AfroGlobal Perspectives
Vol. 3 No. 4 (2026): April 2026
https://doi.org/10.70572/agp.v3i4.36
Original Article

Practices of diabetes mellitus patients attending the diabetic clinic towards diet recommendations in Apac General Hospital. A cross-sectional study.

Faridah Atoo, Tonny Mike Omara, Ronald Awoi, Denis Obong*
Florence Nightingale School of Nursing and Midwifery.

Abstract

Background:

Diabetes Mellitus is a persistent metabolic condition characterised by systemic hyperglycemia, arising from either impaired insulin secretion or diminished insulin sensitivity. This study aimed to determine the practices of diabetes mellitus patients attending the diabetic clinic towards diet recommendations at Apac General Hospital, Apac District.

Methodology:

The study design was descriptive and cross-sectional in nature, and it employed quantitative data collection methods. A sample of 30 respondents was selected using a simple random sampling procedure, and a questionnaire was used to collect data. The collected data was analysed and presented in the form of tables and figures.

Results:

Overall, 40% of the respondents were 46 years, 60% were married, (37%) respondents attained primary level education, and (60%) of the respondents were of the peasant background. The study found that 67% of the respondents did not always follow the Diabetic plate as recommended due to a lack of support, a lack of resources such as money to buy recommended food stuff, 60% did not always have vegetables in their meals, and 66.7% reported having one type of protein per meal. Whereas 70% of the respondents took alcohol, 83% took sugar-sweetened beverages like soda and juice. However, respondents had poor practices towards the recommended diet, as 20 (67%) did not always follow the Diabetic plate as recommended.

Conclusion:

Diabetic patients at the facility face significant barriers to maintaining a healthy lifestyle, primarily driven by socio-economic constraints and poor dietary habits. Despite the importance of a balanced diet, they failed to adhere to the recommended diabetic plate due to a lack of financial resources.

Recommendation:

Improvement in support and monitoring, more health education about the diabetic plate and diabetic diet, and the importance and benefits of adhering to the diabetic diet, among others, would help to better manage the disease.

Keywords: *Diabetes mellitus, Diabetic clinic, Apac general hospital, Practices, insulin resistance.*
Submitted: *November 05, 2024* ***Accepted:*** *March 27, 2025* ***Published:*** *April 30, 2026*

Corresponding Author: *Faridah Atoo*
Florence Nightingale School of Nursing and Midwifery

Background

Diabetes Mellitus is considered to be one of the most psychologically and behaviourally chronic diseases, which could lead to many potential infections, complications, and even death (Mbanya and Sobngwi, 2018).

Globally, more than one billion people have diabetes (Ruiz-Roso, Knott-Torcal, and Matilla-Escalante, 2020). It is common in both developed (333 million) and undeveloped (639 million) countries (Ruiz-Roso et al, 2020).

In Europe, diabetes occurs in about 39 – 48% of people as of 2019 (Chilot et al, 2021). However, studies show that diabetic patients do not possess sufficient knowledge and attitudes towards lifestyle modifications, which greatly increases their risk of complications (Mohammed et al, 2019).

Diabetes is increasingly prevalent across Sub-Saharan Africa. In countries such as Nigeria, Cameroon, and Ethiopia, between 25% and 45% of the population is affected, with women being more frequently diagnosed than men (Zeleke & Epiphanio, 2020).

However, many diabetic patients often do not possess sufficient knowledge and attitude towards adherence to recommended lifestyle modifications, resulting in risky behaviours and poor diets, which are risk factors for the condition and its potential complications (Bishu, Jenkins, and Yebyo, 2019).

Similarly, in East African countries, including Kenya and Tanzania, diabetes remains prevalent, and it is currently estimated at between 6 – 23% of the entire population (Bishu, Jenkins, and Yebyo, 2019).

In Uganda, more than 75% of diabetic patients at Apac General Hospital exhibit poor blood glucose control, resulting in frequent cases of hyperglycaemia, diabetic ketoacidosis, and neuropathies. Despite lifestyle education efforts, high rates of non-adherence and relapse present a critical risk of serious complications and mortality. However, research shows that diabetic patients lack sufficient knowledge and awareness about adherence to lifestyle modifications (Nambuya et al, 2019).

Effective management and control of Diabetes Mellitus requires strict adherence to various lifestyle modifications such as avoiding alcohol consumption, smoking, consuming red meat, taking more fibre-rich foods, as well as fruits and green vegetables, reducing carbohydrate intake, avoiding sedentary lifestyles, ensuring regular exercise, among others, which help to reduce the risk of disease progression and complications (Chilot et al, 2021). This study aimed to determine the practices of diabetes mellitus patients attending the diabetic clinic towards diet recommendations at Apac General Hospital, Apac District.

Methodology

Study Design

The study design was cross-sectional and descriptive in nature, employing quantitative data collection methods.

Study Setting

The study was conducted at Apac General Hospital, Apac District. Apac is located in the Northern region of Uganda. The hospital lies in the central business district of the town of Apac, approximately 60 kilometres (37 mi) by road, southwest of Lira Regional Referral Hospital. The coordinates of Apac General Hospital are:01°58'42.0" N, 32°32'01.0" E (Latitude:1.978325; Longitude:32.533618). The hospital is the biggest health facility in the district, its proximity to people, and it offers many health care services, including immunisation, child health services, HIV/AIDS management services, general patient management, surgery, laboratory services, nutrition services, antenatal, maternity and post-natal services, EMTCT program, as well as RCT services, among many others. The study area was selected because of the increasing number of diabetic complications.

Study Population

The study included diabetic patients attending the diabetic clinic at Apac General Hospital, Apac District. The clinic attended to about 100 diabetic patients in a month.

