

Applying the Health Belief Model on the Perception and attitude towards Diabetes Mellitus among public secondary school students in Southern Nigeria: A Cross-sectional Study.

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Abstract

Background:

Diabetes Mellitus (DM) is a chronic disorder of carbohydrate metabolism which has become a 21st-century pandemic. According to the International Diabetes Federation, the incidence and prevalence of diabetes in children and adolescents (10-19 years) in Africa are steadily rising. Students in post-primary schools constitute a large part of this population where poor perception and attitude towards DM prevention have been reported. The purpose of the study was to investigate the perception of DM using the Health Belief Model (HBM) among public secondary school students in Delta State, Nigeria.

Methods:

The study adopted a descriptive cross-sectional design. The study was conducted in November 2019 and February 2022 in Ogbe secondary school Effurun and Nana College Warri. A simple random sampling technique was utilized to select 700 students from both schools. The data was gathered using a three-part structured questionnaire A-C. Section A comprises demographic characteristics; B contains perception questions and C contains questions on attitude toward DM. The Chi-Square test was used to analyse the association between perception variables and attitude towards DM at a $P < 0.05$ level of significance.

Results:

Respondents' average age was 14.99 ± 1.86 years and 423(60.4%) were females. The majority of participants 621(88.7%) have heard of DM and 88(14.2%) have relatives with DM. The majority of responders exhibited poor perceived susceptibility 499(80.4%), severity 406(65.4%), barriers 484(77.9%), and attitude 443(71.3%) towards DM management and prevention. However, 397(63.9%) exhibited good perceived benefits of DM prevention. Age ($\chi^2=12.91$, $\rho=0.002$), Sex ($\chi^2=28.45$, $\rho=0.000$) Perceived susceptibility ($\chi^2=173.83$, $\rho=0.000$), Perceived severity ($\chi^2=329.89$, $\rho=0.000$) and Perceived barriers ($\chi^2=298.51$, $\rho=0.000$) were significantly associated with attitude at $P < 0.05$.

Conclusion:

The findings showed poor perception and attitude towards DM management and prevention among the study respondents. Therefore, DM prevention intervention targeting the HBM constructs should be implemented in secondary schools to improve the knowledge, perception, and attitude toward DM among in-school adolescents.

Keywords: Adolescent, Diabetes Mellitus, Health Belief Model, Perception, Schools, Students, Date Submitted: 2022-09-02 Date Accepted: 2022-09-13

1. Introduction

Diabetes Mellitus (DM) is defined as a severe, persistent condition that occurs when the body cannot produce enough insulin or cannot effectively use the insulin it does produce (International Diabetes Federation, 2021). Diabetes is a 21st-century pandemic currently affecting people of all continents in the world, irrespective of educational, economic, and social status. The recent IDF atlas estimated that 537 million adults aged 20–79 years have DM. This represents 10.5% of the world's population in this age group (International Diabetes Federation, 2021). The majority of the recent rise in DM is prevalent in lower and middle-income countries in Africa with many undiagnosed cases (International Diabetes Federation, 2021). In Nigeria, as well as several other African countries, adults over the age of 30, were most affected by diabetes (Mbanya *et al.*, 1997; Amoah *et al.*, 2002; Owoaje *et al.*, 1997; Alberts *et al.*, 2005; Olatunbosun *et al.*, 1998; Nwafor and Owhoji, 2001; Ekpenyong *et al.*, 2012; Agofure *et al.*, 2020a; Agofure *et al.*, 2020b); however, currently, evidence shows a paradigm shift in DM prevalence mainly type-1 DM and pre-diabetes among young adults and young people in Africa including Nigeria (Jaja and Yarhere, 2015; Kamdema *et al.*, 2019; Nakiriba *et al.*, 2018; Okpere *et al.*, 2012; Oluwayemi *et al.*, 2015). The amount of type-1 diabetes cases is rising every year, owing to the higher prevalence in many countries and lower mortality rates (Tuomilehto *et al.*, 2020; IDF, 2021). There were 1,211,900 children and adolescents younger than 20 years estimated to have type-1 DM globally, with an estimated 108,200 children and adolescents less than 15 years diagnosed each year (IDF, 2021). Northern European, Middle Eastern, and North African populations have the highest occurrence rate. Unfortunately, Nigeria is one of the world's top five countries (together with Indonesia, the Philippines, Vietnam, and South Africa) without comprehensive incidence and prevalence data for

