SOCIAL ECONOMICS DETERMINANTS AND DIETARY RECOMMENDATIONS ADHERENCE IN TYPE 2 DIABETES PATIENTS IN NYAHURURU KENYA

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ABSTRACT

Background/Aim: Type 2 Diabetes is among the biggest contributors of deaths and morbidity worldwide. It's also increasing steadily, and if not controlled, it will soon became an epidemic due to an increase in the ageing population and the number of obesity cases worldwide. This aggravates the existing burden on health systems especially in developing nations. Screening and diagnosis are based on clinical guidelines that encompass both clinical and laboratory parameters. There is presently no cure for the disease; however, adherence to dietary recommendations as advised by health care workers has proven to be a game changer in its management. Hence, the current study sets to find out the Social Economics Determinants and Dietary Recommendations Adherence in Type 2 Diabetes Patients in Nyahururu Kenya.

Methods: The study adopted a cross sectional analytical design using the Perceived Dietary Adherence Questionnaire to collect information on the socioeconomic characteristics of the diabetic patients and their adherence to the recommended diet. More information was obtained through Focus Group Discussions (FGDs) and Key Informant interview. Systematic random sampling was applied in choosing the 152 participants who attend to the diabetic clinic. Blood glucose level was used in order to determine if the patient has adhered to dietary recommendation.

Results: The study results revealed the social economic determinants and dietary recommendations adherence in type 2 Diabetes in Nyahururu Kenya. There existed a statistically important association between gender, income, level of education and marital status and the diabetic patients' adherence to dietary recommendations at α=0.05. On the other hand, age was not found to have significant influence on the participants' adherence to dietary recommendations at α=0.05. The study also found out that (39.7%) of the patients did not adhere to the recommended diabetic diet.

Conclusion: The patients' gender, marital status, income and education influenced the level of adherence to dietary recommendation among the diabetics' patients attending diabetic clinic at Nyahururu level 4 Hospital. Age was found

to have insignificant influence on the participants' adherence to dietary recommendations at α=0.05.There is also a direct relationship between the nutrition status of the type 2 diabetic patients and their adherence to their recommended diet as reflected by the BMI, Dietary choices and their blood glucose levels.

Keywords: Type 2 Diabetes, Adherence, Dietary Recommendation, Social Economic, Determinants

INTRODUCTION

Type 2 Diabetes is a Non-Communicable Disease (NCD) that has been on the rise all over the world becoming a major public health concern. Chronic hyperglycemia and defects in macro-nutrients metabolism either due to insufficient insulin secretion, action or both are the hallmarks of the disease. Uncontrolled hyperglycemia results into neuropathy, cardiovascular disease, nephropathy, retinopathy, hyperosmolar and foot complications that might lead to amputations [1]. Dietary management has a significant part in the disease management. Nutritionists and dietitians offer patients dietary advice, taking into consideration patient's preferences and cultural practices, to achieve this goal [2].

Dietary management plays a significant role in diabetes care. Recommended dietary regimen emphasizes minimal fat intake, less sodium, more fiber and food with health promoting properties like fruits and vegetables. Fish and soy products are also highly recommended. The aim is to try at all costs to maintain normal blood glucose. If left untreated, diabetes could lead to kidney failure, blindness, lower limb amputation, and cardiovascular diseases. Disorders and complications caused by diabetes can have adverse physical, mental, and economic impact on families and the society at large. This makes it important for all concerned stakeholders to seek preventive and control measures to control the disease. Dietary management and lifestyle modifications are critical in keeping this disease at bay [3].

Globally, cases of diabetes have been increasing rapidly [4]. In the last 25 years, the number of diabetics has quadrupled, from 108 million to 442 million [5]. The global burden of diabetes in 2019 was 463 million adults representing 9.3% of the people aged 20 to 79 years. It is projected that by 2030, global burden of diabetes may hit 578 million people and 700 million people in 2045. Diabetes is the fourth contributor of all mortalities [6].

Majority of diabetics are found in the developing countries. The regional prevalence rate in Africa is 3.9%, which translates to about 19 million people. The national prevalence rate is 12.8% in South Africa, 3.2% in Ethiopia, 4.8% in Democratic Republic of Congo and 3% in Nigeria [7]. In 2019, 366,200 deaths in Africa were attributed to diabetes - representing 6.8% of all-cause mortality. According to Bekele et al. [8], lifestyle changes, population, and epidemiology transition are the leading factors responsible for the thrust of cases of diabetes in Africa.