Sample Size

The sample size is determined using the single-proportion formula as follows:

$n = (Z_{\alpha/2})^2 P (1-P)/e^2$

Where;

n = sample size needed

$Z_{\alpha/2}$=level of statistical significance at 95% confidence interval (standard value 1.96)

P = proportion of people having DM in the Apac district (2%)

e=maximum acceptable marginal error- 5% (0.05)

Therefore, n0 = $\mathbf{1.96^2\ (0.02)\ (1\text{-}0.02)/\ (0.05)^2}$

$\mathbf{n_0 = 30.1}$

n Ω 30 respondents

Therefore, the sample size is 30 respondents

Sampling Procedure

A simple random sampling procedure was used to select the required number of diabetic patients for the study at Apac General Hospital. In this procedure, the words YES and NO were written on pieces of paper, placed in an enclosed box, shook it then offered potential respondents an opportunity to participate by picking papers from the box. Any respondent who picked a paper with the word YES written on it was requested to participate in the study. This continued until the total number of respondents to be interviewed per day was achieved. Ten (10) respondents were sampled per week for a total of 30 respondents in 3 weeks.

Inclusion Criteria

The study included diabetic Patients who were available at the Diabetic clinic and were willing to voluntarily consent to participate in the study.

Exclusion criteria

The study excluded critically ill diabetes mellitus patients, patients who were suffering from pregnancy-induced diabetes mellitus, and Type 1 diabetes mellitus patients.

Independent variable

Practices of patients

Dependent variable

Diet recommendation among diabetic patients

Research Instruments

Data was collected using an approved semi-structured questionnaire, which consisted of closed-ended questions. This tool was selected because the study involved both literate and illiterate respondents, who were thus unable to read, write, and understand English used to develop the questionnaire.

AfroGlobal Perspectives
Vol. 3 No. 4 (2026): April 2026
https://doi.org/10.70572/agp.v3i4.36
Original Article

Data Collection Procedure

Before approaching and collecting data from respondents at the Diabetic clinic, there was an introduction of the investigator to the respondents by the person in charge of the Diabetic clinic. There was an introduction to the respondents and an explanation of the purpose of the study. The researcher administered questionnaires to respondents at the Diabetic clinic. This improved efficiency and confidentiality during data collection. Ten 10 respondents were sampled per week for 3 weeks, giving a total of 30 respondents.

Data Management

Data entry

Data management included data editing before leaving the area of study to ensure that there were no mistakes or areas left blank, and any found were corrected before leaving the area of study. The collected data was stored under lock and key with limited access.

Data Analysis and Presentation

The collected data was first analysed manually by the use of papers and pens and tallying, after which it was presented in tables, graphs, and pie charts generated by Microsoft Excel.

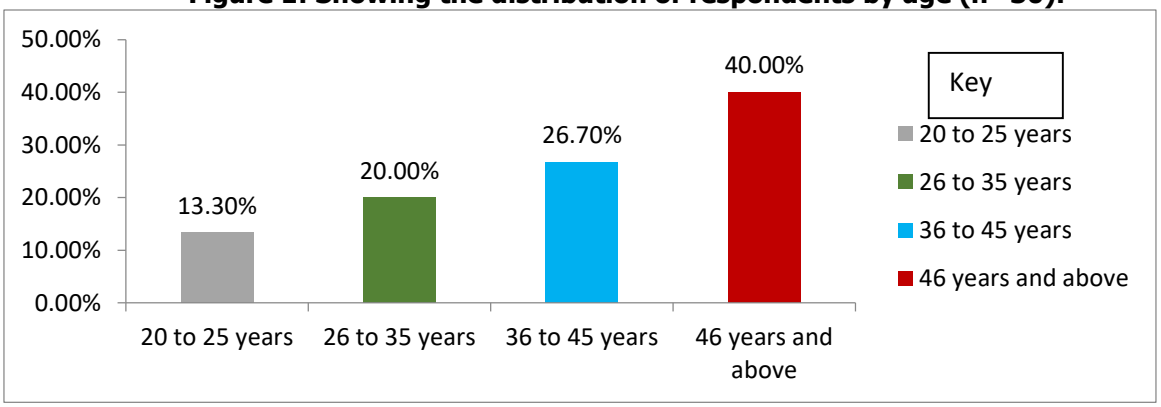
Ethical Considerations

A letter of introduction was obtained from Florence Nightingale School of Nursing and Midwifery, introducing the investigator to the administration of Apac General Hospital and seeking permission to carry out the study. After permission was granted, the medical superintendent introduced the investigator to the in-charge of the Diabetic clinic, who hence introduced the investigator to the respondents. Respondents were assured of maximum confidentiality, and only numbers instead of names were used to identify the respondents. The study only commenced after the objectives of the study had been well explained to participants, and they had consented to participate in the study.