type-1 DM data for < 20 years old (IDF, 2021). Compounding the problem is the reported lack of awareness and understanding of DM among adolescents both in the broader populace and secondary schools in Nigeria (Omisore *et al.*, 2014; Okoh *et al.*, 2014; Agofure and Oghenerume, 2022). For instance, a study conducted in South-East Nigeria reported less than half (43.2%) of the sampled population knew about diabetes in childhood (Chikani *et al.*, 2018). This documented little understanding of DM in the general population and among adolescents could have a direct proportional impact on their attitudes and perceptions of DM which would be detrimental to their health as they might not perceive DM to be a serious disease; thus might not adequately prepare when diagnosed with DM. Furthermore, there is a paucity of studies assessing the perception and attitude toward DM prevention among in-school adolescents in Nigeria. Given the above, the purpose of the study was to investigate the perception and attitude toward DM among in-school adolescents using the constructs of the health belief model. This will aid in the evaluation of the various stages of perception and attitude toward DM and the development of interventional programs in post-primary schools in the research region and elsewhere.

Objectives of the study

1. To find out how DM is perceived among students of Ogbe secondary school and Nana College Warri.
2. To appraise the attitude towards DM among students of Ogbe secondary school and Nana College Warri.

Health Belief Model

The Health Belief Model (HBM) was created by a group of social psychologists from the US Public Health Service in the 1950s to explain why so few individuals were participating in illness prevention and detection programs (Glanz, Lewis, and Rimer, 1997; National Cancer Institute, 2003). The theory believes that people's beliefs about whether or not they were susceptible to disease, and differing views on the advantages of attempting to prevent it, influenced their readiness to act. The theory proposes that people would be ready

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to adopt preventive behaviors if they fear they are at risk of contracting the disease (perceived susceptibility), believe the disease condition has debilitating consequences (perceived severity), believe that taking action will lower their vulnerability to or severity of the illness (perceived benefits) and believe the advantages outweigh the costs of taking action (perceived barriers) (National Cancer Institute, 2003).

2. Methods

Study Design

This was a descriptive cross-sectional study design that investigated students' perceptions and attitudes concerning diabetes mellitus in Ogbe Secondary School Effurun, Uvwie Local Government Area, and Nana College Warri, Warri South Local Government Area, both in Delta State.

Study Area

The study setting was Ogbe Secondary School Effurun, Uvwie Local Government Area, and Nana College Warri, Warri South Local Government Area both in Delta State. The studies in both schools were carried out in November 2019 and February 2022.

Study Population

Male and female students make up the study population from both junior and senior secondary classes in both schools.

Inclusion Criteria

The inclusion criteria were that study participants must be students of Ogbe Secondary School and Nana College Warri and must agree to take part in the research willingly.

Exclusion Criteria

Non-Ogbe Secondary School students and Nana College, students that were registered but not present during the data collection, and students who refused to engage in the study of their own volition were omitted.

Sample Size Determination

The sample size was determined using single population proportion formula by Lwanga and Lemeshow, $n = Z^2 p(1-p)/d^2$, with the following assumptions: Perception of DM as curable among

students was 70.3% from previous study (Mgbahurike *et al.*, 2017), 95% confidence level, 5% margin of error; giving a sample size of 321. After adding a 10% non-response rate, the sample size was 357. Although the sample size was 357, seven hundred questionnaires were administered in both schools to increase the power of the study.