According to IDF [9], Kenya has a total adult population of 25,587,600 and its diabetes prevalence in adults is 3.3%. The Ministry of Health (MOH) put the prevalence of diabetes mellitus figures at 2.7% for rural population and 10.7% for people in urban areas. About 3.3% of the citizenry is affected and a further 7% is un-diagnosed [10]. Kenya has undergone demographic transition. The population has grown from 23 million in 1990 to 48 million in 2019. Life

expectancy has also improved from 58 years in 1990 to 66.4 years in 2019. Urban population which was 16.8% in 1990 has grown to 27.5% in 2019[11]

Musee, Omondi and Odiwuor [12] observed that the prevalence of Type 2 diabetes and associated complications are on the rise in Kenya. They noted that adherence to dietary recommendations is critical in management of Type 2 diabetes. Adherence is, however, low despite patients understanding its importance. In a study conducted within clinical setting in Kenya, Musee et al [13] established that only 22.3% of patients had 100% adherence to diet recommendations. Majority of the patients (79%) only managed to achieve 80% diet recommendations adherence level. Jepkemoi et al [14] also found 80% diet adherence level among patients in a leading referral hospital in Kenya.

The burden of Diabetes Type 2 has increased and not only affected government health expenditure but also has adversely affected socioeconomic wellbeing of the patients and their families. Kipkalom[15] established that in duration of six months, diabetic patient incurred an average of KSh28, 433. In one year, this amount will be approximately KSh56, 866. The largest part of this spending (57%) is attributed to indirect costs that a diabetes patient in Kenya has to incur while 43% is for direct costs. Kipkalom[15] further observed that disability and premature mortality associated with diabetes accounted for 805/1000 Disability Adjusted Life Years (DALY)

METHODOLOGY

This study employed cross-sectional study design. According to Mugenda [16], cross-sectional studies aid researchers in determining if substantial connections between factors existed at any specific moment in time. This study was a hospital based cross-sectional analytical study conducted at Nyahururu County Referral Hospital.

Study area

 Nyahururu is a major agricultural town in Kenya that lies north east of Nakuru. It was previously the administrative capital of Nyandarua County, with the current headquarters of Nyandarau county being Olkalau. It is one of the bread basket regions in Kenya, especially for maize and potatoes, which are carbohydrate rich foods.

Target Population

As defined by Mutz and Pemantle [16], the target population is the complete group of people, events, or things that the researcher intends to observe. The study population comprised of Type 2 diabetes mellitus (T2DM) patients who attended clinic at Nyahururu County Referral hospital to be included in the study. The prevalence of T2DM in Nyandarua County was 10.8% which was higher compared to the country's prevalence at 3.3% [17]. This raises a concern on the management of T2DM by diabetic clients in Nyandarua County. Nyahururu County Referral Hospital is the biggest public facility in the County

Inclusion criteria

Adult patients with type 2 diabetes who attended the diabetic clinic at Nyahururu County Referral Hospital for at least 6 months were interviewed.

Exclusion criteria

The study excluded patients below 18 years, gestational diabetics, and those who attended the diabetic clinic for less than 6 months

Sample Size Determination

This was calculated using Fisher's formula. The calculated sample size is 138 patients. To cater for the non-responsive participants, ten percent of the sample size was added [17] to constitute a sample of 152 respondents.

Sampling Technique

The research used purposive sampling technique to select county and hospital from whose participants were selected. The hospital was purposively selected because of its number of diabetic patients and no study has been done targeting this hospital on adherence to diabetic diet recommendations. The research used systematic random sampling to pick the participants until the desired sample size is achieved. The researcher used purposive sampling to pick the key informants that included 3 nutritionists, 4 doctors, 6 nurses and 2 pharmacists, totaling to 15.

Data Collection Instrument

The study adopted Perceived Dietary Adherence Questionnaire (PDAQ), which has been used in similar studies such as Mahmmoed et al., [18] and Ayele et al. [19]. The Questionnaire has three sections. The first section collected data on socio-demographic characteristics of the study participants, section two gathered information on Dietary Adherence of the participants while section three collected data on the level of awareness (captured as dietary education) influencing adherence to the recommended diet and controlled blood glucose levels. The adherence was assessed using the British system of dietary adherence which estimates the mean calories for mature females to be (8400kilojoules) or 2000 calories daily while mature males should have (10500kilojoules) or 2500 calories daily for optimum energy levels.

