Social Support and Adherence to Dietary Recommendations among Type II Diabetes Patients attending Federal Medical Centre, Idi Aba, Abeokuta, Nigeria

[1*]Adepoju, A. B. and [2]Alaba, K. E.

[1]*Nutrition and Dietetics Department, Federal University of Agriculture Abeokuta*
[2]*Nutrition and Dietetics Department, The Federal Polytechnic Ilaro*

Corresponding Author: adepojuab@funaab.edu.ng

ABSTRACT

Background: *Dietary modification is one of the integral parts of type II diabetes mellitus management. This gives a desired result when the dietary recommendations are strictly adhered to.*

Objective: *This study was conducted to assess the social support and adherence to dietary recommendations among type II diabetes patients attending Federal Medical Centre Abeokuta.*

Methodology: *A descriptive cross-sectional study involving 100 respondents selected randomly among type 2 diabetes patients at endocrinology clinic of medical outpatient department, Federal Medical Centre Abeokuta. Using a semi-structured and interviewer administered questionnaire, data on socio demographic characteristics, dietary recommendation, factors affecting dietary recommendation adherence and social support were obtained. Data obtained were analysed using Statistical Package for Social Sciences (SPSS), version 25.0*

Results: *Most (70.0%) of the study population were female, sixty years and above (45%), and married (66%). Majority (80%) had access to various social supports and 52% adhered to these dietary recommendations. Taste and food preference was identify as the major (27%) factors affecting the adherence to dietary recommendations*

Conclusion: *A high proportion of the study population had access to various social supports but low adherence to dietary recommendations was identified. More awareness and sensitisation on the health implications of non-adherence to dietary recommendations in diabetes management is imperative.*

Key words: *Adherence, Dietary recommendations, Type 2 diabetes mellitus.*

Doi: Doi: https://dx.doi.org/10.4314/njns.v45i1.5

INTRODUCTION

Type II diabetes mellitus (T2DM) is a disease characterized by high blood glucose level i.e. random blood glucose concentration greater than 11.1mmol/l or fasting blood glucose concentration greater than 7.0mmol/l (1). Reduction in insulin production and insulin resistance play a significant role in the pathogenesis of this disease. There are evidences to suggest that, the prevalence of this disease is increasing globally and this disease has been identified as a disease of significant public health concern (1, 2). According to International Diabetes Federation (1,), about 463 million adults were reported to be affected by this disease and this prevalence was projected to increase in the coming years (1). In Nigeria, the prevalence of this disease has been reported to be increasing. About four million (3,623,500) cases of this diseases was reported by International Diabetes Federation in 2021 (2), this value was also projected to increase in the coming years. Researchers postulate that increase in prevalence of T2DMmay be attributed to many factors such as lifestyle modifications, urbanization, lack of social support and genetic susceptibility (3). Factors like lifestyle modifications and social support have been reported to substantially contribute to diabetes management (4).

Type II diabetes management involves a variety of interventions, such as nutritional advice, lifestyle changes, and pharmaceutical treatments (4). It is impossible to exaggerate how crucial following dietary recommendations are to slowing the advancement of this disease. The success of the management of the disease can be affected by the patient's adherence to the dietary advice. However,

Type II diabetes mellitus patients may find it difficult to follow their recommended dietary plans due to a variety of issues, including societal pressures and lack of support which may have a detrimental effect on the management (4).

In managing health conditions like diabetes, the presence of social support has been shown to significantly impact both lifestyle modification and adherence to treatment protocols (5). Recent studies (5, 6) have yielded novel findings about the intricate connection between social support and the modification of food-related behaviours. According to the findings of Adisa et al (6), family members emerged as the primary source of social support in facilitating dietary adherence among individuals with T2DM in Nigeria. The study (6) revealed that patients showed a higher propensity to adhere to dietary restrictions when they received assistance from family members in terms of support, meal preparation, and monitoring. It (6) also shows that the role of family is significant in promoting and motivating patients to adopt appropriate dietary choices.

