Asian Journal of Healthy and Science
p-ISSN: 2980-4302
e-ISSN: 2980-4310
Vol. 2 No. 12 December 2023

# FACTORS INFLUENCING TREATMENT ADHERENCE AMONG NEWLY DIAGNOSED DIABETIC CLIENTS OF LEDZOKUKU KROWOR MUNICIPAL ASSEMBLY (LEKMA)

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**Abstract**

The study focused on assessing compliance among newly diagnosed diabetic client in Ledzokuku Krowor Municipal Assembly (LEKMA) Hospital. A descriptive survey design was adopted and 120 diabetic patients were sampled using random sampling techniques. A self-developed questionnaire instrument was the main data collection tool and quantitative analysis was used with the aid of IBM SPSS (v.23). The study found that most of the respondents were of the view that diabetes mellitus was hereditary. It was recorded that all respondents considered hospital-based treatment as effective in treating the condition. About 90 (72.0%) were of the view that of a diabetic patient skipped a dose, he/she was to ignore that dose and wait till the time for the next dose. Moreover, 116 (92.0%) respondents shared with researcher that diabetics were supposed to avoid all fatty foods. All respondents visited the hospital facility on a monthly basis to receive medical-care. Female turn to have adhered more to their medication regimen than the males did, but it was not statistically significant (t=.047, p= .963). Age has negative relationship (r = -.123, p= 533) with their adherence to medication. It was realized that those who had secondary education adhered mostly to diabetic medications followed by tertiary education and primary education attainers respectively. There was a positive relationship (r = .050, p=0.732) between the marital status, occupational status (r = .272, p = .056) of respondents and their adherence status to taking medications. Respondents (40%) disagreed that prescribed medications were fully covered under the National Health Insurance Scheme (NHIS). All of the respondents agreed that finance was a challenge to seeking treatment and medical care for the management of DM. About 40 percent of the respondents feared about side effect of drugs. It was recommended that government should extend the NHIS to cater for DM medications. There was also the need that government subsidized the treatment cost of patients seeking for healthcare with respect to DM.

**Keywords: treatment adherence, diabetes, ledzokuku krowor municipal, knowledge, compliance**

# INTRODUCTION

The World Health Organization (WHO) (2018) defines Diabetes as a chronic, metabolic disease characterized by elevated levels of blood glucose (or blood sugar), which leads over time to serious damage to the heart, blood vessels, eyes, kidneys, and nerves. The most common is type 2 diabetes, usually in adults, which occurs when the body becomes resistant to insulin or doesn't make enough insulin (WHO, 2018). In the past three decades the prevalence of type 2 diabetes has risen dramatically in countries of all income levels. Type 1 diabetes, once known as juvenile diabetes or insulin-dependent diabetes, is a chronic condition in which the pancreas produces little or no insulin by itself (WHO, 2018).

Aflakpui (2016) reiterates that, DM is a chronic disease which arises as a result of ineffective use of insulin produced by the body. The insulin produced by the body aids in the regulation of glucose production in the human body. When the human body is unable to make effective use of insulin to regulate the production of glucose, a metabolic disorder occurs. DM is categorized as a lifelong advancing disorder. The deterioration that this condition causes to the human system increases over time. Thent, Das and Henry (2013) classify DM into two main types; type 1, insulin dependent diabetes and type 2, non-insulin dependent diabetes mellitus. Type 1 diabetes is caused by the failure for the beta cells of the islets of Langerhans in the pancreas. Type 2 diabetes is also caused by insulin resistance due to few insulin receptors in the human body.

International Diabetes Federation Diabetes Atlas (2021) report that type 1 DM arises due to some environmental factors such as having contacts with allergens and viruses which leads to destruction of insulin-producing pancreatic beta cells. It may also be caused by genetic predisposition. On the other hand, type 2 DM may also be caused by inadequate secretion, excessive and/or inappropriate glucagon secretion and a combination of resistance to insulin action. This according to Aflakpui (2016) leads to ketosis and other health complications. According to the WHO, (2018) DM will be the seventh leading cause of death globally by 2030. Currently, WHO (2018) records that about 80% of DM patients live in middle- and low-income countries. An estimation of 422 Million adults have diabetes. Also, 1.6 million deaths are directly attributed to diabetes each year. 1 in 3 adults aged over 18 years is overweight and 1 in 10 is obese. 10. This high prevalence rate for Africa is very startling and requires urgent attention (Gatimu et al., 2016).

In a study conducted by Aflakpui (2016), it was evident that the Tema General Hospital for instance ranked diabetes mellitus among the top 10 hospital cases in terms of admissions, OPD and mortality. The hospital reported the increase in cases reported at their facility between 2013 and 2014; which was ranked third (14.4%). Diabetes mellitus is ranked among the top 10 cases recorded at the Korle Bu Teaching Hospital (KBTH) (The Korle Bu Annual Report, 2013). The mortality rate recorded at health facilities across the country which has been ascribed to diabetes mellitus has been on the rise (Owusu et al., 2021). Irrespective of the efforts made by health officials and the governments to curtail the rise in diabetes mellitus and its effect among Ghanaian adults, one pressing issue that hinders this effort is the compliance to medication regimen among people living with this condition (Gatimu et al., 2016).

