Factors influencing the healthcare-seeking decisions of diabetic patients in Ghana

ABSTRACT

Background: Diabetes is a persistent and progressive chronic illness that might result in permanent consequences or mortality. The significant worry in Ghana lies in the responsibility of managing the complications and mortality rates associated with diabetic patients. Timely identification and medical intervention can alleviate this burden. There is a significant number of individuals who have diabetes but are unaware of their condition and only seek medical assistance once they have developed numerous long-term issues. Within the population of individuals who have already been diagnosed with diabetes mellitus, there exists a proportion of individuals who are not currently receiving treatment. This group includes individuals who have never started therapy as well as those who have discontinued their medication. This study aimed to investigate the factors linked to the health seeking decisions of diabetic patients in Ghana.

Methods: The research was a cross-sectional survey. It adopted stratified sampling technique to select 201 respondents. A questionnaire was used in the study for data collection. The data was analysed using the SPSS version 22.

Results: The study findings indicated that 89% of individuals with diabetes were identified by a healthcare professional, however only 67% of the patients actively sought medical care. The study revealed that factors such as obtaining a secondary education or higher, having a higher wage, receiving a diagnosis from a healthcare professional, and being employed have a substantial impact on the choice to seek professional healthcare. Receiving a diagnosis from a healthcare professional was discovered to have the most significant favourable correlation with seeking professional medical assistance.

Conclusions: The study finds that in Ghana, the health seeking behaviour of diabetic patients is influenced by characteristics such as education, income, the type of consultant who diagnosed the disease, and the job situation of the patients.

Key Words: ***Diabetes, non-communicable disease, Knowledge, Glucose, health-seeking behaviours***

INTRODUCTION

The prevalence of diabetes has increased significantly over the years. In 2015, there were over 872,000 individuals affected by the condition, compared to only 28,300 in 1990. The health impact caused by diabetes has also risen by more than 100% over this period, as reported by the Global Burden of condition in 2016. As per the Ministry of Health Report (2015) by the Government of Ghana, non-communicable diseases account for more than half of all admissions and over 55% of reported hospital fatalities.

Diabetes is characterised by the body's inability to metabolise blood glucose. According to the World Health Organisation (WHO) in 1999, diabetes mellitus is classified into four types: Children are affected by Type 1 diabetes. The root cause of this condition is the pancreas's inability to produce a sufficient amount of insulin, or in some cases, no insulin at all. The patient is required to provide self-injections of insulin in order to facilitate the flow of energy from the bloodstream to the body's cells. This particular form of diabetes is non-preventable, and its aetiology remains unknown based on current information (American Diabetes Association, 2009). Type 2 diabetes is a persistent medical illness characterised by the body's inability to adequately metabolise sugar (glucose) or effectively utilise the insulin it produces. Previously, the condition was associated with wealthy and older individuals. However, it is now a worldwide concern as the most impacted population consists of individuals in their prime working years (WHO, 1999). Prediabetes refers to a condition when an individual has elevated blood sugar levels, but not to the extent that it qualifies as type 2 diabetes. Gestational diabetes is a kind of hyperglycemia that occurs during pregnancy and is exclusive to women. Each of these conditions has the capacity to develop into serious acute and chronic consequences (Nguma, 2010).

According to the International Diabetes Federation (IDF) in 2017, the number of people worldwide who have been diagnosed with diabetes was predicted to be approximately 425 million. Out of this total, 79% of individuals were residing in developing nations. Worldwide, an estimated 212.4 million

individuals, accounting for over 50% of all individuals aged 20 years and older, are uninformed of their diabetes diagnosis (IDF, 2017). Given that approximately 50% of individuals with diabetes remain undiagnosed, there is an urgent and critical need worldwide for screening, diagnosing, and delivering appropriate care to those with diabetes (IDF, 2017). In 2017, the global death toll from diabetes reached around 4.0 million individuals. This equated to a staggering loss of one life every eight seconds (IDF, 2017).

In Africa, the majority of countries have large, isolated rural areas. In 2015, approximately 14.2 million people aged 20 years and above were estimated to have diabetes. Furthermore, 69.2% of diabetes cases were not confirmed due to limited resources and a lack of priority given to diabetes screening (IDF, 2017). In 2017, there were 321,100 deaths, with 79% of those deaths occurring in persons of working age. The primary causes of this high mortality rate include delayed diagnosis and inadequate patient management along the progression of the disease (IDF, 2017).