Results

Demographic Characteristics

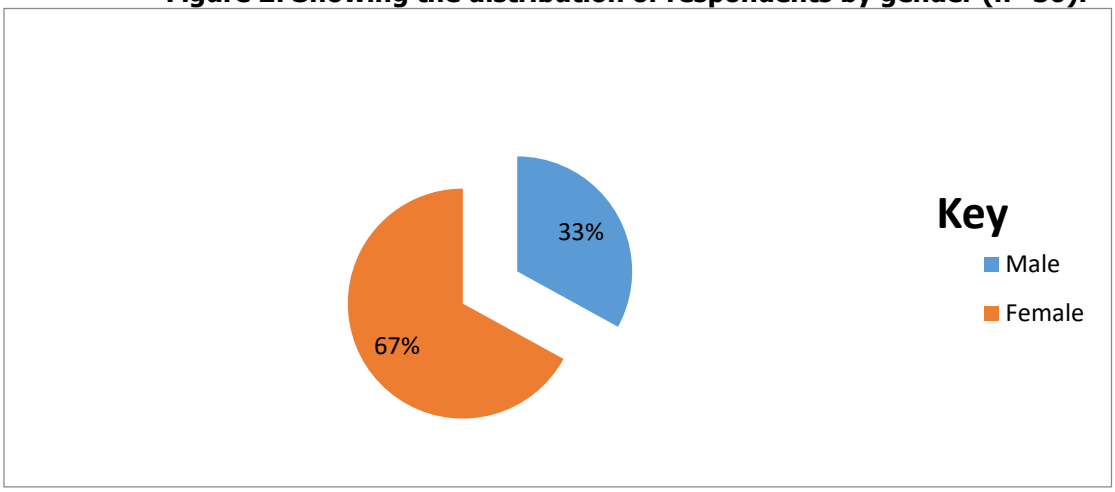
Figure 1: Showing the distribution of respondents by age (n=30).



The majority of the respondents, 12 (40%), were 46 years old, while the youngest were 4 (13.3%), aged 20 – 25 years.

AfroGlobal Perspectives
Vol. 3 No. 4 (2026): April 2026
https://doi.org/10.70572/agp.v3i4.36
Original Article

Figure 2: Showing the distribution of respondents by gender (n=30).



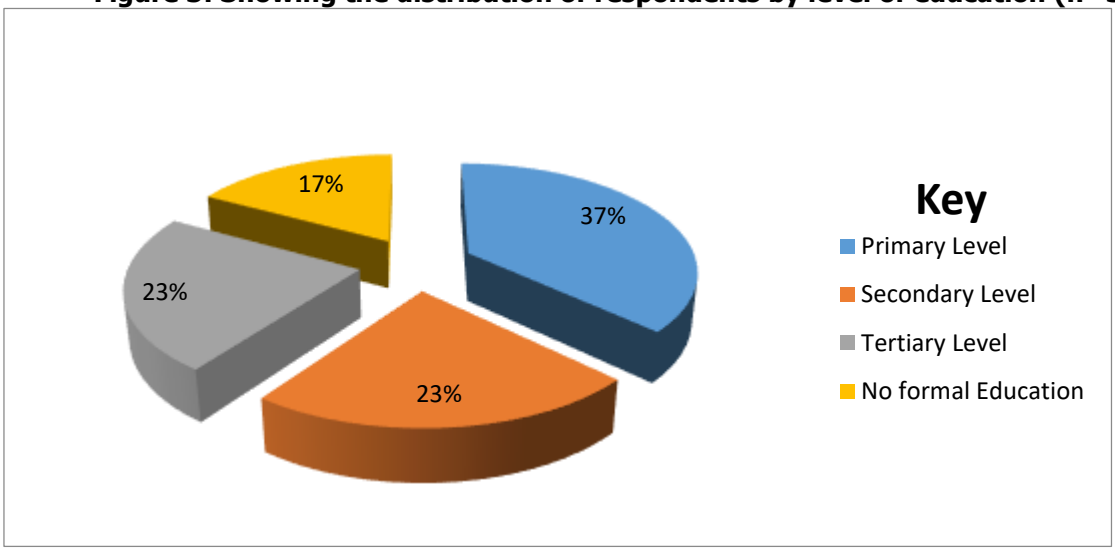
Most 20 (67%) of the respondents were female, while the least 10 (33%) were male.

Table 1: Showing the distribution of respondents by marital status (n=30).

Marital status	Frequency (N)	Percentage (%)
Single	7	23.3
Married	18	60
Divorced	5	16.7
Total	**30**	**100**

The majority, 18 (60%) of the respondents were married, while the least 5 (16.7%) were divorced.

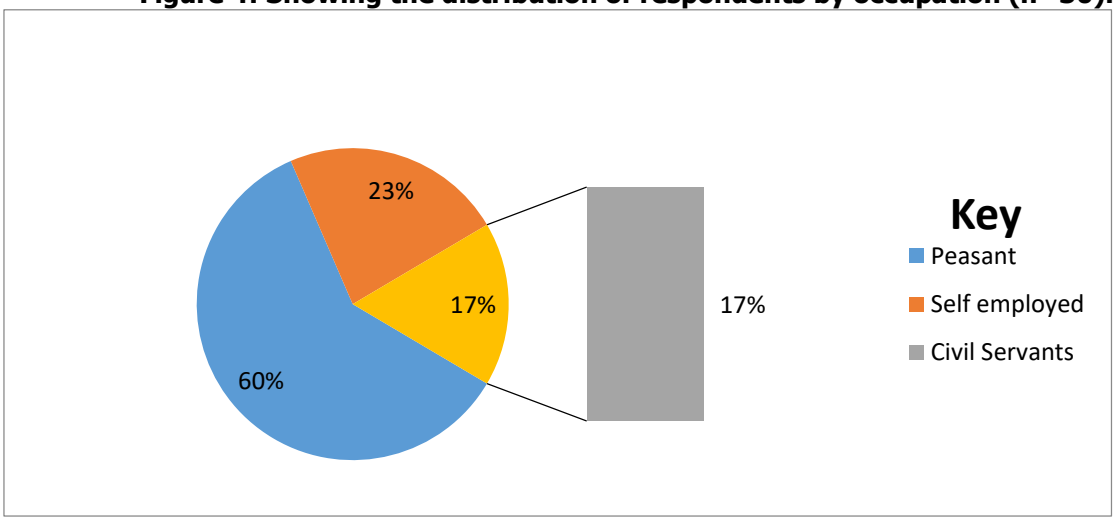
Figure 3: Showing the distribution of respondents by level of education (n=30).



