Assessing Prevalence and Correlates of Non-Adherence to Dietary Guidelines in Type 2 Diabetic Patients at Jinja Regional Referral Hospital

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ABSTRACT

Diabetes Mellitus (DM) develops when the pancreas fails to produce adequate insulin or when the body can't efficiently utilize the insulin produced. Insulin, a hormone from the pancreas, aids glucose in leaving the bloodstream and entering cells for energy. This research aimed to gauge the prevalence and factors linked to non-compliance with dietary guidance among type 2 diabetic patients at Jinja regional referral hospital. Conducting a cross-sectional study incorporating qualitative and quantitative data, researchers employed self-administered and investigator-led questionnaires through convenience sampling, studying 191 participants with a 78.0% response rate and focusing on 149 respondents. The study revealed that 51.1% of respondents were female, 48.9% were male, with an average age of 38 years (standard deviation: 9.62 years). The prevalence of non-adherence to dietary recommendations among type 2 diabetic patients stood at 14.8%. This non-adherence was significantly correlated with various factors: female gender (correlation coefficient: 0.947*, P=0.021), increasing age (correlation coefficient: 0.286*, P=0.002), and negligence (P=0.027* with a 2-tailed test at 95% confidence level, P<0.05). These findings underscore a concerning trend: a substantial percentage of diabetic individuals are not following dietary advice provided by healthcare professionals. Factors such as gender, age, and familial relation to type 2 diabetes were significantly associated with the lack of adherence to dietary recommendations.

Keywords: prevalence, diet, type 2 diabetic patients

INTRODUCTION

Dietary management is considered to be one of the cornerstones of diabetes care. Improvement of dietary practice alone can reduce glycosylated hemoglobin (HbA1c) by an absolute 1 to 2% with the greatest impact at the initial stages of diabetes [1-6].

Diabetes Mellitus (DM) is a chronic condition that arises when the pancreas does not produce enough insulin, or when the body cannot effectively use the insulin produced. Insulin is a hormone made by the pancreas that helps "sugar" (glucose) to leave the blood and enter the cells of the body to be used as "fuel". When a person has diabetes, either their pancreas does not produce the insulin they need (Type 1 diabetes) or their body cannot make effective use of the insulin they produce [7-16].

DM has emerged as one of the most challenging public health problems and currently, it affects over 366 million people worldwide and this figure is likely to double by 2030. The greatest burden of this condition is felt in low and middle-income countries, and these nations account for about 80% of all cases of diabetes [17-20].

Non-adherence to lifestyle recommendations occurs when a patient deviates below the acceptable level of adherence from mutually agreed collaborative approach to lifestyle changes [15]. Reasons reported for not adhering to diet and exercise range from lack of communication/information to lack of exercise partner and lack of time [21-27].

METHODOLOGY

Study design

The research was a descriptive cross sectional study design in which a questionnaire was administered to participants to determine the factors associated with non-adherence to diet and recommendations among type 2 diabetic patients at Jinja Regional Referral Hospital.

Study area

Jinja district is located 80km from Kampala (capital city) in the eastern part of Uganda with an estimated population of 514,300 people.

Study population

All consented adults (30 years and above) diagnosed with type 2 diabetes mellitus attending diabetes clinic at JRRH.

Inclusion Criteria

Type 2 diabetes mellitus patients diagnosed for at least six months and attending Jinja regional referral hospital diabetes Clinic.

Exclusion Criteria

Newly diagnosed type 2 diabetes patients (less than 6 months).

Sample size determination

A sample size of 191 participants was determined using Krejcie & Morgan Sample Size Formula for Finite Population:

$$s = \frac{X^2 NP (1-P)}{d^2 (N-1) + X^2 P (1-P)}$$

Where:

s = required sample size.

X = the z value on the table value of chi for 1 degree of freedom at the desired confidence level (1.96 for a 95% confidence level).

N = the population size (approx. 378 patients in a month).

