Prevalence And Level Of Awareness Of Diabetes Mellitus Among Elderly In Selected Rural Communities In Delta State.

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Abstract
The study examined the prevalence and the level of awareness of Diabetes Mellitus among elderly in selected rural communities in Patani Local Government Area of Delta State. A sample size of 300 (elderly) respondents were randomly selected from (3) three villages in Patani Local Government Area of Delta State by means of convenience sampling technique to select 50 respondents from each of the village , making it total sample of 300 respondents. A self structured questionnaire was used to collect information from the respondents and testing each respondent for fasting blood sugar level. Statistical analysis used was simple percentages, sum and mean for the three research questions while T- test analysis was used for the hypotheses at 0.05 level of significant. The result showed that there was a significant relationship between the prevalence of diabetes mellitus among the elderly and level of awareness of diabetes mellitus among the elderly so, the null hypotheses was rejected. The study concluded that the high prevalence of diabetes mellitus is directly affected by the level of awareness of diabetes the elderly possessed. the study therefore recommended that health education should be employed as a tool to create awareness on the existence and prevention of diabetes mellitus among the elderly among others.
Keywords: Prevalence, Awareness, Diabetes Mellitus, Elderly, Rural communities.

I.   Introduction
Diabetes mellitus has been regarded as a major health problem worldwide. It constitute public health concern and is of a high risk factor to heart failure, coronary heart disease and heart failure. It sometimes contribute to other organ problems and causes morbidity and mortality rate on the increase especially in the developing countries like Nigeria. Glucose related health problems has been recorded to being associated with aging where less attention are paid to the elderly diet in rural communities. Food high in carbohydrate diet are mainly our staple foods in different rural communities.

Research studies in Nigeria , have reported on the prevalence and awareness of diabetes mellitus and ascertained that the increasing prevalence is associated with rural communities . Akinola, (2021) noted that Diabetes Mellitus is a metabolic disorder of chronic hyper glyceamia, characterized by disturbances to carbohydrates, protein and fats metabolism resulting from absolute or relative insulin deficiency with dysfunction in organ system. Diabetes mellitus is more noticed and relevant in the elderly people and its prevalence is on the increase worldwide. Elderly population is more prone to diabetes mellitus as a result of their dietary intake and reduced exercises. Also, the degenerating of body function as a result of aging can also contribute.

In recent times, international Diabetes Federation (IDF) reported that statistics has shown that 36.5% increase from 14.7 million adults(20-79years) in 2011 to 20 million adults in 2021 living with Diabetes mellitus in Africa (Alemayehu, 2020).

IDF revealed that Diabetes in Nigeria 2021 with a total adult population of 96,812,400 with 3.7% Diabetes prevalence in adult amounting to 3,623,500 total cases of Diabetes mellitus is projected to rise to 643 million by 2030 and 783 million at 2045. Diabetes Atlas (2021) report the 10.5% of the adult population (20-79years) has Diabetes with almost half unaware that they are living with the condition.

Health Effect of Diabetes Mellitus on the Elderly
Diabetes mellitus has several health effects on the elderly population such as

cardiovascular disease, amputation of limbs due to non-healing wounds etc (Shiferaw, et al 2018). Esbi, et al (2020) noted that persons with diabetes are vulnerable to the traditional micro vascular and macro vascular complications of diabetes but also at increased risk for geriatric syndromes. Cardiovascular disease (heart disease), stroke and peripheral vascular disease has a high prevalence among older adults with diabetes. Other adults with diabetes mellitus experience geriatric syndromes such as falls, dementia, incontinence and depression.

Michael, (2020) stipulated that diabetes has been one of the main causes of serious disease like heart failure, cardiovascular disease , sexual dysfunction, nephropathy, retinopathy, vascular dysfunction and different forms of cancer. Also diabetes mellitus is the leading cause of chronic kidney disease. Elderly people who suffer from diabetes mellitus are faced with other health effects such as dementia, depression, cardiovascular disease (stroke), and in several cases amputation due to delay in wound healing and also eye problems (Shiferaw, et al 2018).