Sampling Procedure

The sampling technique involves randomly selecting one secondary school from eight public secondary schools in Uvwie Local Government Area and Warri South Local Government Area respectively. Thus, Ogbe secondary school and Nana College were selected in Uvwie Local Government Area and Warri South Local Government Area respectively. Thereafter, the selected schools were stratified into common units of classes (JSS 1, JSS 2, JSS 3, SS 1, SSS 2, SSS 3) in both schools. Subsequently, a simple random sampling technique was used to select 700 students from each of the classes in both schools.

Outcome variable

The perception and attitude regarding DM among students was the study's outcome variable. The HBM components of perceived susceptibility, perceived severity, perceived benefits, and perceived barriers were used to assess perception.

Data Collection Instrument

A questionnaire served as the data gathering tool. The questionnaire comprised three sections A-C. The sociodemographic features of the students were covered in Section A and the perception of DM among students was assessed in section B and section C examined the attitude towards DM among the students from both schools.

Data Collecting Method

The data collection tool was self and interviewer-administered from each of the classes during break time assisted by teachers from both schools. The researcher and other recruited research assistants collected the questionnaire after it was filled out by the students.

Validity and Reliability

To ensure validity, the developed questionnaire was analyzed for face, content, and constructs validity. Consequently, to ensure the validity of the developed questionnaire it was reviewed by other

Table 1: **HBM and Perception of DM**

HBM Constructs	Definition
Perceived Susceptibility	Beliefs on the likelihood of contracting DM among the in-school adolescents
Perceived Severity	Belief about the seriousness of DM and its consequences
Perceived Benefits	Beliefs about the efficiency of taking preventive actions to reduce risk of contracting DM or complications
Perceived Barriers	Beliefs about the environmental and psychological costs of taking DM preventive actions

lecturers in the Department of Public and Community Health, Novena University Ogume, Delta State. Experts in the field of medicine evaluated the data-gathering instrument to test and improve face validity. The comments and feedback from the experts which include reviewing some of the questions in both perception and attitude variables were used to enhance the questionnaire. To determine the instrument's reliability, the Cronbach Alpha reliability technique was employed. The reliability score obtained was 0.871.

Bias:

Considering the ages of the respondents, the possibility of recall bias and probably a lack of comprehension of the questions was likely. However, the researcher and the research assistants aided the students in filling out the questionnaire by giving them ample time and aiding them when needed throughout the data collection.

3. Data analysis

The collected data was initially sorted out, coded manually, entered into the computer, and analyzed with Statistical Package for Social Sciences version 20.0 (IBM SPSS Chicago, Illinois, United States of America). Analyzed data was presented in frequency tables and meanwhile, Chi-Square was used to analyze the association between demographic variables, perception variables, and attitude towards DM at $P < 0.05$ level of significance.

Scales of Measurement

Perception Scale

To measure perceived susceptibility, severity, benefits, and barriers, a dichotomous perception scale (Agree and Disagree) was created. In the perception component of the questionnaire, there were a total of 23 test items. A right answer was scored as 1 while a wrong answer was scored as 0. Therefore, every study participant's perception score was categorized between 0-11 as Code 1 and $> 11-23$ as Code 2. Respondents that score between 0-11= Code 1 were adjudged to have exhibited poor perception of DM prevention and $> 11-23$ = Code 2 as having a good perception of DM prevention.

Attitude Scale

A dichotomous attitudinal scale (Agree, Disagree) was developed. The total number of test items in the attitude section of the questionnaire was 8 items. A right answer was scored as 2 while a wrong answer was scored as 0. Therefore, every study participant's attitude score was categorized between 0-8 as Code 1 and $> 8-16$ as Code 2. Respondents that scored between 0-8=Code 1 were adjudged to have exhibited a poor attitude towards DM prevention and $>8-16$ = Code 2 as having a good attitude towards DM prevention.