The majority of 11 (37%) respondents attained primary level education, while the least 5 (17%) did not attain formal education.

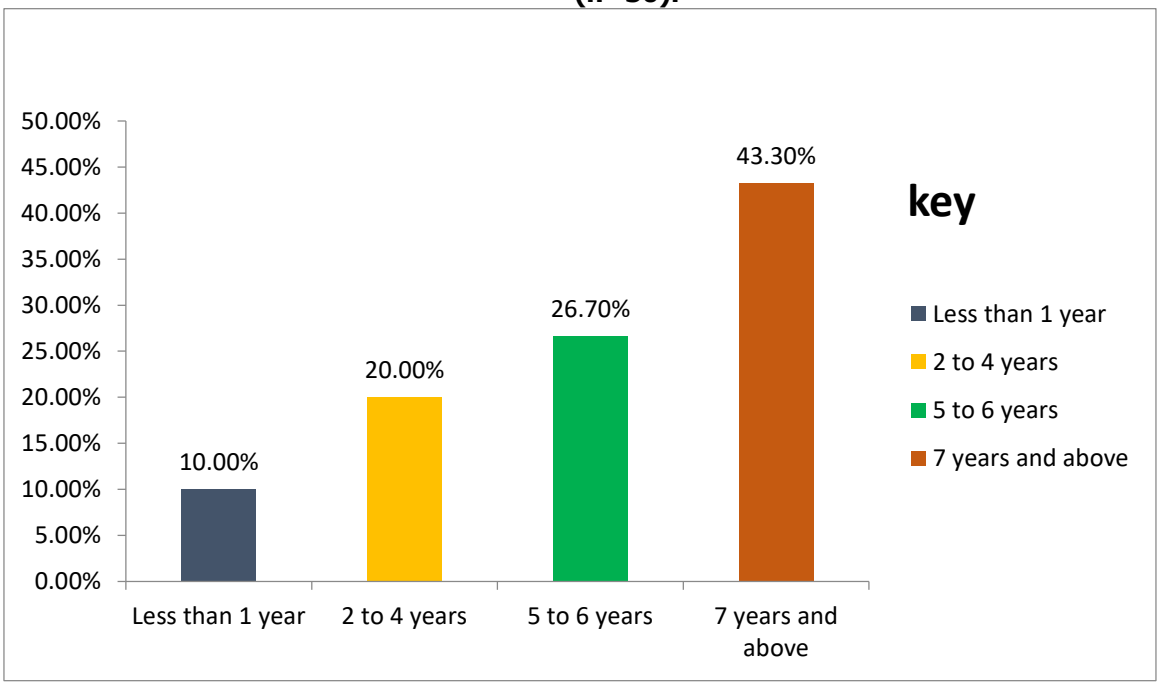
AfroGlobal Perspectives
Vol. 3 No. 4 (2026): April 2026
https://doi.org/10.70572/agp.v3i4.36
Original Article

Figure 4: Showing the distribution of respondents by occupation (n=30).



The majority, 18 (60%) of the respondents were peasants, while the least were 5 (16.7%) were civil servants.

Figure 5: Showing the distribution of respondents by duration of suffering from diabetes (n=30).

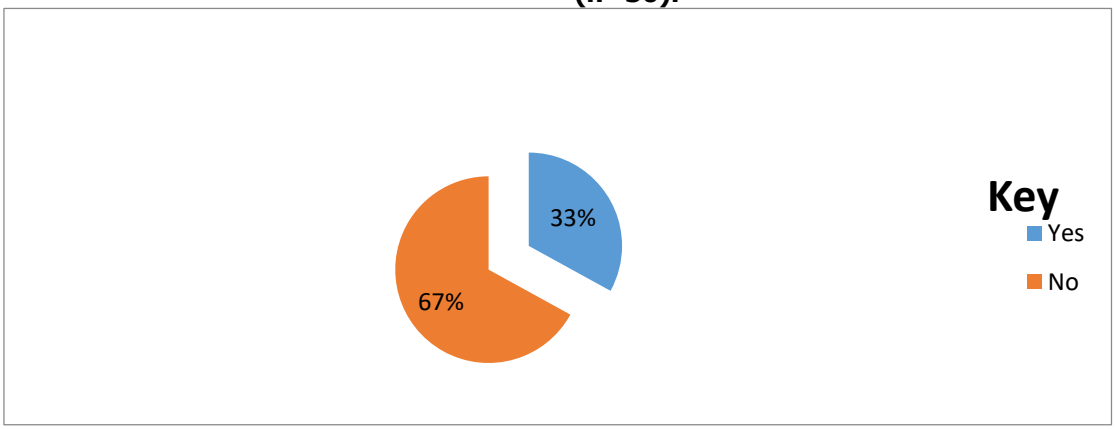


The majority, 13 (43.3%) of the respondents had suffered from diabetes for 7 years or more, while the least 3 (10%) reported less than 1 year.