Prevalence of Diabetes Mellitus in Nigeria

The high prevalence of diabetes mellitus cannot be over emphasize. The prevalence of the disease has grown over the years, with a very high rate among elderly persons, having a ratio of 1:2 among elderly persons. Diabetes mellitus is a growing public health burden in the elderly population, in fact its increase is at a very high rate (Chuhwak, et al 2019). They further stipulated that the burden continues to grow and is on the increase each year. Agofure, et al (2018) stated that Nigeria is the fourth country with the highest burden of diabetes with our estimated figure of over 1.7 million people living with the disease and has the highest number of diabetes in sub-saharan Africa. Olufemi, et al(2015) in their study on Diabetes care in Nigeria revealed that Nigeria is the most affected part in the sub-saharan region, having attained a great significance, also with 3.1% prevalence in southern Nigeria. World Health Organization (2016) noted that Nigeria has the highest number of people with diabetes with 3.9 million which was estimated to be doubled by 2020. Olufemi, et al (2015) opined that in elderly individuals, diabetes mellitus is becoming an alarming public health problem in developed and even in developing countries with 1 to 2 elderly diabetic or pre-diabetic and 8 to10 elderly having some dysglycemia. Aladeniyi, et al (2017) in their study on the prevalence and correlates of pre-

diabetes and diabetes mellitus among public category walkers in Akure Nigeria, revealed a high prevalence of pre-diabetes and diabetes mellitus in the elderly population. Egbi, et al (2020) in their study on the prevalence diabetes mellitus in Agrarian community in south-south Nigeria, shows that there is high prevalence of diabetes mellitus and co-morbidities in Agrarian community and they recommended regular screening of adults for these conditions. New eases of diabetes mellitus is been recorded almost every year, many researchers have revealed that the ever growing rate of the disease especially on the elderly population is alarming. Alemayehu, (2020) Stipulated that new cases of diagnosed diabetes persons has been reported with a figure even higher than that of already diagnosed persons. Chuhwak, et al (2019) opined that many research has shown that the prevalence of diabetes mellitus among the elderly in rural Africa is higher than in the general population of the elderly, although the rate is however much lower than the corresponding prevalence rate among elderly population in more urbanized areas of the world. This indicates that diabetes mellitus has a higher prevalence in rural community than urbanized areas which may be attributed to differences in diet and lifestyle.

However the prevalence of diabetes mellitus in the rural area is increasing. The increasing cases of diabetes mellitus in different parts of the country, has accounted for several health issues experienced by the elderly such as cardiovascular disease, visual impairment, kidney disease and damaged nerves. Egbi, et al (2020).

World Health Organization (WHO) estimates the prevalence of Diabetes mellitus in Nigeria to be 4.3% and the prevalence is largely attributed to the lifestyle change caused by urbanization and its results, industries producing unhealthy diet including tobacco use, and use of harmful use of substances. Agofure et -al (2020) stated that the international Diabetes Federation(IDF) estimated that diabetes mellitus alone accounted for 2% of all mortality of all ages in Nigeria, with an estimated 27,500 number of deaths both females and males within the age bracket 30-69years. The mortality is mainly attributed to poor self management of the condition, and late presentation to the hospital as complication might have set-in (Clenti, et al 2015). Diabetes Mellitus is a global health issue which can lead to complications if not well managed. or poorly treated It has been noted that several studies have revealed that diabetes mellitus can result in

complications such as gangrene foot, urine incontinence.

In recent times, the rising in cases of diabetes mellitus is quite alarming and the extent to which the elderly are aware of the condition remained unclear. What then is the prevalence and awareness level of Diabetes Mellitus among the elderly in selected rural communities in Delta State . It was against this background that the researcher decided to investigate the prevalence and self awareness of diabetes mellitus among the elderly in selected rural communities in Delta State.

The following research questions and hypothesis guided the study

Research questions

1.   What is the fasting blood sugar level among elderly in selected rural communities in Patani Local Government Area Delta State.

2.   What is the level of awareness of Diabetes mellitus among elderly in selected rural communities in Patani Local Government Area Delta State.

3.   What is the prevalence of Diabetes Mellitus among the elderly in selected rural communities in Patani Local Government Area Delta State .