Focused Group Discussions (FGDs) was used among the diabetes patients to collect qualitative data. The data was used to beef up the quantitative data and bring out any emerging theme. Five FGDs each with a maximum of 10 respondents were conducted. Participants of each FGD had similar characteristics in terms of gender, age, socio-economic status, education and religion. Several questions we posed to these mothers, where they were given ample time to discuss. The responses were both tape recorded and written down by a rapporteur

Data collection procedure

The Perceived Dietary Adherence Questionnaire was used. The interviewer introduced him/herself to the participant, and having obtained an informed consent, he/she guided the respondents in filling the Questionnaire. Systematic random sampling was used until the desired number of respondents is attained. For the key informants, purposive sampling was used. Two research assistants who at least had a diploma in Nutrition and Dietetics were recruited and trained on soft interviewing skills and collection of data based on the study's objectives. Data on socio demographic

characteristics was collected using the questionnaire while nutrition status and blood glucose was collected from the patients clinical and laboratory results

Data Analysis

Questionnaires were checked for any errors and completeness after the interview. The hard copy forms were kept under and lock and key. The completed questionnaires were entered into SPSS software Version 24, and the same software used for data cleaning and analysis. Upon completion of data entry, the hard copy forms were compared to the soft copy to ensure accuracy. Descriptive statistics were reported for all of the collected variables. Categorical variables were summarized using frequencies and proportions. Inferential analysis was carried out to compare adherence to dietary recommendations in the management of Type 2 diabetes regarding sociodemographic characteristics and other independent factors. The study used ANOVA to test association between variables. Data from FGDs was transcribed, coded and common themes established

Ethical Consideration

This was obtained from the Ethical Review Committee of Kenyatta University. In addition, the researcher applied for a permit from the National Commission for Science, Technology and Innovation (NACOSTI). Consent to conduct the research also sought from the management of Nyahururu County Referral Hospital. Further informed consent was obtained from the respondents before the interviews are conducted. During this study ethical concerns were considered. The researcher observed privacy, full disclosure, anonymity cultural consideration, and confidentiality of the participants. There was no coercion to participate in the study. A written consent from the participants was also required that they have agreed to participate in the study. The participants were also free to withdraw from the study if they felt uncomfortable Regarding confidentiality, the research used coded number instead of using survivors' names [20]

Limitations of the Study

Data was collected through a cross sectional study that is only limited to that particular duration Moreover, the questionnaires was filled on the recollection memory of the respondent.

Results

Response Rate

The sample size of this study was 152 patients. From the 152 questionnaires that were filled, 141 questionnaires returned were satisfactorily filled giving a response rate of 92.16%, which exceeds 50% of the response rate, hence, adequate to draw conclusions [21]

Non- response
7.84%

Response
92.16%
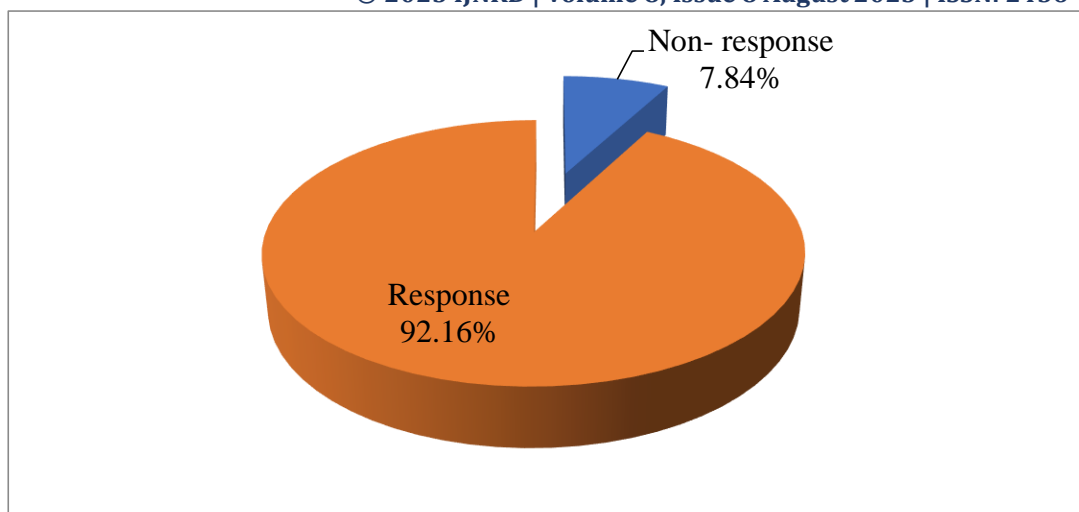
Reliability test

The study used Cronbach's alpha in examining the reliability of the questionnaire and an alpha value of 0.778 was obtained, indicating high internal consistency. Thus, the tool was reliable for this study.