AfroGlobal Perspectives
Vol. 3 No. 4 (2026): April 2026
https://doi.org/10.70572/agp.v3i4.36
Original Article

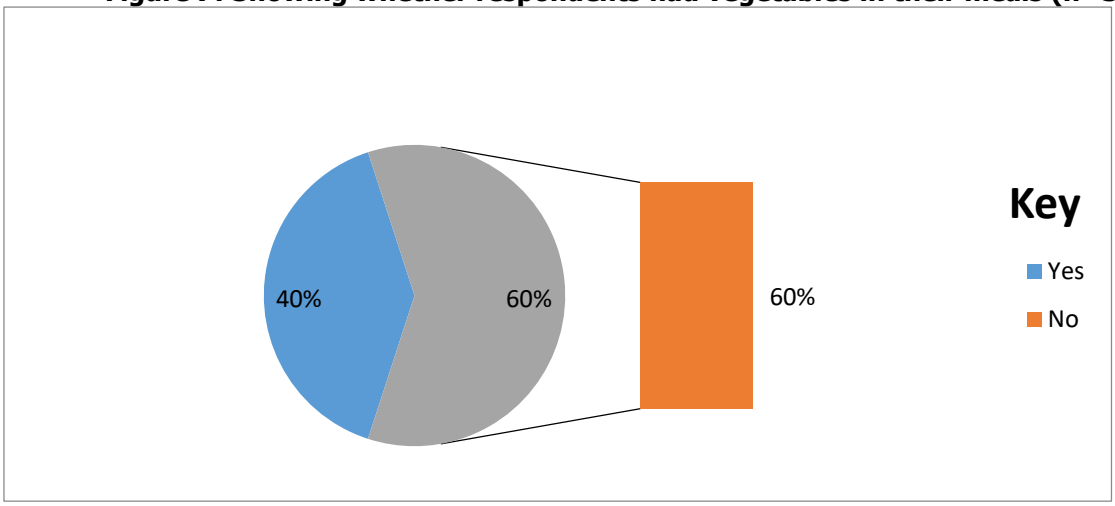
Practices of diabetes mellitus patients attending the diabetic clinic regarding diet recommendations.

Figure 6: Showing whether respondents always followed the diabetic plate as recommended (n=30).



The majority, 20 (67%) of the respondents did not always follow the Diabetic plate as recommended due to lack of support, lack of resources such as money to buy recommended food stuff, while the least 10 (33%) always followed the diabetic plate as recommended and ensured they ate a diabetic diet.

Figure 7: Showing whether respondents had vegetables in their meals (n=30)



The majority, 18 (60%) of the respondents did not always have vegetables in their meals, while the least 12 (40%) had vegetables in their meals in every meal.

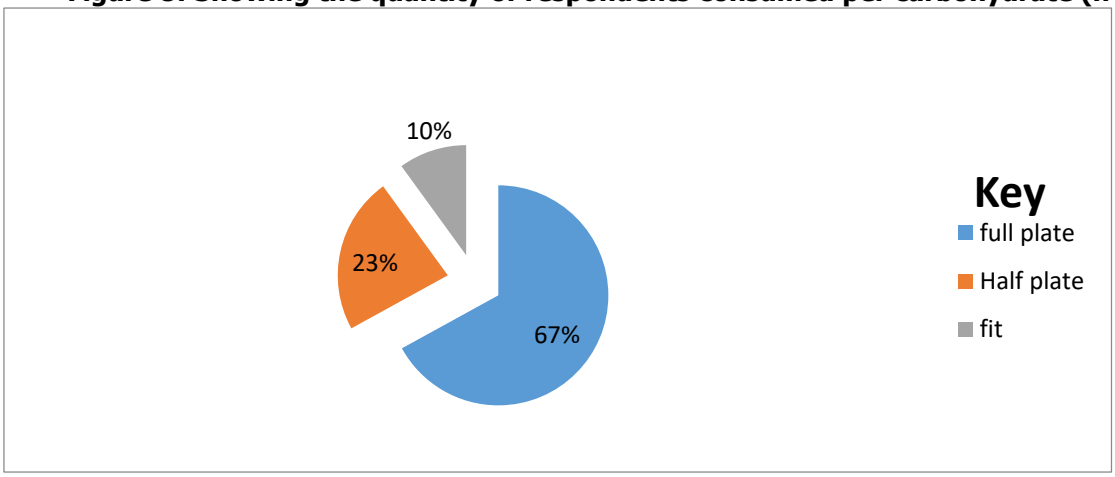
Table 2: Showing the number of carbohydrates respondents had per meal (n=30).

Number of carbohydrates	Frequency	Percentage (%)
One	7	23.3
Two	18	60
Three	5	16.7
Total	**30**	**100**

AfroGlobal Perspectives
Vol. 3 No. 4 (2026): April 2026
https://doi.org/10.70572/agp.v3i4.36
Original Article

The majority, 18 (60%) of the respondents reported having 2 carbohydrates in their meals, while the least, 5 (16.7%) reported having three carbohydrates in their meals.

Figure 8: Showing the quantity of respondents consumed per carbohydrate (n=30).



The majority, 20 (67%) of the respondents reported consuming a full plate per carbohydrate, while the least 3 (10%) reported a fit plate.