Research hypothesis

•   There is no significant difference between the level of awareness and the prevalence of Diabetes mellitus among the elderly in selected rural communities in Patani Local Government Area

Objectives

1. To determine the prevalence of diabetes mellitus in rural community in Patani Local Government Area of Delta State.

2. To determine the awareness level of diabetes mellitus rural community , Patani Local Government of Delta State

II.   Methods

A community – based cross - sectional study on male and female elderly in Patani Local Government of Delta State. The study adopted a descriptive survey which is aimed at collecting data on and describing in details systematically the characteristics, features and fact about the given population with regard to the title of the study. The population of the study consists of 2,735 elderly in the two selected communities in Patani Local Area. Simple random sample was used to draw a sample of 300 elderly respondents.

The instrument for data collection was a structured questionnaire developed by the researcher. The instrument consist of section A which elicit information on the demographic variables of the respondents. Section B on awareness level of diabetes mellitus and section C on the prevalence of Diabetes mellitus. Section B-C contains close ended questions based on the objective of the study. Validation of the instrument was effected by three experts from the department of health and Safety Education, faculty of education, Delta state University, Abraka. The research instruments was administered by the researcher and two trained research assistance to the respondents.. A test-retest of the instrument was done for the period of two weeks interval to the same respondent outside the study in Abraka community and the reliability index of 0.65 at 0.05 level of significance was reached. Structured interviewer and administered questionnaire was done with the aid of two research assistants to collect data / information from participants . The fasting blood sugar test was carried out on all participants.

Inclusive criteria

Elderly above 65 years of age in the selected communities who gave their consent for participation were included.

Exclusive Criteria

Adults below 65 years and above, mental illness individuals.

III.   Results

Research question 1

What is the fasting blood sugar level among the elderly in selected rural communities in Patani Local Government Area, Delta state.

Table of percentage analysis of the fasting blood sugar level among the elderly.

ITEMS	BLOOD SUGAR LEVEL RANGE		
	101-180mg/d/ (Abnormal)	70-100mg/d/ (Normal)	
Male	39(13%)	84(28%)	123(41%)
Female	79(33%)	78(26%)	177(59%)
Total	138(46%)	162(54%)	300(100%)

Table 4:1 above revealed that 39(13%) of the male elderly have a raised blood sugar level of above 100mg/d/ which is an indication of Diabetes mellitus. While 84(28%) of the male elderly has a normal blood sugar level of below 100mg/d/. a total of elderly male tested for fasting blood sugar were 123(41%) for the study.

It further showed that 99 (33%) of female elderly have elevated blood sugar level of above 101mg/d/ while 78 (26%) female elderly has normal blood sugar level below 100mg/d/. this indicated that more female 99(33%)than males 39(13%)was seen to have diabetes in the selected rural communities in Patani Local Government Area, Delta State.

The data generated were presented and analyzed using descriptive statistics of frequency percentages, sum and mean as well as T-test analysis for the hypothesis.

Table 3
Sum and mean analysis of the level of awareness of diabetes mellitus among elderly in selected rural communities in Patani Local Government Area, Delta State.

STATEMENT	SUM	MEAN
Know diabetes is a disease of excess sugar in the blood/urine	80	0.26
Diabetes makes one urinate frequently	200	0.66
Diabetes makes wound healing slow	256	0.85
Diabetes can cause poor vision	140	0.46
I have experienced these signs of diabetes in my body	100	0.33

Cut off mean=2.5, >2.30 agree <2.50=Disagreed

Table 3 show that all statement in the table above has mean below 1 which indicates mean disagreement. This implies that the respondents are not aware of the existence of diabetes condition. It implies that the level of awareness of diabetes among the elderly is poor.

Research question 3
What is the prevalence of Diabetes mellitus among the elderly in selected rural communities in Patani Local government Area, Delta State.

Table 4: Analysis of the prevalence of diabetes mellitus among elderly

STATEMENT	AGREED	DISAGREED
There are elderly people with diabetes mellitus among us	200(66.6%)	100(33.3%)
I have not been tested before now of diabetes mellitus	250(83.3%)	50(16.6%)
After blood sugar test my blood sugar level is high and it is positive.	138(46%)	162(54%)

Table 4 revealed that 200 (66.6%) of the elderly agree that there are many elderly in the community that live with this condition. Also, 250(83.3%) indicated that a large number of elderly are prone already to diabetes mellitus. Some people live with diabetes unknowingly.
138(46%) of the respondents agreed to claim from the blood sugar level test. This level of increase In the elderly is quite alarming.