The prevalence of diabetes disease in Ghana has had a remarkable increase in recent years, and is currently projected to affect 3.3% of the entire population. In 2017, there were 458,900 confirmed cases of diabetes (IDF, 2017). This is considered an underestimate because more than 60% of those diagnosed with diabetes in the country typically seek medical attention for seemingly unrelated issues. According to the International Diabetes Federation (IDF) in 2017, a majority of two-thirds of individuals with diabetes are unaware of their disease condition. In Kenya, there is typically a greater focus on curative medicine rather than sufficient promotion of preventative medicine. As a result, opportunities for patients to undergo screening and receive a diagnosis are infrequent. They manifest solely while experiencing severe symptoms of acute or chronic problems. The citation is from the study conducted by Pastakia et al. in 2017. Previous studies have shown that diabetes increases the risk of tuberculosis by nearly threefold, and tuberculosis makes patients more susceptible to developing diabetes (Hall et al., 2011). (Young et al., 2009). Recently, there has been a connection established between diabetes and the occurrence of some types of cancer (Giovannucci et al, 2010).

Due to the persistent nature of diabetes, it primarily affects adults in their prime working years. The severity of its complications and the limited resources available make managing the condition a painful challenge for both the healthcare industry and the individuals and families impacted. Diabetes is an expensive ailment, as stated by the International Diabetes Federation in 2006. In the majority of sub-Saharan nations, there is a lack of robust public funding mechanisms for healthcare services. As a

result, individuals are responsible for covering health expenses out of their own pockets (Oyando et al., 2019). (Karinja et al., 2019). According to the World Health Organisation (WHO) in 2003, despite the availability of subsidised healthcare services, a significant proportion of individuals in impoverished nations still bear the cost of certain services. Frequently, individuals encounter difficulty in making choices between healthcare and other obligations (WHO, 2003). Due to financial constraints, consumers either avoid seeking healthcare services or allocate a significant amount of their income towards healthcare expenses (Nguma, 2010).

In the majority of underdeveloped nations, the treatment costs of diabetes complications are extremely high. Treating these problems is both challenging and costly (Dagogo-Jack, 2006). Some examples of medical conditions that require expensive treatments include end organ failure, which can be treated with dialysis or kidney transplantation, and retinopathy, which may require eye surgery. These treatments are not affordable and are not available in national hospitals (Nguma, 2010). Limb amputation is a feasible and easily performed procedure when a patient develops gangrenous foot ulcers due to diabetes. However, complications occur when the patient needs a prosthetic limb and rehabilitation services. In underdeveloped nations, the development of mechanical limbs is hindered by obsolete technology, resulting in a significant decline in the patient's ability to engage in profitable activities (Prentice & Moore, 2005). Given this bleak situation, it is imperative to prioritise the reduction of diabetes prevalence and the management of complications as a primary national concern in all sub-Saharan African countries (Dagogo-Jack, 2006).

A significant number of individuals, regardless of their age or socio-economic background, are living with undiagnosed diabetes. They only seek healthcare assistance when they have already developed multiple chronic problems, which can result in permanent disability or even death (Shankar et al., 2017). Complications arising from diabetes, such as kidney failure resulting from either delayed medical attention or non-compliance with treatment, may compel families to liquidate assets in order to afford the prescribed treatment, which may involve either ongoing dialysis or a kidney transplant. Within the population of individuals diagnosed with diabetes mellitus, there exists a proportion who are not undergoing treatment. This subset includes individuals who have never started therapy as well as those who have discontinued treatment (Karinja et al., 2019). Although diabetes is becoming more common, there is a lack of research on the factors that influence healthcare-seeking decisions among diabetic people.

MATERIAL AND METHODS

Study design: The study focused mostly on Diabetic Patients at Jasikan Municipal Hospital in the Oti Region. A cross-sectional survey was conducted to assess the understanding of diabetes patients in the hospital regarding the factors that impact their decisions to seek healthcare. According to Kumekpor (2002), a cross-sectional design is a survey methodology that collects data from a sample of respondents to reflect a specific target population at a single point in time. Polit and Beck (2010) state that all phenomena being studied are encompassed within a single data collection period.