Awodele and Osuolale (2015) are of the view that one of the major problems faced by public health across the globe and especially Africa is the non-adherence to medication among diabetes mellitus patients. This poses a major risk in developing

cardiovascular and other chronic diseases. Adisa and Fakeye (2014) reiterate that about 30-50% patients do not comply with medications which results in sub-optimal treatment. Several factors have been identified to be associated with the non-compliance of people living with diabetes mellitus to medication regimen. Factors identified include lack of knowledge and education, and other lifestyles (Al-Qaza et al., 2011; Aflakpui, 2016).

Irrespective of the reasons that results in the adherence to medication for those living with the condition, much needs to be done to ensure that these people strictly adhere to their medication regimen. Adherence to the medication regimen, according to Latif and McNicoll (2009) is an integral component in the treatment of diabetic patients. The non-adherence to medication has intense implications on the patients as well as the healthcare system of the country (Latif & McNicoll, 2009). Moreover, non-adherence to the medication regimen increases the risk to death which proportionally increases mortality rate (Latif & McNicoll, 2009).

The noncompliance to medication regimen will equally result in failure in treatment outcomes. It will also complicate associated conditions such as neuropathy, retinopathy, kidney failure, sexual impotence, cardiovascular diseases and diabetic foot gangrene which leads to amputation. These conditions which come as a result of failure in treatment outcomes lead to premature death (WHO, 2015; Jackson, et al., 2015). It also leads to increased hospitalization increasing the social and economic burden on families (Guo et al., 2019). Families of patients who are hospitalized due to diabetes mellitus spend a lot of resources in the upkeep of their family members, presenting much pressure for families and the health system alike (Hu et al., 2016). Owing to the beneficial side and the inevitable role medication regimen plays in the treatment of diabetes mellitus, it is expedient that all efforts be made to ensure that people diagnosed with the condition comply strictly with their medication regimen (Barber et al., 2013).

1.2 Statement of the Problem

Report indicates that Africa has a DM mortality rate of 80% and is expected to rise by 7.1% by 2030 (WHO, 2015; IDF, 2014). As projected by Leone, Coast, Narayanan and de-Graft (2012), an estimated 82.5% of people in sub-Saharan African countries will develop diabetes by 2030. The rise in the condition results in associated complications and premature mortality (Aflakpui, 2016). Kratzer (2012) reports that in 2012, death rate attributable to diabetes in Africa was 7.1% for males and 7.9% for females aged 35-64 years.

The disease management requires special self-care throughout the patient's life, including following a diabetic diet, physical activity, monitoring blood glucose, and adhering to medication regimen (Ghaedi et al., 2016). These patients typically are reluctant to adhere to all of mentioned principles, so they will eventually require oral medications and even insulin therapy to control their blood glucose. One way to control diabetes is treatment adherence that improves blood glucose control and reduces glycosylated hemoglobin, resulting in fewer complications and all associated costs (Khanjani Movaghar et al., 2021). Many patients with chronic diseases disregard the recommended medication regimen due to prolonged course of treatment and dissatisfaction with definitive treatment (Wu & Liu, 2016). Uncontrolled diabetes is frequently associated with physical and psychological complications, such as heart disease, stroke, hypertension, blindness, kidney failure, amputation, depression, and poor quality of life (Goli Roshan et al., 2021).

Many therapists have been interested in how well patients with diabetes adhere to their treatment plans that is one of the most important challenges in controlling diabetes (Kooshyar et al., 2014). Early discontinuation of medication, non-compliance with dietary instructions, and lack of physical activities are examples of patient-related factors, which influence treatment adherence (Gholamaliei et al., 2016). Lack of adequate adherence to treatment regimens increase disease complications and healthcare costs, prolongs treatment duration, and double the mortality rate of these patients compared with other patients (Badrizadeh et al., 2021).

Yet, WHO (2015) reported that about 50% of patients diagnosed with diabetes mellitus do not take their prescribed medications. This large number of patients do not comply with medication regimen to ensure positive treatment outcome. WHO (2018) in an assessment done to ascertain compliance with diabetes mellitus medication regimen realized that there is an increased morbidity and mortality cases in females as compared to males as a result of noncompliance to medication regimen thus about 8% or 205 million women live with it worldwide. It must be echoed that reports by WHO (2018) to the compliance with medication regimen calls for much attention. Knowing that a treatment outcome is dependent on compliance with medication regimen, it is expedient that patients are motivated to comply strictly with treatment regimen. Studies conducted across the globe have indicated that some factors including socio-economic influence adherences to chronic drug regimens (Haghdoost et al., 2019; Braveman & Gottlieb, 2014).

From reviews, the researcher has come to realize that, though the impact of medication regimen to treatment outcomes is acknowledged, compliance to medication regimen still remains an albatross around the neck of the Ghanaian health sector, especially among newly diagnosed diabetic patients (Gatimu et al., 2016). Few studies that have been conducted on diabetic patents focused mainly on the old diagnosed diabetic patients while others also considered rural communities even though Afalkpui (2016) and The Korle Bu Annual Report (2013) ranked diabetes mellitus among the top 10 cases recorded at the OPD and among mortality cases. This gap has contributed to the low success in the fight against diabetes mellitus by the government apparatus (Karachaliou et al., 2020). Based on this gap, the researcher seeks to assess compliance among newly diagnosed diabetic client in a district hospital; Ledzokuku Krowor Municipal Assembly Hospital in order to design interventions and other plausible programmes to improve medication compliance and increase treatment outcomes among diabetes mellitus patients.