Ethical Consideration

To proceed with the data collection, the Department of Public and Community Health, College of Medical and Health Sciences, Novena University, Ogume, provided ethical clearance. This approved letter was presented to the Principal of Ogbe Secondary School in Effurun and Nana College in Warri, Delta State, asking permission to conduct the study there. Also, because the bulk

of the students was still under the age of 18, the principal gave consent on their behalf. After reviewing the study instrument to verify that nothing was damaging to the students, the school's principal provided his approval. The researcher also informed the principal and students that the obtained data would be kept in strict confidence.

4. Results

Seven hundred questionnaires were distributed in both schools and retrieved after filling by the selected students. After being checked for completeness, all 700 questionnaires were deemed to be valid and included in the study. Furthermore, only 621 of the respondents stated that they had heard of DM, so further analysis was limited to these 621 individuals.

More than half of the respondents 397(56.7%) in table 2 were between the ages of 10-15 years while females made up less than two-thirds 423 (60.4%) and almost all 671(95.9%) were Christians. Besides, less than one-third 229(32.7%) were in SS 2 while 621(88.7%) confirmed to have heard of DM, with 265(42.7%) affirming radio to be their source of information. Furthermore, a total of 88 (14.2%) of the respondents claimed to have a family member diagnosed with DM.

The respondents' perceptions of diabetes mellitus

As shown in table 3, in greater part 464(74.7%) agreed that DM individuals who are poorly managed are not at risk of developing diabetes complications while 467(75.2%) agreed diabetes patients who do not adhere to the guidelines prescribed are not susceptible to diabetes complications and most 546(87.9%) agreed that men are more susceptible to diabetic issues than women when it comes to diabetes management. Moreover, the majority 452(72.8%) believed they can have diabetes while 392(63.1%) agreed that complications of diabetes are more common in elderly patients than in younger patients and 401(64.6%) disagreed that Exercising regularly could make one more susceptible to contracting diabetes.

As shown in table 4, about two-thirds of 420(67.6%) of the respondents agreed that Di-

abetes mellitus does not lead to death while 476(76.7%) disagreed that DM is not a serious illness and 490(78.9%) disagreed that Hyperglycemia can cause coma.

In table 5, more than two-thirds of the respondents 422(68.0%) agreed that preventing one from contracting diabetes is good while 403(64.9%) agreed that diabetes prevention would make them live long and 477(76.8%) disagreed that not exercising regularly is good for them as it would prevent them from contracting diabetes.

According to table 6, a greater number of respondents 439(70.7%) agreed that DM awareness may function as a deterrent to diabetes treatment while 471(75.8%) agreed that contracting diabetes is unimportant to them and 566(91.1%) agreed that they do usually have time to do exercise. Additionally, 544(87.6%) agreed that their faith in God does not permit them to contract diabetes while 452(72.8%) decided that because they are still young, they will not develop diabetes and 458(55.8%) disagreed that diabetes is usually for older people so younger people should care less about contracting it.

Perceptions of the responders toward DM

The finding shows 77.3 percent of students have poor perception of diabetes while 22.7% had a good perception of diabetes. Besides, 7.7 ± 4.7 was the average perception score (Figure 1).

The students' attitudes regarding DM

As shown in table 7, 397(63.9%) agreed that prevention of diabetes is not the responsibility of doctors only, they have a part in it while 446(71.8%) disagreed that prevention of diabetes is not the responsibility of public health workers only, they have a part in it and 425(68.4%) disagreed that diabetes prevention is not the responsibility of all members of the school community. Besides, the majority of those who responded 464(70.6%) disagreed that schools should have policies for supervision and performing blood glucose monitoring to prevent students and teachers from contracting Diabetes Mellitus while 346(55.7) acknowledged that they would like to obtain diabetes preventive instructional materials and 495(79.7%) argued over whether or not post-