Study Setting: Jasikan Municipal is one of the 261 Metropolitan, Municipal and District Assemblies (MMDAs) in Ghana. It is classified as one of the 8 municipalities and districts in the Oti Region. The Biakoye District Assembly was established in 1989 under the jurisdiction of L.I 1464. In 2004, it was separated from the original Jasikan District, leaving behind the Jasikan Municipal Assembly. Jasikan Municipal is surrounded by Lake Volta to the west, and is bordered by the Kpando and Hohoe Municipalities to the south, and the Krachi East and Kadjebi Districts to the north (Jasikan Municipal Assembly Report, 2023). The municipality possesses adequate health infrastructure, comprising of a hospital, six health facilities, three community health planning services (CHPS complex), and a private clinic. Jasikan, the municipal capital, is located 110 kilometres northeast of Ho and 265 kilometres from the nation's capital, Accra. The Municipality encompasses a land area of approximately 1,355 square kilometres, as stated in the Jasikan Municipal Assembly Report of 2023. The population of Jasikan Municipal, as reported in the 2021 population and housing census, is 59,695. This figure comprises 30,441 males and 29,254 females.

Target Population: The study focused on Diabetes Patients who regularly visit the diabetic clinic at Jasikan Municipal Hospital. The eligible population consisted of individuals with diabetes who regularly attend the hospital on Tuesdays.

Inclusion Criteria: The study recruited individuals based on the following criteria: Prior attendance at the diabetic clinic for a duration of at least six months, possessing the mental capacity to provide informed permission. The selection criteria for data collection include fluency in English, Twi, or

Ewe, as well as being present on the day of data collection. This is to eliminate bias, as those who attend the clinic regularly are likely to have more knowledge about the disease compared to those who visit just once or twice.

Exclusion Criteria: The study excluded participants visiting the diabetes clinic based on the following criteria: Individuals who do not have diabetes, as well as individuals with diabetes who have been receiving treatment at the clinic for less than 6 months who are currently in the hospital on the data collection day.

Sampling Technique and Size: This study involved individuals diagnosed with diabetes who were enrolled at the research institution located in the Oti area. The expected total number of diabetes patients who visit the clinic at Jasikan Municipal Hospital is 404. The research study has a sample size of 201.

Data Collection Instrument: The study utilised a questionnaire that was designed by the researchers themselves, and the construction of the research was based on a comprehensive evaluation of existing literature. A questionnaire is a standardised data collection instrument used to gather information from a significant number of individuals (Ackroyd & Hughes, 1981).

Data Collection Procedure: Prior to implementation in the study area, the research instruments (questionnaire) underwent pretesting at Jirapa Polyclinic. This involved validating the instrument with a sample of twenty (20) respondents. The pretesting facilitated the researcher in modifying the wording of certain questions and including more elements into the responses. The pretests resulted in the adaptation of the instrument employed in the final investigation.

Data Analysis: The acquired data was manually sorted and cleansed. The data was encoded, inputted, and analysed using the Statistical Package for Social Sciences (SPSS) software, specifically version 22. Variables were established during the variable view stage of the SPSS software. The data was subsequently analysed comprehensively utilising descriptive statistical tools, such as frequency distribution tables.

Ethical Issues: To adhere to the ethical standards of effective research, the researcher obtained approval from the Institutional Review Board of the University for Development Studies. The researcher additionally requested authorization from the Regional Director of Health Services-Oti,

seeking permission to carry out research at Jasikan Municipal Hospital. Before distributing the surveys, all participants were requested to provide their informed consent. Each participant was provided with a comprehensive explanation explaining the importance and objective of the research. The participants were assured confidentiality and provided with the choice to discontinue their involvement in the study.

RESULTS

Descriptive Analysis

This section provides an explanation of the variables used in the analysis. The sample of 187 diabetic patients offers the mean, standard deviation, maximum, and minimum values. The findings indicate that out of 187 persons with diabetes, almost 89% received their diagnosis from a healthcare professional. Just 67% of individuals with diabetes sought professional medical assistance. The mean total expenditure for therapy, encompassing both outpatient and inpatient services, during the past 12 months is approximately 1,000 cedis. The mean salary computed based on the basic income from the previous month is approximately 2,000 cedis, ranging from a low of 500 cedis to a maximum of 3,000 cedis.