## RESEARCH METHODS

The research design employed in this study, as outlined by Leedy and Omrod (2010), is a cross-sectional descriptive survey. This design primarily focuses on quantifying various elements of interest without delving into the relationships among variables. The research took place at LEKMA Hospital in Accra. It serves as the Municipal Hospital for the Ledzokuku-Krowor (Teshie / Nungua) area. The study included newly diagnosed diabetes mellitus patients aged 18years or above attending the hospital, while excluding certain groups based on criteria such as age, health status, and adherence issues. With the aid of Yamane (1967) formula for calculating sample size, 120 patients were selected to formed part of the study. These patients were selected with the aid of simple random sampling technique.

Data collection primarily utilized a structured questionnaire, which was divided into five sections covering socio-demographic information, knowledge of diabetes management, medication regimen compliance, factors influencing compliance, and compliance challenges. The questionnaire's validity was ensured by experts' assessment and approval, while reliability was assessed through a pilot study and the use of the Cronbach Alpha test. Data collection involved obtaining permissions from relevant authorities, providing participants with informed consent forms, and either self-administering the questionnaire or conducting interviews for those unable to read or write. Quantitative data collected through the questionnaire was processed using statistical software, and descriptive statistics, t-tests, and chi-square tests were employed for analysis. Ethical considerations were observed, including obtaining permissions, ensuring participant privacy and confidentiality, and adhering to COVID-19 protocols.

## RESULTS AND DISCUSSION

### Demographic Characteristics

Demographic variables of respondents were ascertained to provide a clear picture of the individuals who were sampled by researcher. Descriptive of these variables are presented in Table 1.

**Table 1: Descriptive Statistics of Respondents' Demographics**

| Variable | Response | Frequency | Percent |
|---|---|---|---|
| Gender | Female | 68 | 56.0 |
| | Male | 52 | 44.0 |
| Age (in years) | 26-30 | 19 | 22.0 |
| | 31-35 | 46 | 32.0 |
| | Above 35 | 53 | 46.0 |
| Educational Level | Primary | 16 | 16.0 |
| | Secondary | 77 | 54.0 |
| | Tertiary | 25 | 30.0 |
| Marital Status | Single | 28 | 34.0 |
| | Widowed | 18 | 18.0 |
| | Married | 74 | 48.0 |
| Occupation | Self Employed | 12 | 24.0 |
| | Government Worker | 42 | 36.0 |
| | Unemployed | 66 | 40.0 |
| Duration of Sickness | 1-5 years | 120 | 100 |
| Duration on Treatment | 1-10 years | 120 | 100 |
| Type of Medication | Metformin | 10 | 22.0 |
| | Metformin and Glibenclamide | 74 | 52.0 |
| | Insulin | 36 | 26.0 |

As indicated in Table 1, majority of the respondents sampled by researcher were females. Female respondents were 68 (56.0%). Male respondents were 52 (44.0%). With respect to age, the record on respondents was also not significant. Most of the respondents, representing 53 (46.0%) were above 35 years of age. 46 (32.0%) were between 31 and 35 years while 19 (22.0%) were aged 26 to 30 years of age. Moreover, about 77 (54.0%) had attained secondary education with 25 (30.0%) having tertiary

education. Only 16 (16.0%) had attained only primary education. It is evident that all respondents had attained some form of formal education making the use of the questionnaire instrument appropriate.

In finding out the marital status of the respondents, most of them were found to have been married. 74 (48.0%) said to have been married and 28 (34.0%) were single. 18 (18.0%) had married but were widowed at the moment of the data collection. Most of the respondents were gainfully employed, undertaking various forms of professional duties. While 42 (36.0%) were engaged in various government duties, 12 (24.0%) had their own form of work. Thus, they were self-employed. 66 (40.0%) were also unemployed.

All respondents (n = 120, 100.0%) had been diabetic for not more than 5 years. Thus, respondents were newly diagnosed diabetic patients which had been medically ascertained in the past 5 years. Similarly, all respondents had been on diabetes treatment for not more than 10 years. It is clear that respondents started treatment immediately they were diagnosed with the sickness. It was evident that most of the respondents were using Metformin and Glibenclamide. 74 (52.0%) were using Metformin and Glibenclamide, 36 (26.0%) were using Insulin while 10 (22.0%) were also using Metformin.

**Knowledge of Diabetic Clients on Management of Diabetic Mellitus**

Objective one was posed to ascertain the awareness of clients towards diabetes. It was to ascertain whether the clients had any information or education on the sickness which they have been diagnosed with. Items raised in Section B of the questionnaire instrument inquired respondents to identify what they knew about diabetes. Table 2 presents responses gathered from respondents on their knowledge on diabetes.

**Table 2: Knowledge of Clients on Diabetes**

| Query | Response | Frequency | Percentage |
|---|---|---|---|
| Diabetes is Hereditary | Yes | 98 | 76.0 |
| | No | 5 | 10.0 |
| | Not Sure | 7 | 14.0 |
| Diabetes Mellitus cannot be treated with hospital base treatment | False | 120 | 100.0 |
| What do you have to do when you skip a dose? | Wait till next dose | 90 | 72.0 |
| | Take it immediately you remember | 22 | 20.0 |
| | Omit the dose | 8 | 8.0 |
| What do you have to do when side effects of medications persist | Stop taking drug | 94 | 62.0 |
| | Reduce the dosage | 8 | 6.0 |
| | Report to the hospital | 18 | 32.0 |
| What foods should a diabetic avoid? | Fatty foods | 116 | 92.0 |
| | No idea | 4 | 8.0 |
| What foods should a diabetic avoid? | Fatty foods | 116 | 92.0 |
| | No idea | 4 | 8.0 |

Respondents shared with researcher a number of things they knew concerning diabetes mellitus. Most of the respondents were of the view that diabetes mellitus was

hereditary. 98 (76.0%) indicated in the affirmative that diabetes mellitus was a condition that was hereditary. On the other hand, 5 (10.0%) respondents also considered this statement false. To them, diabetes mellitus is a condition that could not be considered as hereditary.