P = the population proportion (assumed to be 0.5 since this would provide the maximum sample size).

d = the error margin (0.05)

Sampling techniques

The study engaged the technique of simple random sampling by convenience where the available participants at the time of study were given questionnaires to answer or interviewed by the research assistants.

Data collection methods and management

A structured, pre-tested questionnaire was used to collect data. The questionnaire comprised of close-ended and multiple-choice questions. The principal investigator and research assistant read out the questions for the participant and then documented the findings. Participants' responses were reviewed and verified on completion.

Data Analysis procedures

Quantitative data was coded and entered into statistical package for social scientists (SPSS version 26.0). Exploration and analysis of data was done by SPSS; Graphical Analysis was done by MS. Excel.

Ethical consideration

The faculty of clinical medicine and dentistry approved the proposal, a letter of introduction was acquired to be presented to authorities of the proposed hospital for study. Written consent was sought from the hospital where the study was conducted for backup. All respondents signed a consent form.

RESULTS

A total of 191 participants was studied, with a response rate 78.0%. Table 1 below shows the distribution of the study population by demographic characteristics. The results based on the 149 respondents showed that about 76(51.1%) of the respondents were female and 73(48.9%) were male. The mean age of study population was 38 years (with a standard deviation of 9.62 years).

Table 1: Social-Demographic Characteristics of the Study Population

Characteristics	Frequency	Percentage (%)	95% Confidence Interval	
			Lower	Upper
Sex				
Male	73	48.9	43.8	54.4
Female	76	51.1	45.9	57.6
Age				
30-39	32	21.4	19.5	27.2
40-49	57	38.3	33.1	43.8
50>	60	40.3	35.3	45.8