The findings also indicate that the majority of individuals in the study are married, lack insurance coverage, and are employed (either as self-employed or as paid employees in a family business). Nevertheless, there is no substantial disparity in gender among the patients, with the majority of study participants being females, totaling 101 individuals. One possible explanation is that women are more inclined than men to promptly seek medical care upon detecting a health issue. The mean age is approximately 59, with the minimum age being 6 and the maximum age being 95. These findings indicate that a significant proportion of the participants in the study who have diabetes are in the age group that is often employed. Furthermore, it implies that with proper management of diabetes, individuals can have fulfilling lives. Subsequently, the sample was divided into three distinct age categories: young, adult, and elderly. The findings indicate that 0.04% of the population falls into the youthful age category, while 54% are classified as working age, and 42% are considered senior citizens. Additionally, this indicates that the bulk of individuals with diabetes are in the working age bracket, with the senior age group coming next in line. Although the occurrence of diabetes in

children is very low, this illustrates that diabetes can impact individuals across all age groups. The majority of the patients had achieved primary education, but as you moved higher on the educational hierarchy, the number fell.

Diagnostics Result

To achieve accurate and dependable estimation and conclusion, the study conducted pertinent tests. The two issues were multicollinearity and heteroscedasticity. If the average value of the Variance Inflation Factor (VIF) is less than 10, the presence of collinearity among the independent variables will not affect the obtained results (Kennedy, 1992). Based on this investigation, we can infer that multicollinearity is not a problem in the model used because the total mean value is far lower than 10. This is displayed in table 1.

Table 1: Test for Multicollinearity

Variable	**VIF**	**1/VIF**
Costoftreatment	1.12	0.895859
Salary	1.07	0.93629
Diagnosedbyhealth worker	1.05	0.950095
Ageof thepatient	2.43	0.411184
Sexofthepatient	13.2	0.075763
Married	14.32	0.069809
Completedsecondaryschool and above	1.27	0.788208
Patienthasinsurance cover	1.3	0.768296
Nevermarried	1.29	0.775691
EmploymentStatus(employed=1)	1.14	0.875068
MeanVIF	**3.82**	

The study employed the Breusch Pagan test to assess heteroscedasticity. The p-value for the chi-square test result was determined to be below the 0.5 level of significance. The analysis thus disproved the null hypothesis that the residual had a constant variance and found that there was heteroscedasticity in the model. In order to rectify this, the study employed the robust standard error approach to accurately calculate the standard errors. The outcome of the examination is displayed in table 2.

Table 2 Test for Heteroscedasticity

Breusch-Pagan/Cook-Weisbergtestforheteroscedasticity		
Ho:Constantvariance		
chi2(1)	3.78	
Prob>chi2	0.0519	

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The study concluded that after accounting for heteroscedasticity, the model with robust standard errors was used to determine the major components that influence the health seeking behaviour of diabetic patients.

Table 3 Probit Model with Robust Standard Errors

Variable	**Coefficient**	**Robust Standard Error.**	**z**	**P>z**
Costoftreatment(Ghc)	-7.9E-08	1.6E-06	-0.05	0.96
Salary(Ghc)	2.4E-05	0.0000124	1.96	0.05
Diagnosedbyhealthworker (yes=1)	1.4447	0.3678	3.93	0
Ageofthepatient(years)	-0.0078	0.0104	-0.76	0.449
Sexofthepatient(female=1)	-0.6547	0.8174	-0.8	0.423
Female*Age	0.0106	0.0130	0.81	0.417
Nevermarried	-0.1611	0.2310	-0.7	0.486
Completedsecondaryschool and above	0.5418	0.2479	2.19	0.029
EmploymentStatus(employed=1)	-0.5367	0.2346	-2.29	0.022
Patienthasinsurancecover(yes=1)	0.2221	0.2294	0.97	0.333
Constant	-0.2643	0.7152	-0.37	0.712
Observation	187			
Wald Chi2(10)	25.36			
Prob>Chi2	0.0047			
PseudoR2	0.1434			