Respondents were asked is they considered diabetes mellitus a condition that could be treated with hospital-based treatment. It was recorded that all respondents (n = 120, 100.0%) considered hospital-based treatment as effective in treating the condition. In other words, respondents did not give prominence to traditional methods of treating diabetes. Rather, they considered hospital-based treatment regimen as the viable and effective plan for treating diabetes.

With respect to what clients were to do when they missed a dosage, most of them shared the view that they were supposed to wait till next dose. 90 (72.0%) were of the view that of a diabetic patient skipped a dose, he/she was to simple ignore that dose and wait till the time for the next dose. 22 (20.0%) had the view that irrespective of the time one remembers, he/she should simply take the dose. To these respondents, it is advisable to take a forgotten dosage without skipping or ignoring it without taking cognizance to the time one would remember to take the drug. 8 (8.0%) respondents also pointed out that if a diabetic forgot to take a dose, he/she was to omit the dose.

Respondents were also asked to share their views on what diabetics were to do when they start to experience side effects of the medications they took. 94 (62.0%) identified that in such situations, patients were to stop taking the drug. These respondents held the idea that, patients who react negatively with the medications they have been given are to ignore taking such medications again. 18 (32.0%) also disagreed with such position and projected that, clients who reacted negatively with their medications were to report such cases to the hospital. To these respondents, before any further action could be taken, clients who had adverse reaction were to make formal complaints at the hospital facility to receive medical advice on what they were supposed to do. Surprisingly, 8 (6.0%) respondents had the idea that, patients who reacted negatively with their medications were to reduce the dosage prescribed them. These few respondents had the knowledge that it was approved for patients to limit the amount of medications they take if they see any reaction to the medications they are taking.

Knowledge in terms of food not prescribed for diabetics was also ascertained. 116 (92.0%) respondents shared with researcher that diabetics were supposed to avoid all fatty foods. To these respondents, foods that a rich in fat, or foods that could be classified that have contents dominated with fat and oil were to be avoided by diabetics. These respondents share the opinion that fats and oil, probably in excess was not healthy for people living with diabetes. 4 (8.0%) respondents opened up that they had no idea whether fatty foods were medically recommended for otherwise for diabetics. Thus, these respondents did not have any knowledge on the recommended foods for diabetics.

**Factors influencing compliance to medication**

This objective was raised to find out how diabetic patients complied with their medications. 4 items were raised to find out information concerning the compliance of respondents to their various prescribed medications. Descriptive of responses made by respondents is presented in Table 3.

**Table 3: Descriptive Statistics of Respondents' Compliance to Diabetes Medication**

| Query | Response | Frequency | Percentage |
|---|---|---|---|
| Are you able to take all your medication? | Yes | 10 | 36.0 |
| | No | 32 | 64.0 |
| How often do you take your drug? | Regularly | 78 | 92.0 |
| | Whenever I remember | 10 | 8.0 |
| Do you adhere to recommended dietary regimen? | Always | 30 | 40.0 |
| | Sometimes | 80 | 60.0 |
| How often do you visit the hospital? | Monthly | 120 | 100.0 |

Data provided in Table 3 supports the attitude of respondents on their adherence to various medication regimen prescribed for them. Not all respondents were found to be able to follow all regimen plans given to them. About 32 (64.0%) indicated they were not able to fully comply with all medications given to them. Only 10 (36.0%) indicated their ability to follow all prescribed medications appropriately. The record reveal that most of the diabetic clients are not able to follow all the prescribed medication regime assigned them by the hospital facility.

In terms of the regularity for taking up medications, 78 (92.0%) respondents admitted they took their medications regularly. About 10(8.0%) respondents however pointed out they took their medications whenever they remembered. These respondents thus had a poor attitude toward taking their medications, as they only took them at points they remembered. Nonetheless, many of the respondents were found faithful in taking up their medications, as they took all prescribed drugs regularly as possible.

Researcher also found out the adherence rate of respondents towards their dietary regimen. It was uncovered that most of the respondents basically were able to adhere faithfully to the assigned dietary mechanisms spelt out to them by the hospital facility. Also, 80 (60.0%) respondents pointed out they sometimes adhered to the dietary specimen spelt out for them. 30 (40.0%) however indicated their full ability to religiously follow all dietary regimen prescribed them by the hospital facility.

Lastly, all respondents (n = 120, 100.0%) visited the hospital facility on a monthly basis to receive medical-care. Further analysis was run to find out the relationship between respondents' demographic variables and their adherence to taking their medications. Statistics of this computation is presented in Table 4.