The level of adherence to dietary recommendations among individuals diagnosed with type 2 diabetes may be significantly impacted by the presence of social support from family members, particularly spouses and close relatives(7). Nevertheless, challenges may arise as a result of the intricate nature of social support in relation to adherence to dietary recommendations. According to a study conducted by Iloh et al in Eastern Nigeria (8), individuals diagnosed with T2DM in Abia State, Nigeria, have access to social help; yet, they do not adhere to dietary recommendations. Also, familial support has been reported to be occasionally accompanied by discrepancies in guidance stemming from misconceptions about diabetes and dietary recommendations (9). This highlights the need for the presence or attention of the family members or care giver during the dietary counselling; this will help in providing necessary and adequate support for the individual with type II diabetes mellitus in adhering to the dietary recommendations.

To achieve effective management of type II diabetes mellitus, it is imperative to acknowledge the significance of social support in the management of this disease. Also, there is a need to understand the fact that social support can either facilitate or hinder adherence to dietary regimens, thus identifying the extent of availability and accessibility of this in various locality of the patient will help in the disease management.

MATERIALS AND METHODS

Study Area

The study was carried out at the medical out-patient department of Federal Medical Centre (FMC) Abeokuta, Ogun state Nigeria. Federal Medical Centre Abeokuta came into existence on 21 April, 1983, when the state hospital, Idi-Aba, was handed over to the Federal Government by the then state Governor, Chief Olusegun Osoba for development into a federal tertiary health institution for the people of Ogun State and Nigerians in general. FMC Abeokuta (a Tertiary Health Care Institution) serves as a hub to about sixteen primary care centres in Ogun State.

Study Design

The study was descriptive and cross sectional in design and it was conducted among diabetes patients attending Federal Medical Centre, Idi aba, Abeokuta, Ogun state, Nigeria.

Sample Size Determination

The sample size was determined using Cochran formula (11)

$$N = \frac{z^2 (pq)}{d^2}$$

N= sample sizeZ= standard normal variables for a 95% confidence level (1.96)P =prevalence of attribute (using p value of 5%for type II diabetes according to WDF. 2018)(12)q= 1-p.d= precision (0.05)The sample size for present study calculated to be:

$$N = \frac{1.96 \times 1.96 \times 0.05 \times 0.95}{0.0025} = 73$$

20% was added to account for non-response which gives 88 and was rounded up to 100.

Sampling Technique

A multistage sampling technique was used in selecting the study population. Federal Medical Centre Abeokuta was purposively selected. Individuals with diabetes mellitus who met the inclusion criteria and willing to participate in the study were randomly selected from the endocrinology unit of the medical outpatient department of Federal medical centre Abeokuta on their clinic day. Data was collected from the study participant in three consecutive clinic days.

Inclusion and exclusion criteria

The study include adult diabetes mellitus patients who are willing to participate in the study and has been managing diabetes for at least a period of one year without any diabetes related complication while others were excluded.

Data Collection

An interviewer-administered semi-structure and validated questionnaire was used to elicit data from the study participants. The questionnaire was divided into four sections: socio-demographic and economic, dietary recommendations for diabetes management, adherence and social support.

Data on the dietary recommendations provided to the participants was obtained using a pretested open ended questionnaire developed for this purpose while Perceived Dietary Adherence Questionnaire (PDAQ) (13) was adapted to two items questionnaire and was used to evaluate the dietary adherence among the study population.

The social support was assessed using a structured questionnaire designed by the researchers. The study participants were asked to give a self-report of the support gotten from the family and friend in managing their disease condition like; adhere to dietary recommendations, medical recommendation, physical activities, testing of blood glucose level and acceptance by family and friends. Before the actual data collection, questionnaire was pre-tested and validated using few respondents. Modification of the tools was done based pre-test.

Ethical Clearance

The informed consent was sought from the respondents and the ethical approval was obtained from the research committee of Federal Medical Centre Abeokuta, Idi Aba to conduct the research.