Table 4 Probit Marginal Effect

Variable	dy/dx	Standard Error	Z	P>z
Costoftreatment(Ghc)	-2.4E-08	4.9E-07	-0.05	0.96
Salary(Ghc)	7.5E-06	3.8E-06	1.98	0.048
Diagnosedbyhealthworker (yes=1)	0.4452	0.0976	4.56	0
Ageofthepatient(years)	-0.0004	0.0020	-0.2	0.839
Sexofthepatient(female=1)	-0.0074	0.0688	-0.11	0.915
Nevermarried	-0.0496	0.0707	-0.7	0.483
Completedsecondaryschool and above	0.1670	0.0743	2.25	0.025
EmploymentStatus(employed=1)	-0.1654	0.0702	-2.36	0.018
Patienthasinsurancecover(yes=1)	0.0684	0.0701	0.98	0.329

DISCUSSION

The findings indicate an inverse correlation between the expense of therapy and the likelihood of individuals with diabetes seeking professional medical care for their condition. This suggests that as the expenses associated with medical care rise, it becomes more financially burdensome for those with diabetes to access professional treatment. Put simply, it diminishes their ability to buy high-quality medical services. However, it was determined that this was not statistically significant. The link aligns with the findings of Bhosale et al. (2017), which revealed that the cost of services, such as medication and consultations, influences the health-seeking behaviour of diabetic patients in Kerala, India.

The study revealed that an increase in the wage, as evaluated by the basic salary of the previous month, was associated with a higher likelihood of diabetes seeking professional treatment. This is because a rise in wage enhances one's socioeconomic position, hence augmenting their purchasing power to access high-quality healthcare services. The outcome aligns with our expectations and is deemed statistically significant at a significance level of 5%. These findings are comparable to the results obtained by Dominquez (2010) in Damghan village, where it was discovered that socioeconomic level significantly influenced the health seeking behaviour of individuals with diabetes. The study also discovered a robust and statistically significant favourable correlation between a healthcare practitioner making a diagnosis and the likelihood of seeking professional care for diabetes.

The marginal effect analysis reveals that receiving a diagnosis from a healthcare professional other than a traditional healer or any other method raises the likelihood of obtaining professional diabetic care by 44%. The association exhibits a statistically significant correlation at a significance level of 1%. This phenomenon can be attributed to the likelihood of health workers recommending individuals to get professional medical care subsequent to diagnosing the illness. A competent healthcare professional would motivate the patient to comply with their treatment regimen, emphasise the significance of adherence, and provide the patient with information regarding their illness. The likelihood of accessing modern healthcare lowers when diagnosed by others. These findings align with the results obtained by Rutebemberwa et al (2013) in Uganda, which indicated that diabetic patients are likely to switch between various healthcare providers due to the influence of their community and the notion that traditional medicine is inexpensive and easily accessible. These findings align with the results obtained by Hjelm & Atwine (2011) in Uganda, which indicated that the primary reason why diabetic patients avoided consulting traditional healers was their concern about the potential exacerbation of the disease and the development of problems in vital organs.

Gender was also determined to have no significant impact on the choice to seek professional healthcare instead of alternate forms of diabetic care. This can be attributed to the nearly identical prevalence of diabetes in males and females. The outcome, however, indicates an inverse correlation between the likelihood of seeking professional healthcare and the gender of the patients.

The study discovered that as individuals age, they are less likely to seek professional healthcare, which contradicts the initial forecast. This could be attributed to the fact that many older individuals have already finished raising their children and do not have as many future obligations. The employed individuals are nearing retirement age, and consequently, their financial situation deteriorates as they age. Therefore, the high expense of professional healthcare, as demonstrated in the descriptive study above, limits the ability to finance it. However, this lack of statistical significance may be attributed to the fact that nearly all individuals in the study are either elderly or approaching elderly age. Furthermore, when comparing males and females, it is seen that as females age, they have a higher tendency to seek professional medical attention for diabetes compared to males. This can be attributed to the fact that females exhibit a higher degree of sensitivity towards changes in their body, particularly when it comes to health issues. This result did not reach statistical significance.