Table 2: Socio-Demographic Characteristics of the Respondents

Variable	Frequency (N=700)	Percentage
Name of School	400	57.1
Ogbe Secondary School	300	42.9
Nana College		
Age	397	56.7
10-15	303	43.3
16-22		
Sex	277	39.6
Male	423	60.4
Female		
Religion	671	95.9
Christianity	24	3.4
Islam	5	0.7
Traditional		
Class	104	14.9
JSS 1	92	13.1
JSS 2	44	6.3
JSS 3	109	15.6
SS 1	229	32.7
SS 2	122	17.4
SS3		
Have you heard of diabetes mellitus	621	88.7
Yes	79	11.3
No		
If yes, what is your source of information	46	7.4
Community	265	42.7
Radio	98	15.8
Television	34	5.5
Family Member	31	5.0
Health Worker	147	23.7
School		
Have any member of your immediate family or other relatives been diagnosed with DM	N=621	85.8
No	533	11.3
Yes: Grandparent, Aunt, Uncle, or First Cousin (but not own parent, brother, sister or child)	70	2.9
Yes: Parent, Brother, Sister	18	
Have you recently received training on the prevention of DM in the School	N=621	45.7
Yes	284	54.3
No	337	

Mean Age: 14.99±1.86

Table 3: **Perceived Susceptibility to DM among the respondents**

Variable	Agree Frequency (%) N=621	Disagree Fre- quency (%)
Poor management of DM will not make diabetes patients vulnerable to diabetes complications	464(74.7)	157(25.3)
Diabetes patients who do not follow prescribed treatment guidelines are not susceptible to diabetes complications	467(75.2)	154(24.8)
In the management of diabetes, men are more susceptible to diabetes complications than women	546(87.9)	75(12.1)
I do not believe I can have diabetes	169(27.2)	452(72.8)
Diabetes complications are more common among older patients than younger patients	392(63.1)	229(36.9)
Exercising regularly could make one more susceptible to contracting diabetes	220(35.4)	401(64.6)
Eating as recommended can make one more vulnerable to diabetes complications	356(57.3)	265(42.7)

Table 4: **Perceived Severity of DM among the respondents**

Variable	Agree Frequency (%) N=621	Disagree Frequency (%)
Diabetes mellitus does not lead to death	420(67.6)	201(32.4)
Diabetes mellitus is not a serious illness	145(23.3)	476(76.7)
Diabetes mellitus could lead to blindness	118(19.0)	503(81.0)
Hyperglycaemia (High Sugar) could lead to a coma	131(21.1)	490(78.9)
DM does not lead to kidney problems if not well managed	335(53.9)	286(46.1)

ing diabetes awareness posters around the classrooms would be effective.

The finding shows 71.3% of the respondents displayed a poor attitude toward diabetes mellitus prevention while 28.7% displayed good attitude towards diabetes mellitus prevention.

The mean attitude score was 5.5 ± 4.1 (Figure 2).

As shown in table 8, bivariate analysis showed statistical significant association between age ($\chi^2=12.91$, $\rho=0.002$), sex ($\chi^2=28.45$, $\rho=0.000$),

perceived susceptibility ($\chi^2=173.83$, $\rho=0.000$), severity ($\chi^2=329.89$, $\rho=0.000$) and barriers ($\chi^2=298.51$, $\rho=0.000$) with attitude towards DM prevention.

5. Discussion:

The study's purpose was to find out how people felt about diabetes in two Delta State secondary schools, employing the HBM constructs.

According to the study's findings, the majority of the respondents exhibited poorly perceived