Social-demographic Information

The study relied on primary data, which was collected from diabetic patients among patients attending the Clinic at Nyahururu County Referral Hospital. Questionnaires were used to target diabetic patients among patients. The demographic information included gender, age, education, marital status and the income. Most of the participants were male (51.1%) and female (48.9%). Most of the respondents were aged between 41 and 60 years (34.8%). Majority of the participants earned an incomebetween Kshs. 20,001 and 40,000. Most of respondents had attained a secondary certificate (48.9%). This implies that majority of the respondents had basic education. Regarding the occupation, most of the respondents were farmers at the time of the study.

Table 4. 3: Demographic information among diabetic patients attending the Clinic at Nyahururu County Referral Hospital

		N=141	%
Gender	Male	69	48.9
	Female	72	51.1
Age	0-20	20	14.2
	21-40	48	34.0
	41-60	49	34.8
	60-80	24	17.0
Marital status	Married	52	36.9
	Single	54	38.3

	Divorced	20	14.2
	Widowed	15	10.6
Levels of income	Below 20,000	67	47.5
	20,001-40,000	69	48.9
	40,001-60,000	5	3.5
Education levels	Primary and below	60	42.6
	Secondary Level	69	48.9
	Tertiary Level	12	8.5
Occupation	Farmer	108	76.6
	Business	23	16.3
	Teacher	8	5.7
	Accountant/Banker	2	1.4

The study found the average household size represented by the respondents was 2.65 persons per household; the smallest household had one member and the largest householdhad up to 6 members.

Dietary practices among patients attending diabetic clinic at Nyahururu level 4Hospital

The dietary recommendation was assessed on basis of energy uptake in the last 24 hours among the diabetic patients. The study assessed the energy uptake levels at 2200 for males and 2100 Recommended Dietary Allowance (RDA). The time at which the information concerning dietary adherence was acquired did not matter since dietary adherence was evaluated 24 hours prior the study period.

Number of Meals per Day and Dietary Diversity Score among Patients

The study found the majority (61.7%) of the respondents consumed three meals in a day with an average number of meals per day being 3.7 ± 0.94.

Table 4. 1: Number of meals per day and dietary diversity score among patients

		N=141	%
Number of meals per day	2	6	4.3
	3	87	61.7
	4	25	17.7
	5	14	9.9
	6	9	6.4

Energy intake among diabetic patients attending Nyahururu level 4 hospital

The study analysed energy intake on daily basis and found most males had energy intakeof above 2200(87.0%). Equally, 80.6% reported energy intake of above 2100 per day.The mean energy intake per day was 2291.4±125.6 kcal for men and 2193.7±164.3 kcalfor female.

Energy intake among diabetic patients attending Nyahururu level 4 hospital

	RDA (kcals/day)		n	%
Male	2200	<2200	9	13.0
		>2200	60	87.0
	Total		**69**	**100**
Female	2100	<2100	14	19.4
		>2100	58	80.6
	Total		**72**	**100**