Statistical Analysis

Data collected were subjected to both descriptive (frequency, percentage) and inferential statistics (chi square) using Statistical Package for Social Science (SPSS), version 20.0. Variables like; Socio demographic characteristics, social support, adherence to dietary recommendation, factors affecting adherence to dietary recommendations were presented in frequency and percentage distribution while chi square test was used to test for statistical association between the socio demographic characteristics and frequency of adherence to dietary recommendation as well as social support and the frequency of adherence to dietary recommendations. Significance association was accepted at $p < 0.05$.

RESULTS

Table 1 presents the socio demographic and economic characteristics of the study population. Most (70.0%) of the study population were female, sixty years and above (45%), and married (66%). Few (18%) of the study population were widows and widowers (5%). Majority (82%) of the respondents run their personal business while few (18%) were employee of government organization. More than one third (37%) of the study participants earns more than forty thousand naira monthly (N40,000) and majority were educated.

Table 2 presents the responses of the study participants on the social supports accessible for them from both friends and relatives. Larger percentages of the respondents (77%) were accepted by their family and friend with their diabetes status. Almost all (91%) of the respondents were usually assisted by their friends and family in managing their condition. More than half (64%) reported that their family and friends encouraged and reassured them about their disease condition, while a few (33%) were usually nagged by their family and friends due to their disease condition. Majority (80%) of the respondents stated that their family and friends provide the necessary support for them to be able to follow the recommended dietary intake, take their medications (93%), and engage in physical activities (93%).

Table 3 presents the adherence of the respondents to various dietary recommendations. Majority (93%) adhered to dietary recommendations but in different frequency. Half (52%) of the respondents adhered to the dietary recommendations given to them at all the time while 30% and 11% adhere to it occasionally and rarely respectively. Few (6%) of the study population were yet to be given any dietary recommendations. Table 2 also presents the responses of the respondents on the particular dietary recommendations they find difficult to adopt. In assessing this, the various recommendations given to the study participants were categorised in to different groups based on what it entails. About one quarter (23%) of the study participants find it difficult to adopt recommendations on meal composition while 20% find it difficult to adopt the recommendations on meal timing, 15% were unable to follow dietary recommendations on food choice and meal frequency. Few (7%) of the study population find it difficult to adhere with the recommendation on alcohol intake.

Table 1: Socio demographic and economic characteristics of the respondents

Variable	Frequency(n)	Percentage (%)
Gender		
Male	30	30.0
Female	70	70.0
Age (years)		
18-25	2	2.0
26-40	13	13.0
41-60	40	40.0
Above 60 years	45	45.0
Marital status		
Married	66	66.0
Single	7	7.0
Divorced	4	4.0
Widow	18	18.0
Widower	5	5.0
Occupation		
Government employee	18	18.0
Self employed	82	82.0
Educational level		
No formal education	18	18.0
Primary Education	11	11.0
Secondary Education	24	24.0
College/university	47	47.0
Estimated monthly income (₦)		
Less than 20,000	23	23.0
21,000-30,000	19	19.0
31,000-40,000	21	21.0
More than 40,000	37	37.0
Total	100	100.0

Table 2: Social support for type II diabetes patients

Variable	Frequency (n)	Percentage (%)
Acceptance by family and friends		
Yes	77	77.0
No	23	23.0
Social response from family and friends		
Comfortable	23	23.0
Uncomfortable	77	77.0
Specific support from the family and friends to achieve effective diabetes management		
Yes	91	91.0
No	9	9.0
Support in form of encouragement and reassurance from family and friends		
Yes	64	64.0
No	36	36.0
Nagging from family and friends		
Yes	33	33.0
No	67	67.0
Support from family and friends to adhere to dietary recommendations		
Yes	80	80.0
No	20	20.0
Extent of support towards dietary adherence (n=80)		
Always	37	37.0
Occasionally	37	37.0
Rarely	6	6.0
Support towards adherence to medication		
Yes	93	93.0
No	7	7.0
Support towards adherence to physical activities		
Yes	78	78.0
No	22	22.0