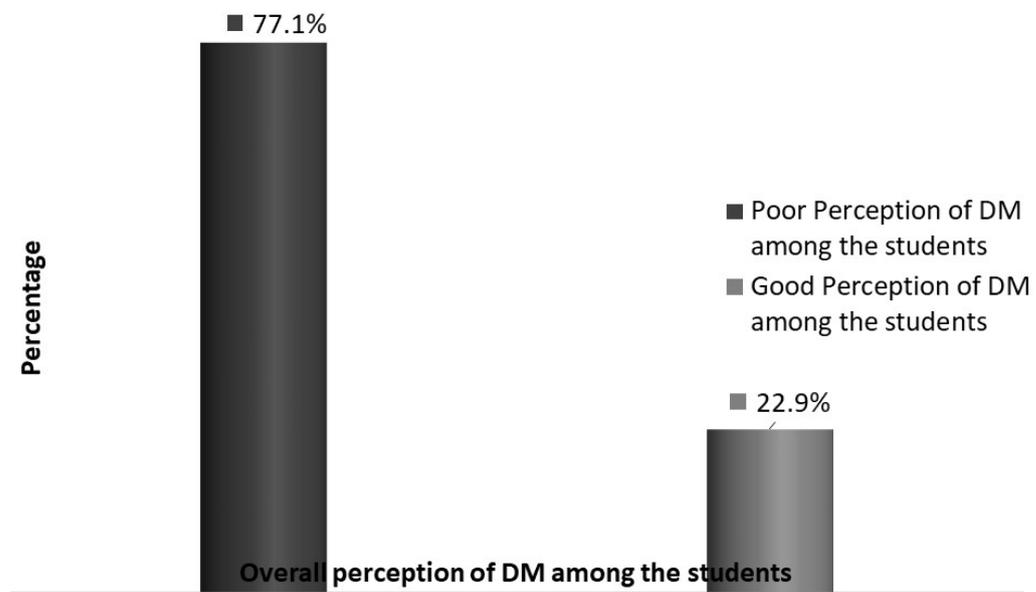


Figure 1: Perception of Diabetes Mellitus

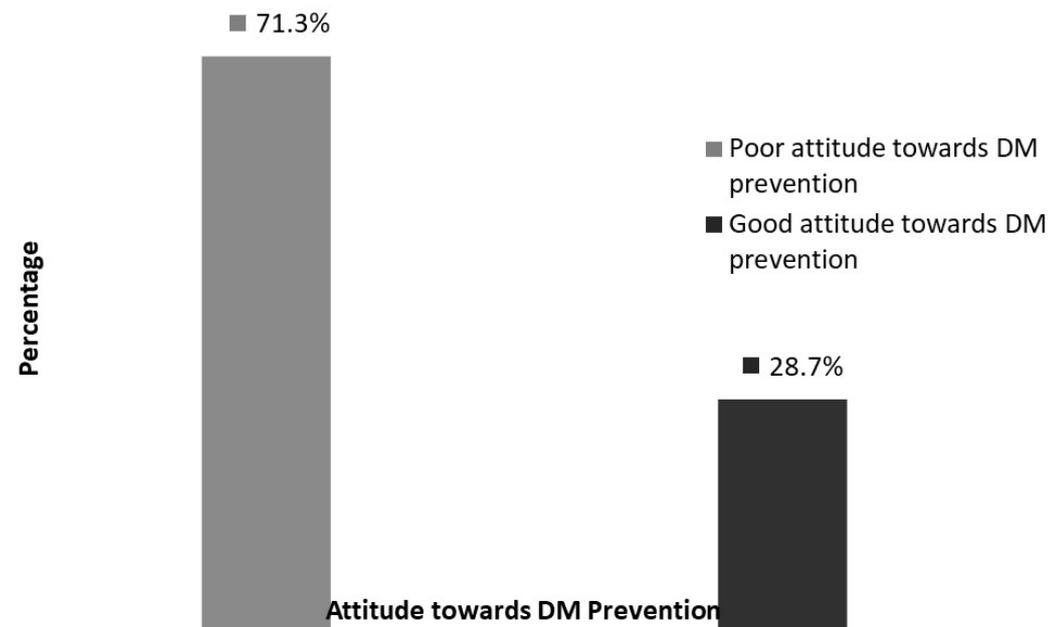


Figure 2: Attitude towards DM prevention

Table 5: **Perceived Benefits of Diabetes Mellitus prevention among the respondents**

Variable	Agree Frequency (%) N=621	Disagree Frequency (%)
Preventing one from contracting diabetes is good	422(68.0)	199(32.0)
Diabetes prevention would make me live long	403(64.9)	218(35.1)
Not Exercising regularly is good for me as it would prevent me from contracting diabetes	144(23.2)	477(76.8)
Not eating a healthy diet would prevent me from contracting diabetes	277(44.6)	344(55.4)
Adherence to diabetes prevention practices would prevent one from contracting the disease	365(58.8)	256(41.2)