Frequency of food consumption

The study further found that in seven days' prior the study, most people (23.8%) followeda healthful eating plan for 4 days, 21.3% for two days, 16.4% for three days and 14.8% for 14.8%
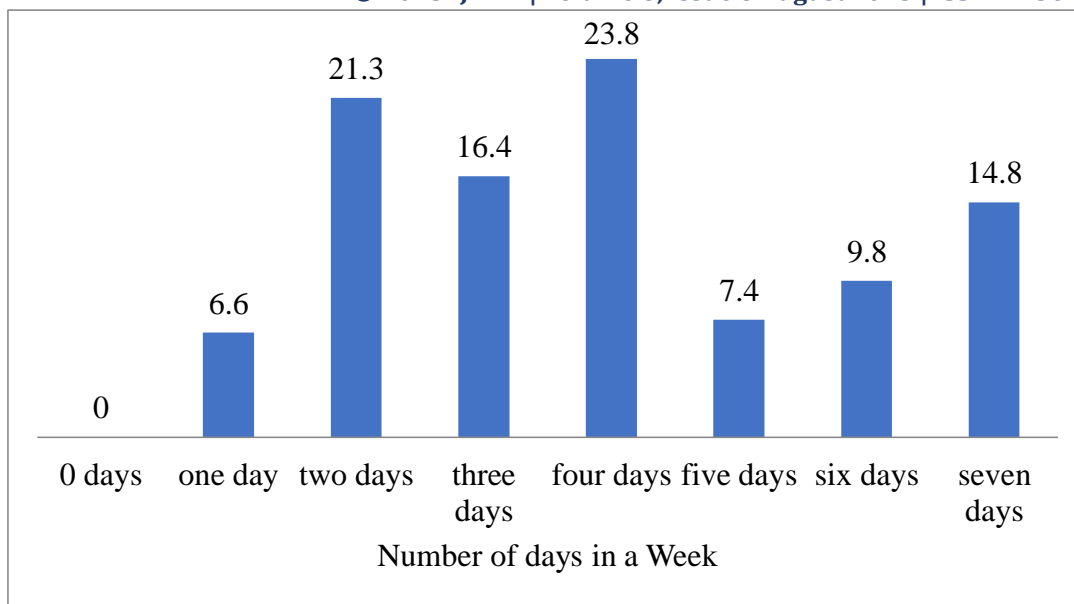
Figure 4.1: Frequency healthy eating plan among the participants

On average, participants ate fruit and vegetables for an average of 3 days in every 7 days (21.3%). Regarding eating of carbohydrate-containing foods with a low Glycemic Index, participants took carbohydrate- containing foods with a low Glycemic Index on average of 5 days in a week with trend implying higher numbers as opposed to lower numbers. Participants took carbohydrate rich food such as rice and potatoes. Majority of the respondents consumed foods with high sugar in all 7 days of weeks (75%)

Table 4. 2a: Frequency of consumption

Food type		n	%
Fruits and Vegetables	1	14	9.9
	2	25	17.7
	3	30	21.3
	4	26	18.4
	5	13	9.2
	6	14	9.9
	7	19	13.5
Carbohydrate-containing foods with a low Glycemic Index	0	4	2.8
	2	20	14.2
	3	13	9.2
	4	11	7.8
	5	40	28.4
	6	26	18.4
	7	27	19.1

Foods high in sugar	1	2	1.4
	2	7	5
	3	14	9.9
	4	3	2.1
	5	6	4.3
	6	3	2.1
	7	106	75.2

The study further found most participants eat foods high in fibre such as oatmeal, high fibre cereals, and whole-grain bread for 5 days (22.7%) in seven days' prior the study period. The study also analysed the consumption of fish or other foods high in omega-3 fats and found one-week prior the study period, majority had not consumed fish or other foods high in omega-3 fats. Foods that contained or were prepared with canola, walnut, olive, or flax oils were consumed on average of 7 days by 82.3% of the respondents. Finally, the study analysed consumption of food high in fat and food most respondents consumed only 1 day (26.2%) for the seven days prior the study period.

Table 4.7b: Frequency of consumption

Food type	Days in week	n	%
Foods high in fibre	0	9	6.4
	1	17	12.1
	2	21	14.9
	3	19	13.5
	4	22	15.6
	5	32	22.7
	6	12	8.5
	7	9	6.4
Fish or other foods high in omega-3 fats	0	88	62.4
	1	20	14.2
	2	22	15.6
	3	3	2.1
	7	8	5.7
Food prepared with canola	0	14	9.9
	1	2	1.4

	5	2	1.4
	6	7	5
	7	116	82.3
	0	13	9.2
Food with fats	1	37	26.2
	2	18	12.8
	3	28	19.9
	4	15	10.6
	5	11	7.8
	6	7	5
	7	12	8.5