**Table 4: Inferential Statistics of Respondents Adherence to taking All Medications**

| **Variable** | ***f*(%)** | **Adherence** | | | ***p* value** |
|---|---|---|---|---|---|
| | | **Yes (%)** | **No (%)** | | |
| Gender | | | | $t$ = .047 | .963 |
| Female | 68(56.0) | 22(55.6) | 58(56.3) | | |
| Male | 52(44.0) | 16(44.4) | 34(43.7) | | |
| Age (in years) | | | | $R$ = -.123 | .397 |
| 26-30 | 16(22.0) | 4(27.8) | 14(18.8) | | |
| 31-35 | 26(32.0) | 6(33.3) | 20(31.2) | | |

| | | | | |
|---|---|---|---|---|
| Above 35 | 68(46.0) | 8(38.9) | 60(50.0) | |
| Educational Level | | | | $x^2$ = .533 |
| Primary | 12(16.0) | 4(22.2) | 4(12.5) | 1.260 |
| Secondary | 77(54.0) | 36(44.4) | 54(59.4) | |
| Tertiary | 35(30.0) | 7(33.3) | 5(28.1) | |
| Marital Status | | | | $R$ = .050 .732 |
| Single | 26(34.0) | 6(33.3) | 11(34.4) | |
| Widowed | 20(18.0) | 2(11.1) | 7(21.9) | |
| Married | 84(48.0) | 72(55.6) | 44(43.7) | |
| Occupation | | | | $R$ = .272 .056 |
| Self Employed | 10(24.0) | 1(5.6) | 11(34.4) | |
| Government Worker | 20(36.0) | 36(44.4) | 10(31.2) | |
| Unemployed | 90(40.0) | 88(50.0) | 16(34.4) | |
| Type of Medication | | | | $x^2$ = .097 |
| Metformin | 14(22.0) | 14(11.1) | 12(28.1) | 4.670 |
| Metformin and | 88(52.0) | 62(72.2) | 54(40.7) | |
| Glibenclamide | 18(26.0) | 3(16.7) | 10(31.2) | |
| Insulin | | | | |
| Total | | 18(36.0) | 32(64.0) | |

(n = 120) p<.005**

From the inferential statistics provided in Table 4, it was uncovered that gender was not a determining factor to the variations in adherence on diabetics in taking all their medications. The t statistic value was found to be .047 and its significant value was also .963. It could be concluded that the gender orientation of respondents does not inform nor impact their full adherence to taking of diabetic medications. There may be other factors that require further exploration and attention. However, females turn to have adhered more to their medication regimen than the males did. The difference between the adherence rate of males and females towards taking medications could be accounted for by the difference ($df$ = 6) between the two sampled group.

It could also be seen that respondents aged above 35 years adhered to their medications more than other group of respondents. However, the difference between the age group of respondents who adhered strictly to their medications were not wide. The correlative value computed was negative ($r$ = -.123) indicating that, age of respondents had a negative relationship with their adherence to medications. It could be said that the variables age and adherence of medications were not mutually complementary. The increase of decrease in age of diabetics does not correlate with their tendency to adhere to their medications. Similarly, there was a not significant relationship between the variables ($p$ = .397).

With respect to educational level category of respondents, it was realized that those who had secondary education adhered mostly to diabetic medications followed by tertiary education and primary education attainers respectively. The Chi square value was 1.260 with a not significant value of .533. The indication of this statistics is that the educational level of diabetic patients did not significantly determine the adherence rate of patients in taking their medications.

There was a positive relationship ($r$ = .050) between the marital status of respondents and their adherence status to taking medications. It could be said that the two variables are mutually complementary rising together. However, the not

significant values of .732 revealed that marital status of diabetic patients does not influence or determine the rate to medication adherence.

A positive correlation was also identified between occupation status of respondents ($r$ = .272, $p$ = .056) and their rate of adherence to diabetic medications. This implies that the professional category or status of diabetics positively impacted their adherence to medications prescribed them by their medical professionals. Thus, the working status of a diabetic to some extent impacts their adherence to taking all their medications. However, the relationship though positive was not significant.

Challenges faced in compliance with medication regimen

The last objective was to find out the possible challenges' diabetics faced in taking their medications. Researcher raised queries that sought to engage respondents to identify the challenges and barriers they met in adhering to all their medication regimen. Descriptive statistics of responses gathered from respondents is presented in Tale 5.

**Table 5: Challenges Faced in Medication Compliance**

| Statement | SA (%) | A (%) | D (%) | SD (%) |
|---|---|---|---|---|
| The health facility is accessible to me | 9 (18.0) | 64(52.0) | 9 (18.0) | 26 (12.0) |
| All prescribed medications are covered by NHIS | 0(0) | 40(20.0) | 20 (40.0) | 48 (40.0) |
| Drugs not covered by NHIS are expensive | 40 (20.0) | 80 (80.0) | 0(0) | 0(0) |
| I do not spend much time at hospital | 0(0) | 80 (80.0) | 40 (20.0) | 0(0) |
| I fear the side effects of the drugs I take | 40 (20.0) | 20 (40.0) | 30 (40.0) | 0(0) |

Responses made by sampled diabetics showed that accessibility was not a challenge for clients in their attempts to access healthcare services. When researcher posed the question that the health facility was accessible and close to respondents, as many as 86 (52.0%) respondents agreed with 28 (18.0%) also making strong agreement to the assertion made by researcher. On the other hand, 6 (18.0%) indicated disagreement with 6 (12.0%) also making strong disagreement to the same assertion.

Respondents also generally disagreed that prescribed medications were fully covered under the National Health Insurance Scheme (NHIS). Researcher asserted that all prescribed medications for diabetes management and treatment were being taken care of by NHIS. When this assertion was made, 40 (40.0%) respondents apiece strongly disagreed and disagreed. The emphatic disagreement made by respondents support the fact that not all medications prescribed for the management of diabetes mellitus were covered for under NHIS. However, 30 (20.0%) agreed that medications were fully covered by NHIS. It could thus be concluded medications not being fully covered by NHIS was a challenge for diabetics.