Table 6: **Perceived Barriers to Diabetes Mellitus treatment among the respondents**

Variable	Agree Frequency (%) N=621	Disagree Frequency (%)
Knowing diabetes could act as a barrier to diabetes treatment	439(70.7)	182(29.3)
I do not care much about contracting diabetes	471(75.8)	150(24.2)
I do usually have time to do exercise	566(91.1)	55(8.9)
My faith in God does not permit me to contract diabetes	544(87.6)	77(12.4)
I am still young so cannot contract diabetes	452(72.8)	169(27.2)
Diabetes is usually for older people so younger people should care less about contracting it	163(26.2)	458(73.8)

susceptibility to DM complications. Prompt and adequate management of DM is necessary for preventing complications such as neuropathy, nephropathy, retinopathy, and limb amputation. However, the majority of respondents affirmed that poor management of DM will not make DM patients vulnerable to DM complications. In addition, the majority erroneously asserted that DM patients who do not follow prescribed treatment guidelines are not susceptible to DM complications. Adequate adherence to prescribed treatment guidelines is pertinent in preventing DM complications. Poor adherence to treatment guidelines is prevalent among people living with DM (Agofure *et al.*, 2020a; Agofure *et al.*, 2020b; Aguocho *et al.*, 2013; Chijioko *et al.*, 2010). Besides, most believe they are suscepti-

ble to DM which is important considering about 14.2 percent of those sampled said they had DM in their family. Furthermore, several of the survey participants incorrectly stated that exercising regularly and eating as recommended could make one more susceptible to DM complications. The finding represents a gap in perceived susceptibility to DM among the study respondents. The finding was similar to that of a previous study where almost half of the respondents said they were immune to DM (Wilcox, 2018). Also, the study finding aligned with that of a previous study where the respondents exhibited poor susceptibility to DM (Seo *et al.*, 2008).

In addition, more than two-thirds of survey participants exhibited poorly perceived severity of DM as approximately two-thirds of those who

Table 7: Attitude toward Diabetes Mellitus prevention among the respondents

Variable	Agree Frequency (%) N=621	Dis- agree Fre- quency (%)
Prevention of diabetes is not the responsibility of doctors only, I have a part in it	397(63.9)	224(36.1)
Prevention of diabetes is not the responsibility of public health workers only, I have a part in it	175(28.2)	446(71.8)
Prevention of diabetes is not the responsibility of all members of the school environment	196(31.6)	425(68.4)
Schools should have policies for supervision and performing blood glucose monitoring to prevent students & teachers from contracting DM	157(29.4)	464(70.6)
I would like to receive educational materials about diabetes prevention	346(55.7)	275(43.3)
I believe it would be beneficial for posters on diabetes prevention to be pasted around the classrooms	126(20.3)	495(79.7)
I believe that school teachers need to update their knowledge about the prevention and management of DM	163(26.2)	458(73.8)
I support regular screening for diabetes in my school	161(25.9)	460(74.1)

Table 8: Bivariate analysis of perception constructs with attitude towards DM prevention

Perception variables	Attitude towards DM		Chi-Square Value	df	P-value
	Poor	Good			
Age	229(32.7%)	119(17.0%)	12.91	2	0.002
10-15	214(30.6%)				
16-22		59(8.4%)			
Sex	196(28.0%)	41(5.9%)	28.45	2	0.000
Male	247(35.3%)	137(19.6%)			
Female					
Poor perceived susceptibility	415(66.8%)	84(13.5%)	173.83	1	0.000
Good perceived susceptibility	28(4.5%)	94(15.1%)			
Poor perceived severity of DM	387(62.3%)	19(3.1%)			
Good perceived severity of DM	56(9.0%)	159(25.6%)	329.89		0.000
Poor perceived benefits of DM	157(25.3%)	67(10.8%)			
Good perceived benefits of DM	286(46.1%)	111(17.9%)	0.267	1	0.606
Poor perceived barriers of DM	426(68.6%)	58(9.3%)	298.51	1	0.000
Good perceived barriers of DM	17(2.7%)	120(19.3%)			