The results depict that non-adherence to diet is more in participants aged 50 and above 9(40.9%) of the total (22) number of participants who do not adhere to diet recommendations. Figure 1 below shows the prevalence of non-adherence to diet recommendations as reported by the study participants.
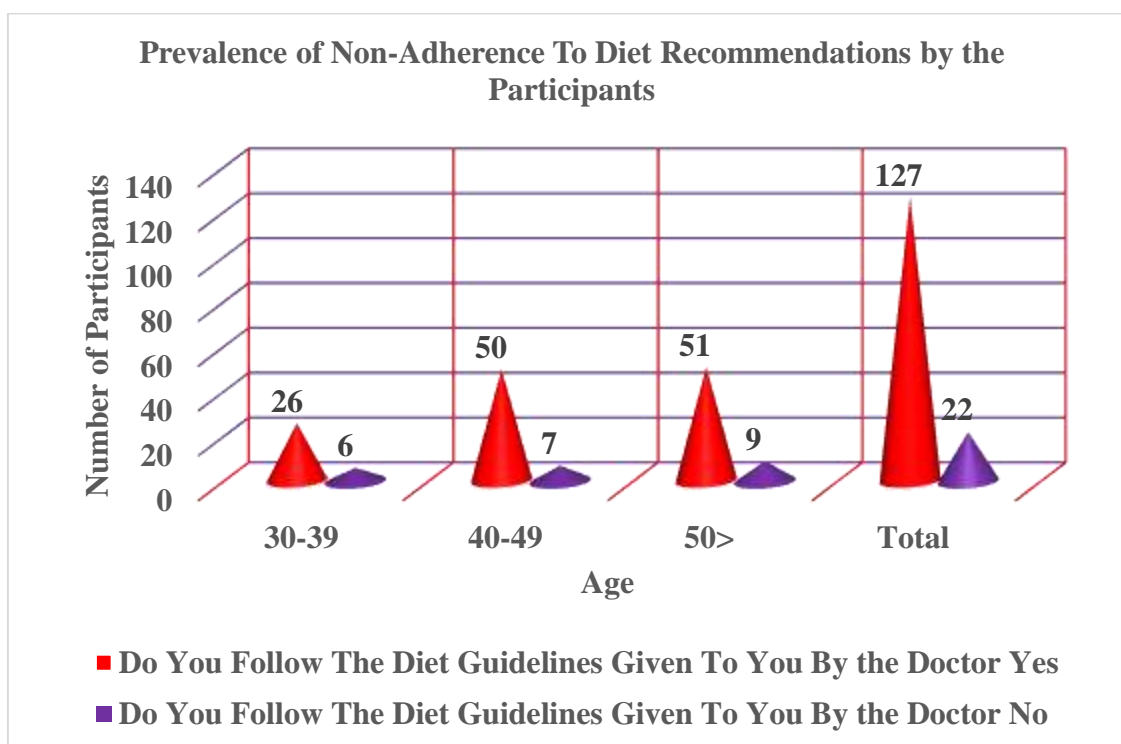
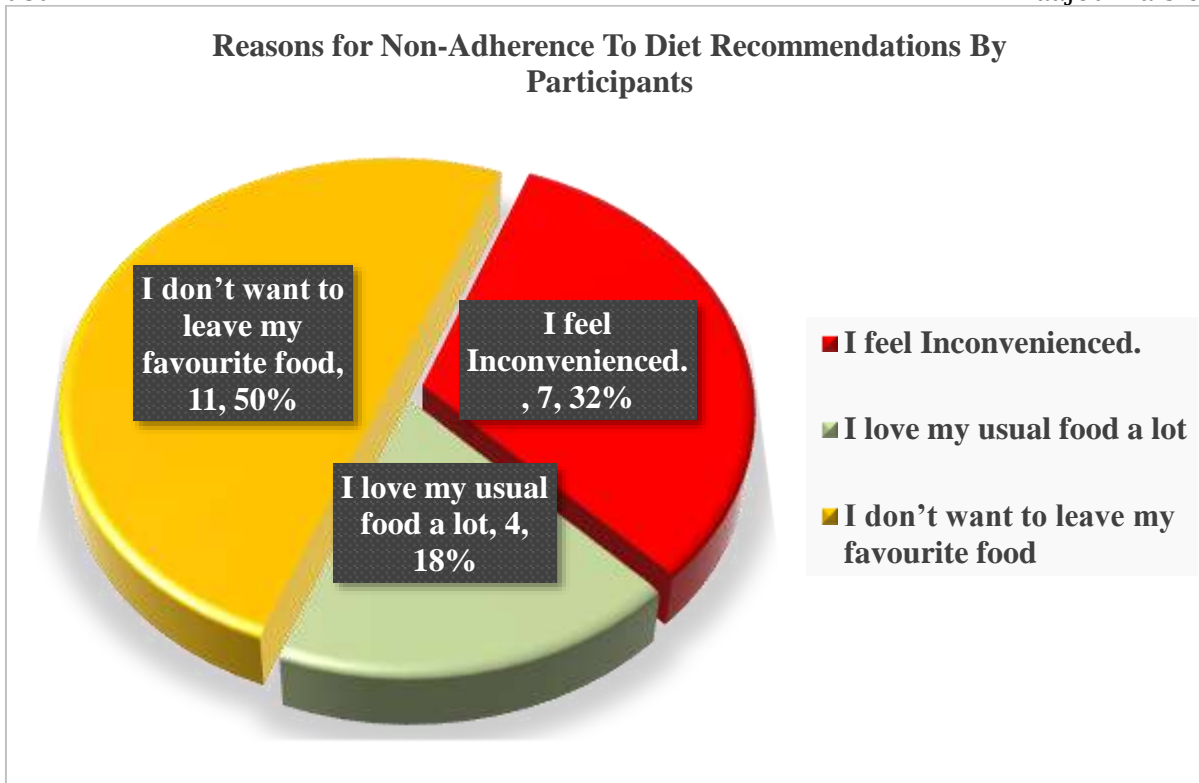Figure 1: Prevalence of Non-Adherence to Diet Recommendations among the Participants