The study also found out that the participants spaced carbohydrates evenlythroughout the day for an average of 1 day every week (39.7%
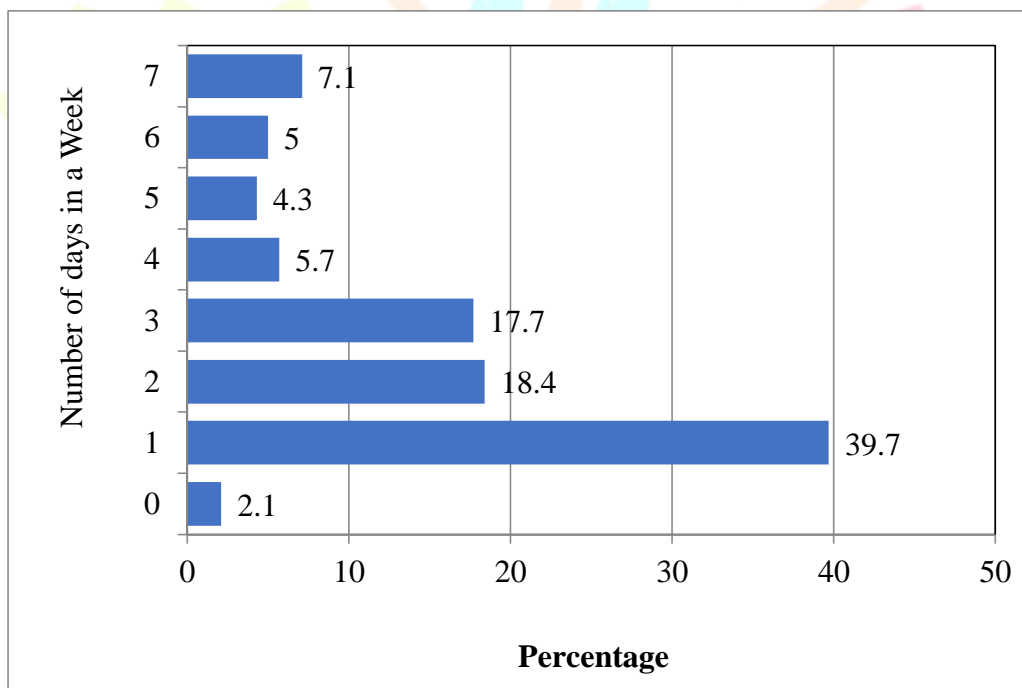

Figure 4. 2: Days consumed spaced carbohydrates evenly throughout the day

The dietary practice noted from individual respondents was also confirmed by the FGDs. *We consume the foods prescribed. There are several alternatives on the foods recommended and thus it is easy to consume what is available (FGD, 2021).*

Blood glucose levels

The study also analysed the glucose using three categories (low, Normal, and High) and found out that (91.5%) had a fasting blood sugar of 18.5mmol/L or higher glucose levels at the time of this study. This implies possibilities that majority of the respondents did not adhere to diabetes dietary recommendations

Table 4. 10: Glucose levels

		N=141	%
Glucose category	Low (<4.5)	3	2.1
	Normal (4.5-7.0)	9	6.4
	High (>7.0)	129	91.5
	Total	141	100

The study further found an average number of meals per day was 3.7±0.94. It was observed that 61.7% took 3 diverse meals per day while 17.7% took at least 4 diverse meals per day. The study found the average level of fasting blood sugar levels among diabetic patients attending the Clinic at Nyahururu County Referral Hospital was 12.278 mmoI/L. The minimum recorded value of sugar level was 4 mmoI/L and maximum of 28mmoI/L with standard deviation of 5.529 which implies high variations in the responses.

Nutrition status of the patients

Pharmacological intervention is not enough without weight reduction .Further analysis of the BMI's of the respondents using three categories ranging from below 18.5 to above 30 was done .Most of the respondents had a normal BMI ranging from 18.5- 24.9(55.3%) while 35.5% had an overweight BMI that was above 25.0. Only (9.2%) of the respondents were underweight (Table 4.8). The respondents recorded an average BMI of 23.773, minimum of 16 and a maximum of 32.74

BMI categories

		N=141	%
BMI category	Underweight <18.5	13	9.2
	Normal(18.5-24.9)	78	55.3
	Overweight(25.0 and above)	40	35.5
	Total	141	100