Table 3: Adherence to dietary recommendations

Variable	Frequency (n)	Percentage (%)
Adherence to dietary recommendations (94%)		
Yes	93	93.0%
No	1	1.0%
Frequency of adherence to dietary recommendations		
All the time	52	52.0
occasionally	30	30.0
Rarely	11	11.0
Not at all	1	1.0
Not given dietary recommendation	6	6.0
Dietary recommendations the respondents find difficult to adhere to		
Food choices	15	15.0%
Meal composition e.g. amount of fruit and vegetable, protein, carbohydrate and fat	23	23.0%
Meal frequency	15	15.0%
Meal timing	20	20.0%
Alcohol consumption	7	7.0%

Factors that are responsible for non-adherence to various dietary recommendations were identified. Some of the respondents that failed to adhere to the various dietary recommendations attributed this to some factors like; stress (19%), lack of adequate food in the house (6%), poor self-control (14%), lack of quality food and the recommended diet in where they are living (11%), inability to afford the cost of the recommended diet (14%), lack of information (9%), taste and preference to the recommended diet (27%)while few (3%) did not believe in the efficacy of diet in controlling blood glucose level as presented in figure 1.

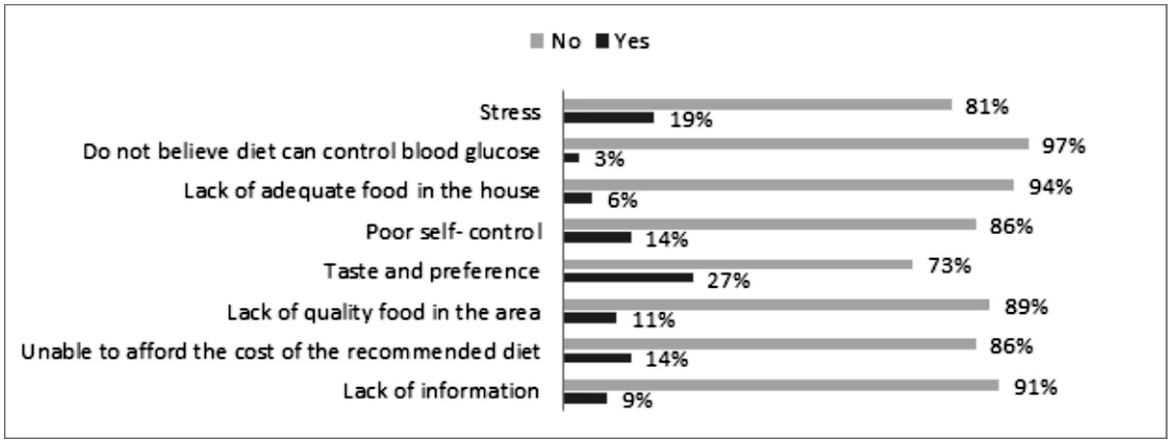

Figure 1: Factors that affect adherence to the dietary recommendations

Table 4 presents the association of socio-demographic characteristics and the compliance of the respondents to the dietary recommendations. Marital status and estimated monthly income were the socio demographic characteristics that are significantly associated ($p < 0.05$) with the compliance level of the respondents to dietary recommendations

Table 5 presents the association between the social support and compliance level of the respondents to the dietary recommendations. Significant association ($p < 0.05$) was observed in the compliance of the respondents to the dietary recommendations and the acceptance of the diabetes status of the study participants by their family and friends. Similarly, encouragement and assurance on the management of the disease condition by the family and friends was also found to be significantly ($p < 0.05$) associated to their compliance level to the various dietary recommendations as well as support towards the testing of blood glucose level while others did not ($P > 0.05$).

