowledge ($r(401) = -.05$, $p = .283$). There was a positive association between age and attitude ($r(401) = .18$, $p < 0.001$. There was no significant association between age and perception towards halitosis ($r(401) = .04$, $p = .397$) (Table 3). No significant associations were found between gender/sex and knowledge (($r(401) = .06$, $p = .236$), attitude ($r(401= -.05$, $p = .345$) and perception($r(402) = .003$, $p = .952$) (Table 4)

Table 3:- Correlations (Pearson Correlation) between age and knowledge, attitude and perception.

age	KNOWLEDGE	ATTITUDE	PERCEPTION
age	1	-.054	.182**	.042
KNOWLEDGE	-.054	1	.072	.063
ATTITUDE	.182**	.072	1	.102*
PERCEPTION	.042	.063	.102*	1

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 4:- Correlations (Pearson correlation) between gender and knowledge, attitude and perception.

	KNOWLEDGE	ATTITUDE	PERCEPTION	gender
KNOWLEDGE	1	.072	.063	-.059
ATTITUDE	.072	1	.102*	-.047
PERCEPTION	.063	.102*	1	.003
Gender	-.059	-.047	.003	1

* Correlation is significant at the 0.05 level (2-tailed).

Discussion:-

The mean age was 14.88±1.91. This age reflected the expected age represented by the highest class which was senior secondary 1. At this stage in school students are expected to be about this age. Similar mean age had been reported in previous studies [9]. While this study reports relatively equal representation of males and females which could have been as a result of the enrollment as at the time of the study, a study by Zaisi et al [18] reported more males than females, where the males represented more than half of the participants. The most represented tribe was expected as the study area was in the south west geopolitical zone of the country which hosts majority of people from this tribe, even though over the years many other tribes have settled in the area.

Unlike the present study which found a high level of knowledge, others [4] reported poor knowledge of the extraoral factors associated with halitosis other than gastrointestinal tract disorders. Another study [1] found knowledge, attitude and perception to be unsatisfactory unlike in the present study where knowledge and perception were good and attitude fair.

A review of literature suggests that studies based on the variables are scarce and have been evaluated differently. Findings may not be generalization to other adolescent populations. However, this study prompts further research into oral health, particularly, bad breath, in the adolescent population. This suggests the need for more research into the phenomenon amongst early stage adolescents, which would include both qualitative and quantitative measures.

Halitosis is prevalent in adolescents and requires tailored actions to mitigate the problem at the early stages of growth and development.

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Conflict of Interest:
None.

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