Adherence to Dietary Recommendations

The study assessed the adherence to dietary recommendations. This is with an intention to determine to what extent the respondents adhered to the recommended diets. Majority(60.3%) of the diabetic patients alleged that they adhered to the recommended diabetic diet.
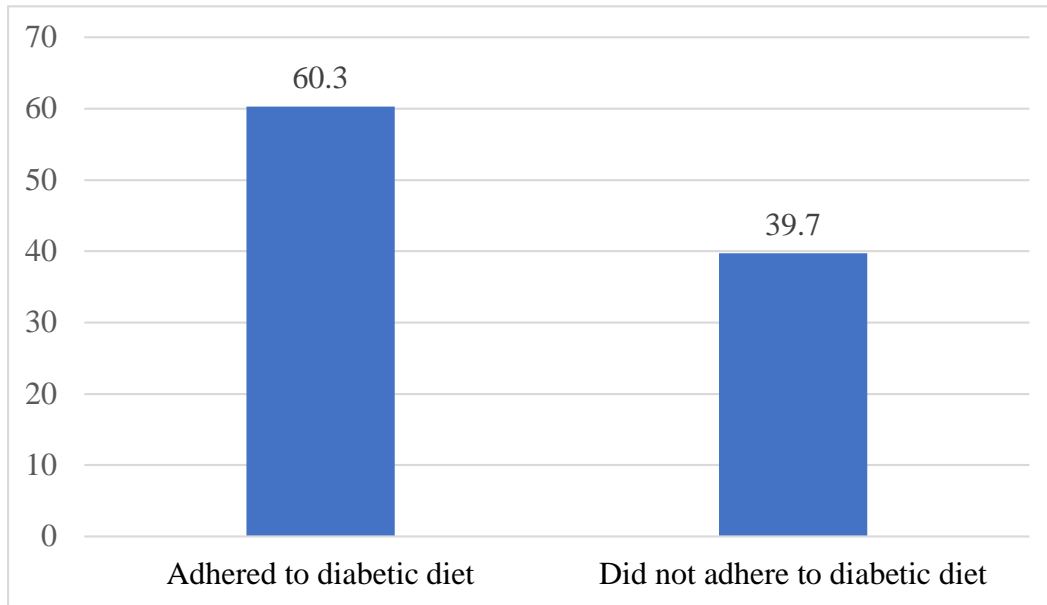

Figure 4. 3: Adherence to diabetic diet

Association between social economic characteristics of study participants and their adherence to dietary recommendations

	Adherence to diet					
		Sum of Squares	df	Mean Square	F	Sig.
Age	Between Groups	74.337	3	24.779	.807	.493
	Within Groups	3624.901	118	30.720		
	Total	3699.238	121			
Gender	Between Groups	437.097	1	437.097	15.844	.000
	Within Groups	3227.777	117	27.588		
	Total	3664.874	118			
Marital status	Between Groups	245.757	3	81.919	2.799	.043
	Within Groups	3453.481	118	29.267		
	Total	3699.238	121			
Income	Between Groups	342.356	2	171.178	6.068	.003

	Within Groups	3356.883	119	28.209		
	Total	3699.238	121			
Education	Between Groups	264.324	2	132.162	4.579	.012
	Within Groups	3434.914	119	28.865		
	Total	3699.238	121			

Relationship between variables

The study examined if there existed association between social economic determinants and the dietary adherence in Type 2 Diabetic patients. The study found there existed a statistically significant association between gender, income, level of education and marital status with the diabetic patients' adherence to dietary recommendations at α=0.05. On the other side, age was not found to have insignificant influence on the participants' adherence to dietary recommendations at α=0.0

Discussion

Social- Economic Information

Most of the respondents were male aged between 21 and 60 years (68.8%) and earned an average income below Kshs. 40,001. Regarding the education qualification most had attained a secondary certificate. According to Mirahmadizadeh, et al., [22], people with low education were observed to have high non adherence to dietary recommendations. Most of the respondents said they were single and worked as farmers. According to Tan et al,. [23], low income families face challenges in adhering to dietary recommendations and self-care. The assessment of the demographic influence on adherence to dietary recommendations found there existed association between socio-demographic characteristics and the adherence to dietary recommendations. According to Tientcheu,[24], marital partners encouraged in adherence to diabetic dietary recommendations. There existed astatistically significant association between gender, income, level of education and marital status with the diabetic patients' adherence to dietary recommendations. The study also supports Jaworski et al,.[25] findings that there existed gender differences on the adherence of dietary recommendations. On the other side, age was found to have insignificant influence on the participants' adherence to dietary recommendations. The findings were inconsistent with Ewers, et al., [26] and Doglikuu et al., [27] who found out that age was associated with adherence to dietary recommendations among diabetic patients.