Table 4: Association between socio-demographic and frequency of adherence to the dietary recommendations

Socio demographic characteristics	χ^2	Df	P-value
Gender	2.20	4	0.70
Age (years)	12.71	12	0.39
Marital status	32.90	16	0.01*
Occupation	1.67	4	0.80
Educational level	9.80	12	0.63
Estimated monthly income	21.55	12	0.04*

**Statistically significant at p<0.05*

Table 5: Association between social support and frequency of adherence to dietary recommendations

Social support	χ^2	Df	p-value
Acceptance by family and friends	9.74	4	0.04*
Social response from family and friends	7.40	4	0.12
Specific support from the family and friends to achieve effective diabetes management	6.21	4	0.18
Support in form of encouragement and reassurance from family and friends	5.67	4	0.23
Support in form of encouragement and reassurance from family and friends	12.76	4	0.01*
Nagging from family and friends	8.79	4	0.07
Support from family and friends to adhere to dietary recommendations	2.47	4	0.65
Support towards adherence to medication	2.30	4	0.68
Support towards adherence to physical activities	4.09	4	0.39
Support towards testing of blood glucose level	33.53	4	0.00*

**Statistically significant at p<0.05.*

DISCUSSION

Socio demographic and economic status are strong determinant for therapy adherence in disease management. In the present study, the socio-demographic characteristic of the study population was assessed. Majority of the study population were females, within the age brackets of 60 years and above, living with their spouses, educated, and earning more than the official minimum wage in Nigeria (30,000) per month. The socio demographic characteristic of the respondents in the present study is similar to report of other researchers in a study conducted among the same group of individual (14, 15 &16). A previous study has reported a significant increase in prevalence of the disease with advance in age and reported higher prevalence of the diseases among the individual above 60 years old (17) and this aligns with the present study

Social support is a good determinant for predicting the adherence to therapeutic advice in disease management. Patients' social support networks give them the confidence and abilities they need to stick to their treatment plan and manage their condition (18). When family, friends as well as the neighbourhood provid the necessary support to a patient in time of disease, the burden and stress involved in the disease management are often minimal for the patient (18). In the present study, access to various forms of social support from both the immediate family members and friends was common. Nearly all the respondents were accepted by their families and friends and some of the family members of the study participants were also not comfortable with the diabetes status of majority of the study population. The family and friends of nearly all the study participants also attend to them and help them in effective management of their disease condition. More than half of the study population also affirmed that their family and friends do usually encourage and reassured them about their disease condition. The family members and friends were also reported to be rending various supports to the study participants in order to ensure strict adherence to the recommended dietary practices. Nearly all the respondents also stated that their family and friend do support them in taking their medication, performing physical activities and in testing their blood glucose level regularly. High level of social support observed in this study will enables the patient to be relieved from the burden and stress involved in the management of their diseases and health condition as indicated by Miller et al (18)

The pattern of social support discovered among the study population in the present study is similar to that of Ayonote et al (19) who conducted a study on family social support perception and medication adherence among elderly diabetics in a tertiary institution in Lagos State, Nigeria. They reported that family support among the study participants was very high and this was found to be significantly associated with the medication and dietary recommendation adherence. Also high level of social support observed in the present study has also been reported by Timi-Oladipo (20) and Iloh et al (21) among type 2 diabetics in Ilorin and Eastern Nigeria, respectively. The high rate of social support observed in the present study disagrees with the finding of Okumagba (22) in a study conducted among similar population in Delta State, Nigeria and and an early study conducted in South West Nigeria (23). These differences may be attributed to so many factors like variability in the study location, living condition of the respondents, as well as socio economic and demographic status of the study population (19).

Strict adherence to dietary recommendations is very important in the management of diabetes mellitus. Total adherence to dietary recommendation was reported among half of the study participants, about one third of the study population do occasionally adhere to dietary recommendations while others were either rarely or did not adhere to the dietary recommendations at all and few were not given any dietary recommendations. The findings of this study is similar to that of Tariq et al (24) in a study conducted on relationships of socio-demographic characteristics with glycemic control and dietary adherence among adults with type 2 diabetes and in contrast to the finding of a study conducted in Ethiopia (25). A study conducted in Addis Ababa (26) and Nepal (27) also reported a lower adherence compare to the present study. The difference in the rate of adherence to the dietary recommendations can be due to factors like discrepancy in the socio economic, socio demographic, cultural characteristics as well as the understanding or perception of the participants on the role of diet in disease management as suggested by other researchers (28 &29).