It also came clear that finance was a challenge to seeking treatment and medical care for the management of diabetes mellitus. All respondents made agreements, though on various degrees that medications that were not covered by NHIS were expensive. About 90 (80.0%) agreed and 20 (20.0%) also strongly agreeing that diabetes medications not covered by the NHIS were very expensive.

With respect to the amount of time spent by diabetics at the hospital facility, 80 (80.0%) respondents opined that they did not spend much time at the hospital whenever they went to seek for healthcare. Only 40 (20.0%) respondents said they spent much time at the hospital whenever they went to access healthcare. The record support the fact that diabetics who enter LEKMA do not waste much time at the facility.

50 (40.0%) respondents agreed that they feared the side effects of the drugs prescribed for them. Also, 20 (20.0%) also strongly agreed that they had some fear towards the side effect they may encounter in taking diabetes drugs. However, 50 (40.0%) respondents indicated they were not afraid of the side effects they faced in taking diabetes drugs. The majority of respondents who pointed out their fear makes it possible to conclude that fear of possible side effects in taking diabetes medications is a challenge faced by diabetics.

Other statements were raised to find out actions of diabetics as a result of challenges faced in receiving diabetes treatment. Results of responses collated from respondents is presented in Table 6.

**Table 6: Attitudes of Diabetics in Diabetes Treatment**

| Statement | Response | Frequency | Percentage |
|---|---|---|---|
| Which people have been very supportive? | Family | 120 | 100.0 |
| Do you stop taking drugs when symptoms are under control? | Yes | 40 | 20.0 |
| | No | 80 | 80.0 |
| Is it difficult to take drugs every day? | Yes | 50 | 40.0 |
| | No | 70 | 60.0 |
| Are you able to afford the prescribed drugs? | Yes | 70 | 80.0 |
| | No | 20 | 20.0 |

Respondents made it clear that their family member have been very supportive in managing their condition. All respondents (n = 120, 100%) pointed out that their family members have provided them all the support they require in managing and treating their condition.

It was positively identified that respondents did not stop their medications when they felt their condition has been brought under control. 50 (80%) respondents pointed to the fact that they continued taking their medications though the symptoms of the condition come under control. However, 30 (20%) stopped taking the drugs whenever symptoms of the condition are brought under control.

Record also revealed that most diabetics do not find it difficult taking medications every day. 50 (60%) responded favourably that they did not find it difficult taking their drugs every day. 40 (40%) respondents however said it was very difficult for them to take drugs every day. In terms of affordability, 90 (80%) indicated they were able to afford the drugs prescribed for them in managing and treating diabetes mellitus. Also, 30 (20%) however revealed they were not able to afford the cost of drugs prescribed for them.

**Knowledge of diabetic clients on management of diabetic mellitus**

Respondents sampled from LEKMA hospital shared with researcher a number of things they know concerning diabetes. It was uncovered that diabetics sampled had the knowledge that diabetes was a hereditary condition. Most of the respondents shared the view that diabetes is a condition that one mostly acquired as a result of heredity. They believe one becomes diabetic by acquisition from the parents through genes transmission. This denotes that diabetic patients believe they had the medical

condition not as any fault of theirs but as a result of their inheritance of the genes from their parents. Respondents thus affirm positions taken by Kaur (2014) and Elbein (2009) that a risk factor to DM is heredity. It as well denotes that diabetics look forward to pass on the condition to their children, since they believe strongly the condition is hereditary. The observation also to some extent conflicts the education that lifestyle of people can result in they becoming diabetic. Believing that diabetes is hereditary, people will then not embrace any form of education to alert them of negative lifestyles that would put them at risk of contracting diabetes. The onus then lies on health workers to intensify public education to educate the public on the need to adopt a positive lifestyle, as it could also decrease ones possibility of contracting diabetes mellitus.

It was also recorded that diabetes clients considered hospital medication as a potent treatment regimen in managing the condition. All respondents shared the view that hospital medications were appropriate in managing and treating diabetes. This record shows how respondents did not place much emphasis and attention to traditional and herbal preparations. This record is considered very heartwarming giving the fact that there are a number of traditional

and herbal preparations on the Ghanaian markets that seeks to provide a resolution and relieve to a number of medical conditions such as diabetes. Since respondent were seen to have had positive attitude and knowledge on the efficacy of hospital medicines and regimens, researcher believe this will auger well for the effort of health professionals to projects the need for diabetics to access medical healthcare for diabetes treatment. Similarly, researcher is confident that diabetics at LEKMA will not hesitate any effort made by health professionals to prescribe medications for the treatment of their condition. Also, diabetics would religiously take their prescribed medications knowing how efficacious they are to ensuring their good health.

Respondents also made it clear that a diabetic who misses his/her medications was to wait till next dose. To the respondents, it a preferable that they simple wait till it was time for their medications in the case when they forget to take a dose. There was no need to take the medication immediately they remembered or were they supposed to add it to their next dosage. This record shows that anytime diabetics forgot to take their medications, they ignored it and simply took the other dosage when it was time for them to take it.