The findings also indicate that unmarried patients are less inclined to seek professional treatment compared to married individuals. This can be attributed to the fact that married individuals have greater financial and moral advantages when it comes to obtaining professional care compared to those who are unmarried. This is because they can receive financial support and moral encouragement from their partners. These results align with the findings of Abidin et al. (2014) in Selanger and Karinja et al. (2019), who found that family support enhances the health-seeking behaviour of individuals with diabetes. However, this study did not identify a significant effect. In addition, this outcome, along with the gender and age of the patients, aligns with the conclusions of Thepa et al. (2018), who discovered that these parameters do not significantly influence the healthcare seeking behaviour of type 2 diabetic patients residing in Baniyani village in eastern Nepal.

Furthermore, it is predictable that individuals with secondary and higher levels of education are more inclined to seek professional healthcare compared to those who have just obtained primary school. Having an education above primary level, such as secondary education or higher, improves the likelihood of obtaining professional treatment for diabetes by around 17%. This can be attributed to the correlation between higher levels of education and increased awareness of the disease among diabetic patients. Additionally, individuals with higher education are more likely to have access to healthcare facilities and possess the knowledge to effectively utilise health

information for the purpose of achieving and maintaining good health. This connection exhibited statistical significance at a significance level of 5%. This corroborates the discovery made by Basity et al. (2014), which shown that educational achievement enhances the propensity of diabetic individuals in Uganda to seek healthcare.

The study revealed an unexpected result: individuals working in the informal sector are much less likely to seek professional diabetic healthcare. This may be attributed to the fact that many of these patients are self-employed or involved in family businesses, and the fear of losing sales or profits makes the decision to take time off for proper care less appealing. Consequently, diminishing their likelihood of obtaining expert assistance. Furthermore, the study revealed that a higher proportion of unemployed individuals with diabetes sought professional medical care compared to employed individuals seeking the same. However, this supports the findings of Karinja et al. (2019), who stated that patients employed in agricultural work and managing family enterprises had infrequent visits to medical clinics because they were afraid of losing their daily salaries or income. In addition, except from individuals who operate their own or family-owned enterprises, the majority of the remaining population is jobless, rendering them incapable of affording specialised medical services as a result of their meagre earnings.

Furthermore, it is worth noting that patients with insurance coverage are more inclined to seek professional healthcare, since the insurance policy may partially cover the expenses associated with the treatment. However, it is important to mention that this correlation lacks statistical significance. Nevertheless, the overall challenge of evaluating insurance policies or the numerous prerequisites for accessing insurance payments during emergencies may explain their lack of significance. Once again, the majority of patients are employed in the informal sector, where insurance is not mandatory. Alternatively, the fact that a larger proportion of them lack advanced education and may not comprehend the importance of insurance could potentially diminish its significance.

CONCLUSION

The main factor that influences the outcome is the consultant's proficiency in diagnosing the problem. The healthcare-seeking decisions of diabetic patients in Ghana are influenced by a multifaceted interaction of factors at the individual, community, and health system levels. The impoverished socioeconomic situation of numerous diabetic patients in Ghana impedes their capacity to get and finance healthcare services, resulting in delayed or insufficient treatment. Cultural beliefs and customs have a substantial impact on the way diabetes individuals approach getting healthcare. Traditional and spiritual beliefs frequently impact treatment preferences and compliance with contemporary medical recommendations. Obstacles in the healthcare system, such as insufficient infrastructure, restricted availability of medication, and extended waiting periods, deter diabetic patients from seeking prompt and suitable medical attention. The absence of precise information regarding diabetes and its treatment leads to misunderstandings and procrastination in seeking medical assistance among diabetic patients in Ghana. Strong social support networks have a beneficial impact on the healthcare-seeking behaviour of diabetic patients by offering encouragement and practical aid in accessing care. To tackle the various obstacles that prevent diabetic patients in Ghana from accessing healthcare, a comprehensive strategy is necessary. Policy initiatives should prioritise enhancing healthcare infrastructure, expanding availability of cost-effective medicine, fostering diabetes awareness, and advocating for culturally responsive care. Gaining insight into the determinants that impact the choices made by diabetic patients in Ghana when seeking healthcare is essential in order to devise efficient strategies for enhancing diabetes care and results in the nation. Ghana can mitigate the challenges to healthcare accessibility and enhance culturally sensitive care to effectively alleviate the impact of diabetes and enhance the well-being of individuals with diabetes.

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