Figure 2: Reasons for Non-Adherence to Diet Recommendations among the Participants.
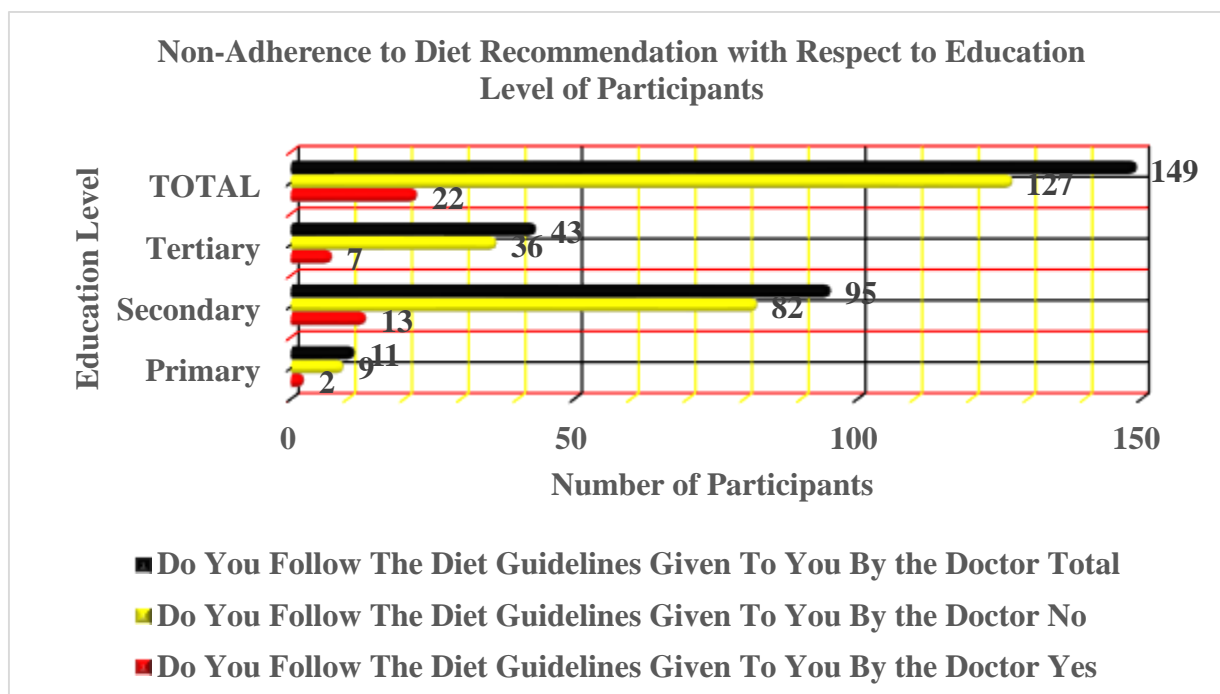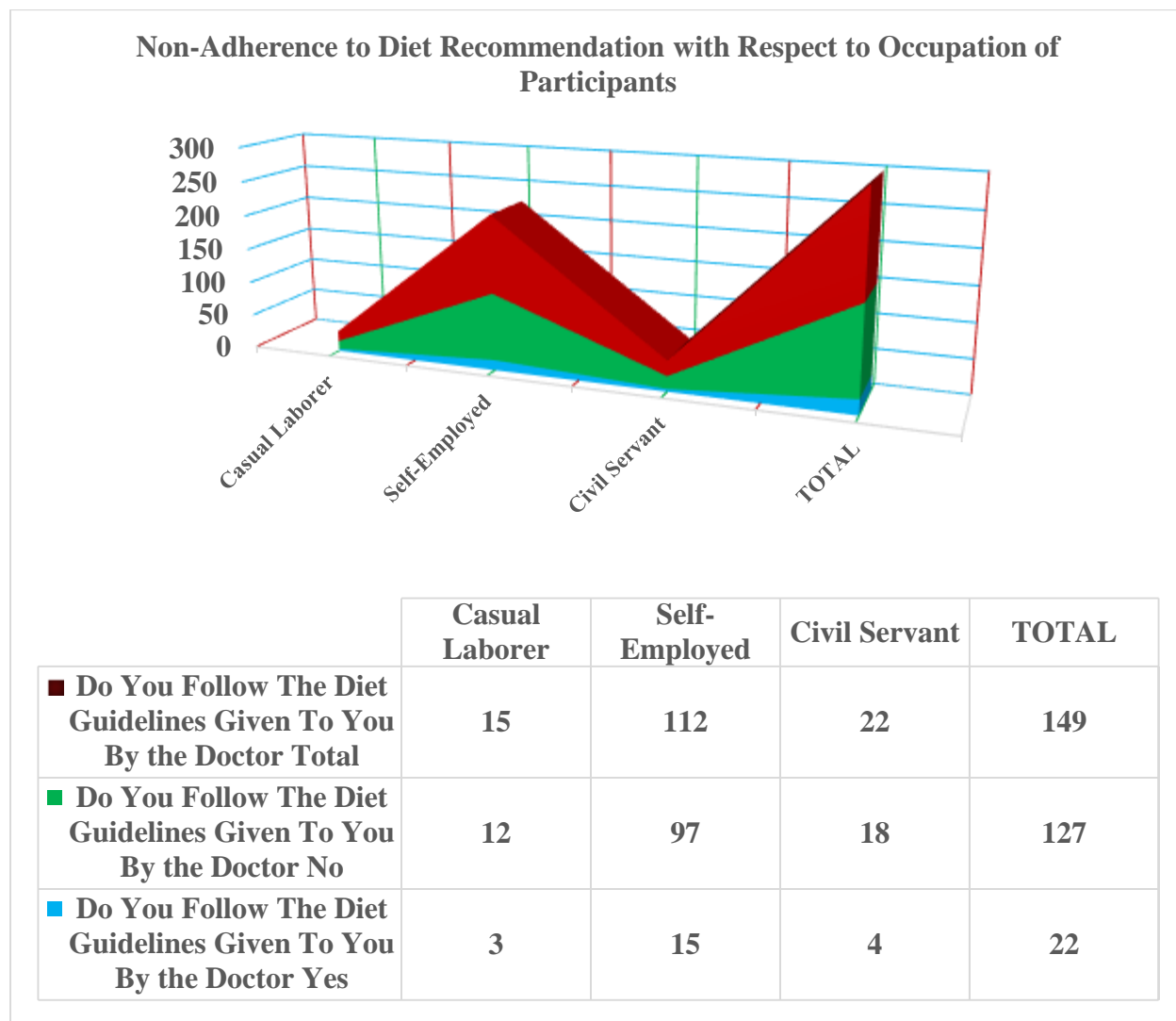