In terms of experiencing the side effects of taking the medications, respondents were of the view a diabetic was supposed to stop taking the drug if he/she starts experiencing the side effects of the medications. The respondents believe once they start reacting adversely towards the medications they are put on by their medical advisors, there was the need to stop taking such drug. Though researcher considers this idea not positive nor being in the right direction, respondents believe they were to cut off further intentions of taking the dosage when they started reacting negatively to the medications. Researcher was of the that when a diabetic start experiencing a negative effect of the medications, he/she takes, the right thing to do was to consult his/her medical professional for medical advice to be taken. However, this was not the case, as respondents considered it appropriate to simple stop such medications without even seeking for expert advice, in this case medical advice.

In terms of foods that were not advisable for diabetics to take in, respondents held the view that fatty foods were not permissible for diabetics. Foods that were rich

in fat and oil were considered not appropriate for diabetics. To respondents, foods that could be described as rich in fats, or having much contents in fats and oils were not medically healthy for people diagnosed with diabetes mellitus. Foods such as fast foods like sausage and cheese, fatty meats, fired foods, processed meats, desserts, fatty salads, animal fats and whipped cream were to be avoided by diabetics. With this knowledge, researcher believe that diabetics would not embrace such foods knowing how unhealthy its contents are for their current medical condition. This record is heartwarming as respondents appear to be very cautious of their meal intake and knew which foods were healthy and would also contribute to the management of their medical condition. With respect to literature, this record comes to affirm view of Tuomilehto et al. (2001) and Chandalia et al. (2000) who advocate that among the foods that are not to be taken by diabetics are fatty foods. To them, diabetics are to avoid or limit the following: fatty meats, full cream dairy products, palm oil, coconut oil and processed foods and saturated fat is to be restricted to less than 10% of total energy intake. Respondents appeared to be aware of this information and researcher believes they are putting it into practice as well.

Researcher concludes on these records that diabetic clients sampled from LEKMA have some knowledge on diabetes. They knew about the condition being hereditary, the efficacious nature of hospital treatment in managing diabetes mellitus and the need to avoid fatty foods to improve the health of patients. These bits of information is considered beneficial and essential in

managing and treating diabetes as they would help diabetics manage and improve their health status.

**Factors influencing compliance to medication**

In finding the compliance of treatment regimen among diabetics, researcher came to a realization that most of the diabetics sampled from LEKMA were not able to take all their medications. Most of the respondents admitted openly to their inability of taking all their medications. It was put on record that, for reason best known to respondent, diabetes medications were not fully taken by respondents. It comes clear that diabetics have not been able to take their medications. This shows that respondents ignore taking their medications which is considered not appropriate. This will not contribute towards the management of the condition as condition of clients may be worsened. The seemingly poor adherence to medications comes to affirm earlier speculations made by Awodele and Osuolale (2015), Adisa and Fakeye (2014) and Al-Qaza et al. (2011) who posited that major problems faced by public health across the globe and especially Africa is the non-adherence to medication among diabetes mellitus patients. It was seen that diabetic patients from LEKMA did not religiously adhere to all prescribed medications as they forgot to take some of these medications. It appears that respondents forgot to take their medications for reasons best known to them. The forgetfulness on the part of respondents which resulted in they not taking all their medications is an affirmation to reports made by Delamater (2006) and Gonzalez et al. (2005). Among other factors, forgetfulness was identified as a very potent factor that accounted for the poor adherence to medication among DM patients.

The record on adherence of diabetics towards taking their medications was found to have no significant relationship with any demographic variable. None of the demographic variables were seen to have any significant relationship with the

adherence rate to diabetes medication. However, a positive relationship was identified between gender, educational level, marital status, occupational status and the type of medication a patient is placed on with the rate of adherence in taking their medication. This record was contrarily found in relation with studies by Naranjo et al. (2011), Adisa et al. (2009), Martin et al. (2005) and Mandewo et al. (2014) who identified demographic factors such as sex, age, marital status, educational level and occupation as associated with compliance with medication regimen among patients with diabetes mellitus. None of these factors were to have significant relationship with the adherence to DM medication and treatment regimens.

However, respondents made it known to researcher they took their medications regularly. Though they may not be able to take all medications as prescribed to them, they made frantic effort to take medications regularly. Since most of them made such assertion, researcher believes diabetics believe in the efficacy of hospital treatment and medications and as such take them regularly with no or least resistance.

Relatedly, respondents made it clear that they visited the hospital facility monthly to check on their health status. All respondents made it known that they did not relent on visiting the health facility to check on their medical status and receive expert medical advice and attention on their condition. This record further comes to affirm the fact that respondents believe strongly in the role of hospital treatment and schedules in managing diabetes mellitus. It is clear from this record that any attempt and advice given by medical professionals to manage and treat diabetes mellitus would be embraced by diabetics and would not receive any resistance. This record is considered positive and in the right direction.

**Challenges faced in compliance with medication regimen**

Accessibility issues were also ascertained by researcher. It was uncovered that the hospital facility was not a challenge to respondents in accessing medical care. It was evident that respondents lived close to the health facility and thus it made it easy and possible for them to receive medical care when the need arises. This record comes as a welcoming news as researcher is assured that the positioning of LEKMA has been a contributing factor to the positive attitude of diabetics in accessing medical treatment in managing their medical condition. Hence if diabetics are not taking their medications or have any reservations towards accessing procedures, accessibility to the facility cannot be cited as an influencing factor.