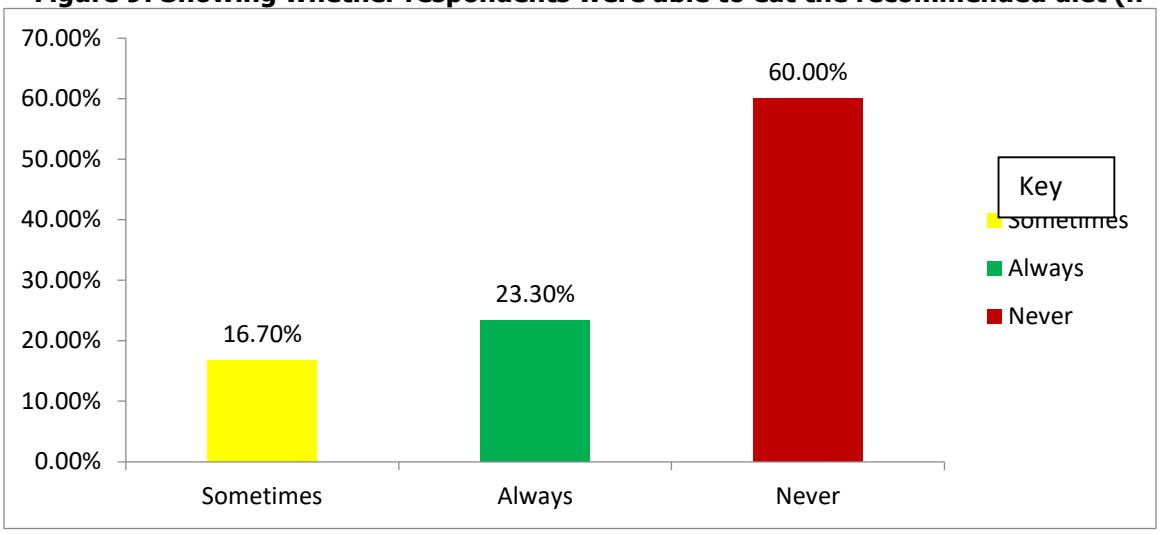
Table 3: Showing the number of proteins respondents had per meal (n=30)

Number of proteins	Frequency	Percentage (%)
One	20	66.7
Two	10	33.3
Total	**30**	**100**

The majority, 20 (66.7%) of the respondents reported having one type of protein per meal, while the least 10 (33.3%) reported having two types of protein per meal.

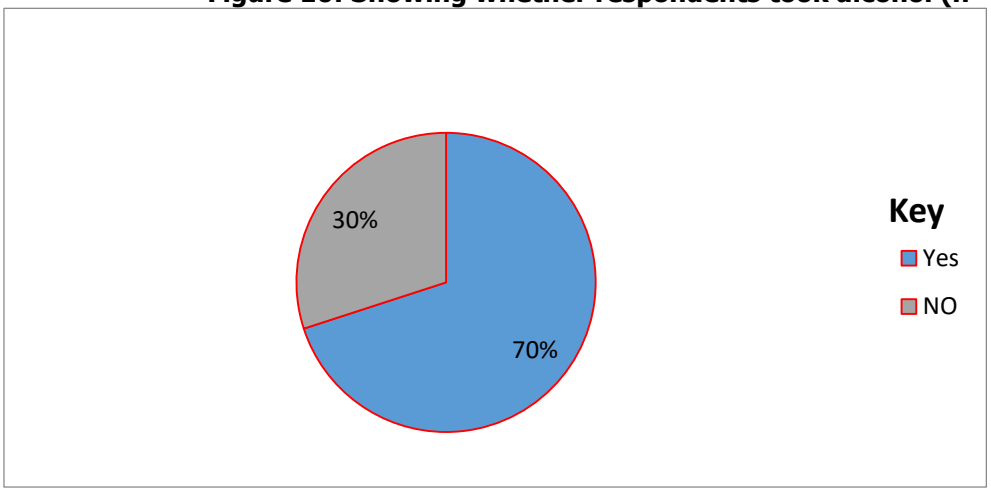
AfroGlobal Perspectives
Vol. 3 No. 4 (2026): April 2026
https://doi.org/10.70572/agp.v3i4.36
Original Article

Figure 9: Showing whether respondents were able to eat the recommended diet (n=30).



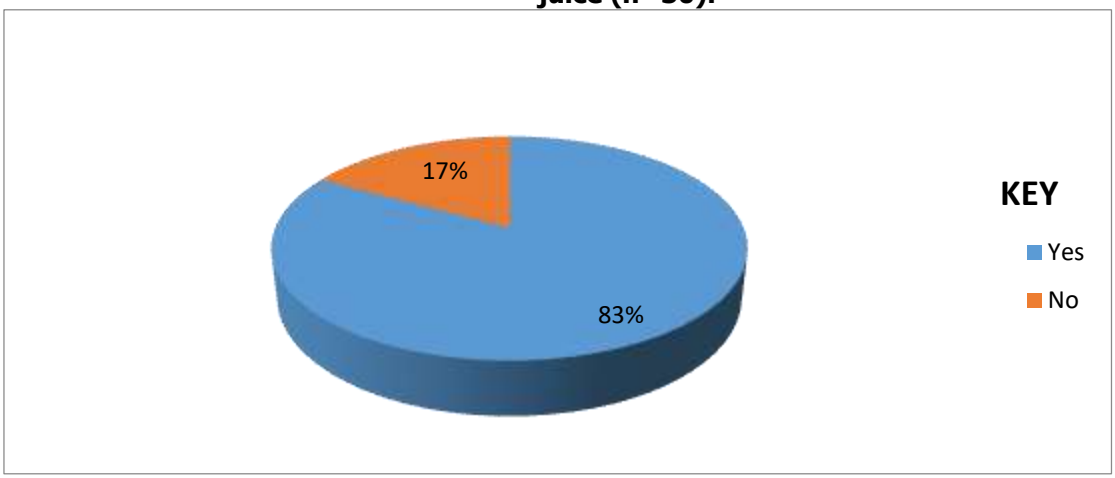
The majority, 18 (60%) of the respondents reported that they were never able to eat the recommended diet, while the least, 5 (16.7%) were sometimes able to eat the recommended diet.

Figure 10: Showing whether respondents took alcohol (n=30).



The majority, 21 (70%) of the respondents took alcohol, while the least 9 (30%) did not take alcohol.

Figure 11: Showing whether respondents took sugar-sweetened beverages like soda and juice (n=30).