Dietary practices among patients attending diabetic clinic at Nyahururu level 4 Hospital

Number of meals per day and dietary diversity score among patients

This result is in line with Akter et al [28]which found out that there is high dietary diversity among the diabetic patients. Thefinding of the study is also consistent with Hable et al [2] study which found out thatthere is diverse consumption of various dietary components among diabetic patients. A study by Kumar et al [30] observed that dietary diversity was affected by agricultural activities in the respective region an element which was observed in this study. For instance, there was low consumption of fish products. This study found out that the social economic status influenced the dietary diversity; issues such as inability to afford diet affected the dietary diversity, a finding which was found to be consistent with Harris Fry et al [31]

Energy intake among diabetic patients attending Nyahururu level 4 hospital

More than 75% of the participants reported that they had eaten foods rich in sugar 24 hours prior to the study period. This finding is consistent with Hable et al [29] who found out that the majority of the respondents had consumed foods that are high in sugars,24 hours prior to the study period. This study differs with Hat et al .,[32] which found out that more than 90% of patients did not consume foods that are rich in sugars.

On consumption of foods that are high in fibre, most participants had not eaten foodshigh in fibre 24 hours prior to the study period .About 50% of the participants spaced carbohydrates evenly throughout the day, a finding consistent with Assad et al ., [33] on carbohydrates spacing among the respondents. It was also observed that fish or other foods high in omega-3 fats was among the least consumed food 24 hours prior the study period, a finding consistent with Harris -Fry et al.,[31]study which showed agricultural activities affected consumption. In this case, fish farming is not popular in Central Kenya; hence, the supply and demand of fish is still low.

Frequency of food consumption

Adherence to dietary recommendation is critical in management of diabetes (Katsaridi et al.·[32] The study analysed the consumption of various foods 24 hours and seven days' basis prior to the study period. This was analysed on various aspects including adherence of a healthy eating plan, eating of fruits and vegetables, eating carbohydrate-containing foods with a low glycemic Index, eating foods high in sugar, eating of foods w high in fibre, even distribution of carbohydrate on daily basis, eating of fish or other foods high in omega-3 fats, eat foods that contained or were prepared with canola, walnut,olive, or flax oils and eating of foods high in fat. The finding is consistent with Asaad et al., [33] who found unevenly spacing distribution of carbon hydrate on daily basis.

Majority alleged that they followed a healthful eating plan 24 hours prior to the study period, only half of the participants took fruit and vegetables 24 hours prior to the study period as well as the consumption of carbohydrate-

containing foods with a low glycemic Index. Analysis of consumption of foods that contained or prepared with canola, walnut, olive, or flax oils, majority of participants had eaten foods that contained or were prepared with canola, walnut, olive, or flax oils majority reported consumption 24 hours prior study period but did not eat foods high in fat.

There is inconsistency globally regarding frequency of food consumption and incidence of developing type 2 diabetes. For example, Agrawal [34] found out that the prevalence of diabetes was 1.8 times higher among the obese men, and 1.6 times among heavyweight women. Similarly,Mohammad et al.,[35] showed that increased food consumption is positively related with the development of type 2 diabetes. Sachithananthan et al. [36]noted that there is no significant association between frequency of food consumption, BMI and glycemic parameters while Wang et al., [37] noted that eating 4 meals per day compared with eating 3 meals per day was associated with a lower risk of developing type 2 diabetes in a population especially those with a BMI of less than 25.

Nutrition Status and Adherence

This study found out that (39.7%) of the type 2 diabetic patients did not adhere to the recommended diet. This is consistent with the nutrition status of the type 2 diabetic patients like (35.5%) of the patients having a BMI of more than 25 , hence, regarded as overweight. Majority of the respondents (75%) consumed foods that were high in sugars in all 7 days of the week, and only (21.3%) of the respondents ate fruits and vegetables for an average of 3 days in every 7 days. Most of the participants (26.2%) engaged in consumption of foods rich in fats as compared to (22.7%) of the respondents who consumed foods that are rich in fibre such as oat meal. The poor dietary choices , poor dietary habits and being overweight is consistent with the high blood glucose levels of the type 2 diabetic patients. This study found out that (91.5%) of the respondents had a high blood glucose level ,and, only (6.4%) of the patients had normal blood glucose levels. Thus, this study clearly shows the link between nutrition status and adherence.

Conclusion: The patients' gender, marital status, income and education influenced the level of adherence to dietary recommendation among the diabetics' patients attending diabetic clinic at Nyahururu level 4 Hospital. Age was found to have insignificant influence on the participants' adherence to dietary recommendations at α=0.05. There is also a direct relationship between the nutrition status of the type 2 diabetic patients and their adherence to their recommended diet as reflected by the BMI, Dietary Choices and their blood glucose levels.

Suggestions for Further Research

This study was based on patients' ability to remember on their dietary consumption 24 hours prior the study period. A further study can be conducted for a longer period of week.

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