It was also uncovered that the National Health Insurance Scheme (NHIS) which is a government intervention to support Ghanaians seek medical care. This is to improve the attitude of people in placing much prominence on hospital medications over traditional an herbal preparations. The recorded made in this study however reveals that not all drugs prescribed for diabetics were covered for by the NHIS. Thus, diabetics were to spend extra money and financial resources in purchasing these drugs. This is a challenge to diabetics as those who may not be financially sound would find it very discomforting and impossible to purchase these drugs. Once patients are not able to purchase the drugs, one could expect that they would thus not be able to take the prescribed medications, making it impossible to improve their health status and manage their condition. The effect of this is that, they may end up having complicated and deteriorating condition. Sabate (2003) strongly believes that health systems were a determining factor to compliance towards medication among DM patients. The various actions and interventions made by

health managers goes a long way to determine the rate at which DM patients took their medications. Relatedly, respondents made it clear that NHIS not covering all mediations was a challenge and based on assumptions made by Sabate (2003), researcher is confident that this challenge may mar the adherence and compliance attitude of DM clients towards the medication.

Relatedly respondents made it evident that drugs that were not covered under the NHS were very expensive. Respondents lamented on the exorbitant prices of some diabetes medication. This was found as a challenge in the treatment and management of diabetes among client sampled from LEKMA. It is obvious from the record that management of diabetes was expensive as it demanded one to commit much financial resources. This presented a challenge to diabetics in their attempt to manage the condition.

However, it was favourably uncovered that diabetics were able to afford the cost of the medications. No matter how expensive the medications were, clients told researcher that they were able to purchase them. Knowing how important it was for them to keep taking their drugs, respondents told researcher they found the means to purchase the medications so as to be able to manage the condition. This record is very heart warming, welcoming and positive as it comes to confirm all records that diabetics at LEKMA take much interest in their health status and thus find means of getting all necessary medications irrespective of how costly and expensive they may be.

It was also found that hospital professionals were also helpful and energetic in providing medical services to clients. Respondents admitted they did not spend nor waste time any time they visited the health facility for medi care. This to a larger extent resulted in clients accessing health care monthly without delays. Researcher believes that this attitude of health professionals will immensely motivate clients to visit the facility knowing health officials will provide timely response to their needs. Researcher is confident on this report that health officials at LEKMA are

responsive to patients' needs, smart and thus patients do not waste time at the facility. Hence, time wastage at the health facility was not a challenge to diabetics in seeking medical care for the treatment of their condition.

Another challenge that diabetics had was their fear of side effects with diabetes medications. Respondent made it evident that feared possible reactions that may develop in taking prescribed medications. Respondents were scared of adverse reactions they may have as they took their medications. Though these medications would improve their health status and manage the effect of diabetes on them, they equally feared they would end up with other medical condition as a result of the medications they were taking. The fear of the medications which was a challenge to diabetics was considered unfortunate. This challenge implies then that respondents may have the tendency if ignoring their medications. When these medications are ignored, one could believe also that the health of the clients would not be improved nor be made better.

**Conclusions and Recommendations**

A low adherence rate was observed among DM patients. They mostly skipped or forgot to take some of their medications. Among these challenges were NHIS not covering all DM drugs, expensive DM drugs and fear of possible side effect.

Therefore, education on the essence of adherence or compliance to DM medication is needed to improve upon the adherence rate.

Also, the study found that fear of side effect of DM medication was among the major challenges that confront compliance of DM medication. Therefore, education and sensitization about the side effect of DM medication to DM patients and the general public is necessary to improve upon the adherence rate.

Management of health facilities in collaboration with training and research center and Director of nursing should encourage and organize workshops or seminar on various strategies to employed in the nursing professionals to institute supportive mechanisms to increase adherence rate to medications and treatment regimens among diabetic patients.

The results of this research bring to light that nurses need to increase their effort on public education on risk behaviour of diabetes mellitus. Similarly, there is the need for nursing professionals to strategize and institute supportive mechanisms to increase adherence rate to medications and treatment regimens among diabetic patients.

The study was focused on assessing compliance among newly diagnosed diabetic client in a district hospital; Ledzokuku Krowor Municipal Assembly (LEKMA) Hospital. Further studies can focused on the health seeking behavior of DM patients in Ledzokuku Krowor Municipal Assembly (LEKMA) Hospital. Others can also look at the challenges and prospects of drug compliance among DM clients.

Public education should be intensified to create awareness on risk behaviours on diabetes mellitus. Government should consider expanding the NHIS to cover all diabetes mellitus medications. Moreover, government should subsidize cost of treatment regimen for diabetic patients. Further studies should consider exploring more to find strategies to support diabetics to adhere to their treatment regimens and medications. Future studies should adopt a longitudinal study approach to examine the factors that militate adherence to treatment regime among diabetes mellitus patients.

## CONCLUSION

There are some problems with every study that must be taken into account. First, this study looked at new diabetes patients at the LEKMA hospital by using a quantitative research design. Though a quantitative research design was thought to be the best way to study the thing being studied, it has the drawback that the knowledge gained may be too abstract and general to be directly applied to specific situations, contexts, and people. Also, quantitative methods don't tell you much about how variables are related to each other. This study was only done on people who had just been diagnosed with diabetes at the LEKMA hospital, which may have led to bias. Also, the study sample was mostly made up of people who had just been diagnosed with diabetes at LEKMA hospital's postsurgical adult units. This means that the results cannot be applied to other groups of diabetes patients. Furthermore, this study did not investigate the willingness of the patients to comply to diabetes mellitus medication.

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