The majority, 25 (83%) of the respondents took sugar-sweetened beverages like soda and juice, while the least 5 (17%) did not take sugar-sweetened beverages like soda and juice.

Discussion

Demographic characteristics

A total of 12 (40%) respondents were 46 years and above, followed by 8 (26.7%) who were 36 – 45 years. This demonstrated that diabetes was indeed more common among older people as compared to younger ones.

Most 20 (67%) of the respondents were female, while the least 10 (33%) were male. This was intentionally done to get views on the topic from both genders, as the disease equally affected them both.

The majority, 18 (60%) of the respondents were married, which implied that they would have support from partners to ensure strict adherence to the ideal diet among type II diabetic patients.

Results showed that 11 (37%) respondents attained primary level education, followed by 7 (23%) who attained secondary level. The level of education could influence adherence to the ideal diet for type II diabetic patients, as more educated respondents would understand the importance of adhering to recommended lifestyle modifications as compared to less educated individuals.

The majority, 18 (60%) of the respondents were peasants, followed by 7 (23.3%) who were self-employed. This implied that employment status could affect adherence to recommended lifestyle modifications for various reasons, such as job type and poverty.

Most 13 (43.3%) of the respondents had suffered from diabetes for 7 years or more, followed by 8 (26.7%) who had suffered from diabetes for 5 – 6 years, which implied that respondents would by now know the importance of ensuring adherence to the recommended lifestyle modifications. However, this was not the case in the study, as some were not aware of the modifications, while others did not strictly adhere to the recommendations.

Practices of diabetes mellitus patients attending the diabetic clinic regarding diet recommendations

The majority, 20 (67%) of the respondents did not always follow the Diabetic plate as recommended due to a lack of support, lack of resources, such as money to buy recommended food stuff, that is to say, in any disease management, family support is very important. This study finding was in agreement with a study about the impact of socio-economic factors on the adherence of patients with gestational diabetes mellitus to medical recommendations, which reported that most respondents had poor practices towards adherence to diet recommendations, as most continued regular taking of fast foods as well as sugar-sweetened beverages (Haghdoost, Baneshi, Razzaghi, and Noori, 2019).

Most 18 (60%) of the respondents did not always have vegetables in their meals. This was due to a lack of knowledge and financial capacity. This was in agreement with Tirfie, Tadesse and Woldie (2020), whose study about dietary non-adherence and associated factors among individuals with diabetes who are on treatment follow-up at Felege-Hiwot referral hospital, northwest Ethiopia, noted that respondents had insufficient knowledge and awareness about some lifestyle modifications, such as taking more fibre rich foods, as well as fruits and green vegetables, reducing on carbohydrates intake among others.

The majority, 20 (66.7%) of the respondents reported having one type of protein per meal, while the least 10 (33.3%) reported having two types of protein per meal. This was because they had insufficient knowledge about dietary

recommendations. This study finding was in agreement with Ayele et al (2018), whose study about the level of adherence to dietary recommendations and barriers among type 2 diabetic patients: a cross-sectional study in an Ethiopian hospital reported that the majority of respondents had poor practices towards adherence to dietary recommendations, which highly increased their risk of diabetes complications.
Most 18 (60%) of the respondents reported that they were never able to eat the recommended diet for type II diabetes patients, followed by 7 (23.3%) who were always able to eat the recommended diet. This was due to financial incapacity. This study finding was in agreement with another study by Olaolorunpo et al (2018), whose study about the effect of health literacy on medication adherence among diabetic patients reported that the majority of respondents had poor practices towards adherence to the recommended diet, as a significant number reported that they regularly included meat in their diet, which was not recommended.
The majority, 21 (70%) of the respondents, took alcohol. This was because Diabetes is a chronic disease, and one is tempted to take alcohol to relieve stress, yet it worsens the condition. This study finding was in agreement with Van den Berg, Mokhehle and Raubenheimer (2019) study about nutritional status, glycaemic control and barriers to treatment compliance among patients with type 2 diabetes attending public primary health clinics in Maseru, Lesotho reported that majority of respondents had poor practices towards adherence to the recommended diet recommendation as majority of respondents took alcohol while a significant did not ensure that they lived active lifestyles or carried out physical exercise on a daily basis.
A majority of 25 (83%) of the respondents took sugar-sweetened beverages like soda and juice. This was a poor practice and a bad attitude despite knowledge of diet recommendations. This was in agreement with a study about the impact of socio-economic factors on the adherence of patients with gestational diabetes mellitus to medical recommendations, which reported that most respondents had poor practices towards adherence to diet recommendations, as most continued regular taking of fast foods as well as sugar-sweetened beverages (Haghdoost, Baneshi, Razzaghi, and Noori, 2019).

Conclusion

Findings revealed that respondents had poor practices towards diet recommendations, and most did not always follow the diabetic plate as recommended.

Recommendation

The Ministry of Health should improve its nationwide sensitisation programs for diabetic patients, as well as what could be done to effectively manage this disease.
Diabetic patients must ensure that they access adequate health education about how to effectively manage this disease, including the recommended lifestyle changes.
There is a need for diabetic patients to engage in some form of physical activity in order to avoid living sedentary lifestyles, ensure regular checking of BP, among many others.

Implications for Nursing Practice

Health workers at Apac General Hospital can play an important role in improving diabetic patients' diet. This can be done through regular sensitisation and health education about the recommended diet, as well as other lifestyle changes necessary to effectively manage this disease and prevent any potential complications.