responded that when DM is not effectively controlled, it does not result in death, disagreed that blindness could result from poorly controlled DM and hyperglycemia can cause coma. This also indicates a gap in respondents' perceptions of DM. However, the majority of the respondents affirmed that DM is a severe disease exhibiting some level of well-perceived severity of DM. The finding was slightly different from that of a preceding study among college students where about half of the respondents in that study disagreed that DM is a severe disease (Wilcox, 2018). The finding aligned with that of an earlier study in Portharcourt Nigeria where the respondents exhibited low perceived severity of DM (Onu and Babatunde, 2018). Due to the prevalence of DM risk factors, the respondents' preventive health-seeking behavior may be influenced by their poor perception of DM severity.

Furthermore, about two-thirds of those who responded exhibited good perceived benefits of DM management and prevention as most affirmed preventing one from contracting DM was good and that DM prevention would make them live longer. The results were comparable to those of research conducted among college students where the majority exhibited good perceived benefits of DM management and prevention (Wilcox, 2018). This, too, was comparable to a prior study's findings (Johnson, 2016).

Furthermore, most of the students who responded displayed poorly perceived barriers to DM prevention as most confirmed knowing DM could act as a barrier to DM treatment, while the majority asserted not to care much about contracting DM and the majority affirmed that their faith in God does not permit them to contract DM. Faith healing has been reported to be a barrier to the successful management of DM in Nigeria (Agofure *et al.*, 2018). This also represents a gap in the respondents' perceptions about DM which could influence their DM preventive health-seeking behavior. A prior study came to the same conclusion where the study respondents displayed poor perceived barriers to DM prevention (Wilcox, 2018).

The respondents' general perception of DM

showed that the vast majority of responses displayed a poor perception of DM. This could be inimical to their health as perceived susceptibility, severity, benefits and barriers are important perception constructs that could influence their preventive health-seeking behavior in the future.

In addition, most of the students who responded also exhibited poor attitudes toward DM prevention. Although, almost two-thirds of the respondents asserted that prevention of DM is not the responsibility of doctors only, as they have a part to play; most affirmed not to support school policies for performing blood glucose monitoring among teachers and students; considered that posting posters about DM prevention in classrooms would be counterproductive and would not support screening for DM in the school. This also represents an attitudinal gap toward DM prevention which must be addressed.

The bivariate finding showed age, sex, perceived susceptibility, severity, and barriers were significantly associated with the attitude toward DM among the respondents. This further demonstrates the importance of considering these perception variables when designing programs to improve the attitude toward DM preventive behaviors among adolescents and young adults in public secondary schools.

The study's limitations

The respondents' ages posed a problem as we could not obtain consent from each of the parents, the principals of the schools gave consent on behalf of the students. Also, the study relied solely on the students' responses for analysis which could be limited because of the ages of the students.

6. Conclusion:

The study findings documented poorly perceived susceptibility, severity, and barriers to DM management and prevention. Besides, the study respondents demonstrated poor perception and attitude toward DM prevention. This observed poor perception and attitude could be inimical to the students' DM preventive health-seeking behavior because of the presence of DM risk factors.

The study suggested that targeted interventions be implemented, taking into account the various elements of the health belief model (susceptibility, severity, benefits, and barriers) which could in the long term improve the embracing of DM preventive behaviors. This is pertinent in enhancing health-promoting schools and achieving sustainable goal 3, following the projected increase of DM among adolescents 10-19 years in all regions of the world, especially in the African sub-region (IDF, 2021).

7. Funding:

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8. List of Abbreviations:

IDF (International Diabetes Federation).
HBM (Health Belief Model).
DM (Diabetes Mellitus).

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