Figure 3: Prevalence of Non-Adherence to Diet Recommendations among the Participants with Respect to Education Level.

Figure 3 above shows the prevalence of non-adherence to diet recommendations among the participants with respect to education level depicting further that the

most prevalence is in participants of secondary school level accounting for 13(59.1%) of the total 22 participants who do not adhere to dietary recommendations. Relation should be drawn to Figure 4 which shows the relationship between dietary recommendation non-adherence and occupation.

Non-Adherence to Diet Recommendation with Respect to Occupation of Participants

	Casual Laborer	Self-Employed	Civil Servant	TOTAL
■ **Do You Follow The Diet Guidelines Given To You By the Doctor Total**	15	112	22	149
■ **Do You Follow The Diet Guidelines Given To You By the Doctor No**	12	97	18	127
■ **Do You Follow The Diet Guidelines Given To You By the Doctor Yes**	3	15	4	22

Figure 4: Prevalence of Non-Adherence to Diet Recommendations among the Participants with Respect to Occupation.

Table 2: factors associated with non-adherence to diet recommendations among the study participants

Predictors	Do You Follow The Diet Guidelines Given To You By the Doctor?		AOR	95% Confidence Interval		P-Value
	Yes	No		Lower	Upper	
Education Level						
Primary	2	9	1.000			0.257
Secondary	13	82	1.333	0.532	3.342	0.539
Tertiary	7	36	0.511	0.226	1.157	0.107
Occupation						
Casual Laborer	3	12	1.000			0.830
Self-Employed	15	97	0.929	0.500	1.729	0.817
Civil Servant	4	18	0.772	0.331	1.799	0.549
Age						
30-39	26	6	1.000			0.545
40-49	50	7	0.627	0.256	2.624	0.737
50>	51	9	0.286	0.210	1.866	0.002
Sex						
Male	8	65	1.000			
Female	14	62	0.947	0.566	1.586	0.021
If No, Why?						
I feel Inconvenienced.		7	1.000			0.796
I love my usual food a lot		4	3.250	1.141	9.262	0.027
I don't want to leave my favorite food		11				

DISCUSSION

This study was a cross sectional study which focused on determination of the prevalence and factors associated with non-adherence to diet recommendations among type 2 diabetic patients at Jinja regional referral hospital. The study showed that the overall prevalence of non-adherence to diet recommendations among type 2 diabetic patients at Jinja regional referral hospital was 14.8% at the instant of data collection basing on the responses given by participants. This prevalence was shown to be significantly associated with a number of factors including the female gender, increasing age, limited knowledge about diabetes mellitus and negligence. The significance of these variables was computed using Pearson's correlation of which the female gender being significant a value of 0.947*(P=0.021); increasing age being significant with a value of 0.286* (P=0.002); negligence being significant at P=0.027* with a 2 tailed test at 95% confidence level, P<0.05 [28-32].

The prevalence of non-adherence to dietary recommendations is high since management of the disorder of diabetes mellitus creates a great physical, psychological and socioeconomic burden on the individual, family and the society, priority should be given on the preventive aspects of disorders with diet and lifestyle modifications. However, results for dietary advice and physical activity compliance assessment have been found by different researchers in different countries. Nonadherence to dietary advice was higher in the current study than those in Mexican Americans (25.2%), Ohio (33.4%), Iran (37%), Oregan (50%), Calgary (55%), Kuwait (63.5%), Saudi Arabia (67.9%), Texas (67.9%), Alexandria (68%) and Hungary (78.3%) and lower than study done in Egypt6 which was found to be 94.3%. Comparing the current finding with the South East Asian data, nonadherence to dietary advice was seen on 45.7% [28-32]. In relation to gender, nonadherence to dietary advice of female is higher than male respectively which is

statistically significant (p = 0.001). In contradiction to the present study, study done in Nigeria showed male diabetic patients seemed to have greater tendencies to forget dietary regimen than their female counterparts. However, the result is different from the study done in Egypt, which showed that there was minimal gender difference with no statistical differences in adherence to different aspects of the diabetic regimen [28].The present study shows significant age difference in relation to the adherence to dietary advice. With increasing age, the degree of compliance decreases for several reasons, most of the elderly have memory problems and decreased cognitive function. Similar result was reported by another study where adherence level decreases with increasing age.

CONCLUSION

The study aimed at assessing the prevalence and factors associated with non-adherence to diet recommendations among type 2 diabetic patients at Jinja regional referral hospital. The prevalence of non-adherence to diet recommendations among type 2 diabetic patients at Jinja regional referral hospital was 14.8%. This infers that there is quite a high percentage of diabetic people who do not adhere to dietary recommendations and advice given to them by doctors. Socio-demographic factors such gender, age, relation to member of family with diabetes type 2, and occupation were significantly associated with non-adherence to dietary recommendations.

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