Acknowledgement

A project of this size cannot be completed by one person alone; many kind individuals must provide support and guidance while the student is in school.
Glory is to the All-Powerful God for His mercy and abundant life. A special thank you to my Supervisor, Mr Omara Tonny Mike, for his diligent effort and helpful critique throughout my study assignment. He provided me with feedback, critiques, and writing guidelines for my work. I am grateful for his expert guidance, which helped me make sense of this study.
I owe a debt of gratitude to my parents and the entire family for their moral, spiritual, and financial support during my academic career.
Special thanks go to the nursing school staff, like Mr Ronald Awoi and Mr Lamex, for the constant support rendered to me right from proposal writing up to report dissemination, Miss Deborah Amongi, and Mrs Abeja Agnes Opio for supporting me with their computers, which made it possible on my side to accomplish this study.
Lastly, I would want to express my gratitude to my fellow students, especially Esther, Belbore, Margret, Florence, among others, who assisted me during the course of my studies.

List of abbreviations

AIDS: Acquired Immune Deficiency Syndrome
HIV: Human Immunodeficiency Virus
IDF: International Diabetes Federation's
WHO: World Health Organisation

Source of funding

The study was not funded.

Conflict of interest

The author declares that there was no conflict of interest.

Author contributions

FA- Developed and investigated the study.
TMO- Supervised the study.
RA- Supervised the study.
DO- Supervised the study.

Data availability

Data is available upon request.

Informed consent

Written informed consent was obtained from all participants prior to their inclusion in the study. Participants were informed about the purpose of the study, procedures involved, potential risks and benefits, and their right to withdraw at any time without penalty.

Author biography

Faridah Atoo is a student at Florence Nightingale School of Nursing and Midwifery, pursuing a diploma in nursing.
Tonny Mike Omara is a tutor and research supervisor at Florence Nightingale School of Nursing and Midwifery.
Ronald Awoi is a research supervisor affiliated with the Florence Nightingale School of Nursing and Midwifery.
Denis Obong is a research supervisor at Florence Nightingale School of Nursing and Midwifery.

References

1. Ayele, A.A., Emiru, Y.K., Tiruneh, S.A., Ayele, B.A., Gebremariam, A.D. & Tegegn, H.G. (2018). Level of adherence to dietary recommendations and barriers among type 2 diabetic patients: a cross-sectional study in an Ethiopian hospital. *Clinical diabetes and endocrinology.* 8; 4(1):7.
2. Bishu, K.G., Jenkins, C. &Yebyo, H.G. (2019). Diabetes in Ethiopia: a systematic review of prevalence, risk factors, complications, and cost. *Obes Med.* 15:100132. doi:10.1016/j.obmed.201 9.100132.
3. Cochran, W. G. (1963). *Sampling Techniques* (2nd ed.). New York: John Wiley & Sons.
4. Chilot, K., Mekonnen, Yohannes, M.F., Hailemichael, K. & Abate, P. (2021). Determinants of Dietary Adherence Among Type 2 Diabetes Patients Aimed COVID-19 at the University of Gondar Comprehensive Specialised Hospital. Diabetes, Metabolic Syndrome and Obesity: *Targets and Therapy* 2021:14 917–927. https://doi.org/10.2147/DMSO.S297582
5. Haghdoost, A.A., Baneshi, M.R., Razzaghi, A. &Noori, A. (2019). The impact of socio-Economic factors on the adherence of patients with gestational diabetes mellitus to medical recommendations. *Iran J Public Health.* (2019) 48:1690– 6.
6. Mbanya, J.C. &Sobngwi, E. (2018). Diabetes microvascular and macrovascular disease in Africa. *J Cardiovasc Risk;* 10: 97–102.
7. Mohammed, A., Nigussie, T. &Sharew, K. (2019). Adherence to dietary recommendations and Associated factors among diabetic patients in Ethiopian teaching hospitals. *The Pan African Medical Journal*. 33:260.
8. Nambuya, A.P., Otim, M.A., Whitehead, H., Mulvany, D., Kennedy, R. &Hadden, D.R. (2019). The presentation of newly-diagnosed diabetic patients in Uganda. Q J Med; 89: 705–711.
9. Olaolorunpo, O., Ngozi, M.C. &Idenyi, A. (2018). Effect of health literacy on medication adherence among diabetic patients. *Int J Med Health Sci.* (2018) 7:130–3.
10. Ruiz-Roso, M.B., Knott-Torcal, C. & Matilla-Escalante, D.C. (2020). COVID-19 lockdown: Changes in dietary pattern and physical activity habits in a cohort of patients with type 2 diabetes mellitus. *Nutrients.* 12 (8):2327. https://doi.org/10.3390/nu12082327
11. Tirfie, M., Tadesse, S. &Woldie, H. (2020). Dietary non-adherence and associated factors among individuals with diabetes who are on treatment follow-up at Felege-Hiwot referral hospital, northwest Ethiopia. *Heliyon.* 6(8):e04544. https://doi.org/10.1016/j.heliyon.2020.e04544
12. Van den Berg, L., Mokhehle, M. &Raubenheimer, J. (2019). Nutritional status, glycaemic
Control and barriers to treatment compliance among patients with type 2 diabetes attending public primary health clinics in Maseru, Lesotho. *Journal of Endocrinology, Metabolism and Diabetes of South Africa.* 24(3):13.

AfroGlobal Perspectives
Vol. 3 No. 4 (2026): April 2026
https://doi.org/10.70572/agp.v3i4.36
Original Article

PUBLISHER DETAILS

AfroGlobal Press

AfroGlobal Press
Amplifying Voices Worldwide

Contact: +256 763 123 847
Email: afroglobalpress@gmail.com
Website: https://afroglobalpress.com
Address: Scholar's Summit, Nakigalala, East Africa