Table 5

Analysis of the sum and mean of the prevalence of diabetes mellitus among elderly in selected communities

STATEMENT	SUM	MEAN
There are many elderly people with diabetes mellitus among us	800	2.66
I have not been tested before now for diabetes mellitus before now and it is positive	1000	3.33
After the blood sugar test, my blood sugar level is high	352	1.84

Cut-off=2.50> 2.50agreed <2.50 disagreed

Table 5 shows that a responsible number of respondents 800 with mean of 2.66 agreed to the claim that a lot of people are diabetic among them. 1000 respondent with mean 3.33 agreed they have tested before now for diabetes mellitus while 352 with mean of 1.84 agreed that the level of their blood sugar has risen with they knowing to above 101mg/d/. Indicating diabetes mellitus, this has shown a high prevalence of diabetes mellitus among the elderly in selected rural communities.

46% of respondents were tested to have had blood sugar level above 101mg/d/ while 54% often have blood sugar level below 101mg/d/.

HYPOTHESIS

There is no significant difference between awareness level and the prevalence of diabetes mellitus among the elderly I selected rural communities in Patani Local Government Area, Delta state.

Table 6; Analysis of T-test awareness level and prevalence of diabetes among elderly in rural communities.

STATEMENT	N	X	SD	DF	T-cal	T-crit	Level of sig.	Remark
Prevalence of Diabetes Mellitus among elderly in rural communities	300	2.61	182.82	6	8.593	2.45	0.05	significant (rejected)
Awareness level of Diabetes Mellitus among elderly in rural communities	300	0.512	64.96					

Table 6 revealed that t-cal=8.598 while t-critical=2.45. this implies that the null hypothesis was rejected meaning there is a significant existence between the level of awareness of diabetes mellitus and its prevalence among the elderly in selected rural communities in Patani Local Government Area, Delta state.

IV.   Discussion of findings

The study found out that the elderly with elevated blood sugar level is mind blowing in the rural communities. It further revealed that 138(46%) of the respondents out of the 300 respondents used for the study has blood sugar level of over 101mg/d/ indicating the presence of diabetes mellitus this finding is in agreement with Olufemi, et- al (2015), noted that the burden of diabetes among the elderly in rural communities is high.

Female elderly has the highest frequency of 99(33%) as against male elderly with 39(13%). This implies that the prevalence of diabetes is higher in female elderly in rural communities than male elderly. This may be as a result of the lifestyle and the role of woman in the home. Women cook the food and tend to eat more than the males, also male are involved in vigorous activities than females.

The level of awareness of diabetes mellitus among the elderly is obvious in the study.

Table 3 revealed that all statement on the level of awareness of diabetes mellitus were below mean 1.0 which indicates gross level of awareness of diabetes mellitus among the elderly. The finding is congruent submission of John, (2016) and Adadeniyi, et al (2017). which revealed that there is poor knowledge and awareness about the condition diabetes mellitus in rural communities. They further noted that low level of diabetes mellitus among the elderly has led to the persistent increase in cases of diabetes mellitus.

Poor knowledge about the low level of awareness of diabetes mellitus has actually given rise to cases of diabetes mellitus without the elderly not recognizing they live with the condition. This study becomes pertinent in order to create awareness and good information on the prevailing conditions so as to reduce its high level of prevalence in rural communities.

The prevalence of diabetes mellitus is obvious as revealed in the study of table 5 shows that the prevalence of elderly that tested with high blood sugar level is 138(46%) as against 162(54%) who have normal blood sugar level this claim concur with.

V.   CONCLUSION
Based on the finding the following conclusions were made.
1. Respondents show a high level of testing positive above 101mg/d/ 138(46%) in blood sugar analysis.
2. It has been revealed that respondents has little or no awareness of diabetes mellitus.
3. Prevalence of diabetes mellitus among elderly in rural communities are high especially among female elderly
4. It reveals that there is significant relationship between the prevalence of diabetes mellitus among elders and the awareness level of diabetes mellitus.

VI.   RECOMMENDATIONS
1. Health education intervention to create awareness of the disease condition to present late presentation of causes and treatment.
2. Regular medical check-up by elderly should be advocated.
3. Free treatment for diabetes mellitus should be given to all affected elders.

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