Non- adherence to dietary recommendations in disease management is usually influenced by many factors which can emanate from individual, family

member, neighbourhood, community, organization and even policy makers. About one quarter of the study population were unable to adhere to some dietary recommendations that pertain to meal composition which entails the intake of fruits and vegetables. Among all the factors studied, taste and preference of the respondents to the recommended diet was reported as the major factor affecting their compliance to the dietary recommendations. This finding is contrary to some previous studies (15, 30 & 31). Mulat et al. (15) in a similar study conducted at Felege-Hiwot Referral Hospital, Northwest Ethiopia reported that high non-adherence to dietary recommendations among type II diabetics patients was due to lack of nutrition education, lack of social support and participants residency. Amal (30) reported high prevalence of non-adherence to dietary recommendation among type II diabetes patients selected from internal Medicine Clinic in Shebin El-kom Teaching Hospital at Shebin El-kom city. Ayele et al. (31) reported that high rate of non-adherence to dietary recommendation is due to the educational status of the study population. Disparity in the findings of these studies implies that various factors can be responsible for non-adherence to dietary recommendations among different group of individual. In other to actualize the desire goal of dietary counselling in disease management, various factors that are capable of affecting it effectiveness must be identified and properly addressed.

Furthermore, significant ($p < 0.05$) association was observed between the socio demographic characteristics like marital status, estimated monthly income and the adherence to the dietary recommendations. Specifically, more than half of the study populations that are married adhered to the recommended dietary practices at all time. In line with the present study, a similar study conducted in Nepal (27) also reported that married people are more likely to adhere to the dietary recommendation than single individuals. Study conducted in south India (32) also reported similar findings. High rate of dietary adherence discovered among the married subjects in the present study can be linked to the general belief that married people do usually have access to some forms of social support from their spouses which could help them in adhering to the recommended dietary practices. More so, significant association was observed in the level of adherence of the study population to recommended dietary practices and the estimated monthly income of the study participants. This finding corroborates the opinion of Jijeebisha et al. (27) that individuals who can afford the recommended diet are usually more likely to adhere to the dietary recommendations than those that could not. This was also supported by the finding of other researchers (26, 31 & 33) where socio economic status and high cost of food was identified as the major reasons for the poor dietary adherence in disease management.

In the same vein, significant association was observed between the compliance of the study population to the recommended dietary practices and some variable used in assessing social support like, acceptance of the diabetes patient by their family and ability of the family and friend to encourage and assure the patient on their disease condition. This findings give credence to the opine of Doglikuu et al. (16) that adequate support, care and love to a diabetic individual by their family and friends do help in optimizing their adherence to dietary recommendations. Also type II diabetes patients are usually faced with various situational obstacles in daily food selection and consumption as a result of fear of social disapproval (18), thus social support from family, friends and neighbourhood is important in achieving effective self-management practices of diabetes mellitus and this has also been affirmed by previous studies (18 &16).

CONCLUSION

The study population were found to have access to good social support from family and friends. The majority were accepted by their relatives and close associates. However, high occurrence of non-adherence to dietary recommendations was common and this was significantly associated with the marital status and the estimated monthly income of the study population. Also, significant association was observed between the level of adherence to the dietary recommendations and some of the indicators of social support like acceptance by the family and friends, Support in form of encouragement and reassurance from family and friends as well as Support towards testing of blood glucose level. The study participants identified taste and individual preference to different food as the major factors affecting their adherence to various dietary recommendations and about one quarter of the study participants find it difficult to strictly follow the dietary recommendations given to them on meal composition.

Recommendation

Health care providers should devise a means of increasing the awareness on health implication of

non-adherence to dietary recommendation in diabetes management. Dietary recommendations should also be well tailored based on individual condition in a way that the messages will be easily adhere to. In given a dietary recommendation, taste and food preference of individual should also be considered and addressed.

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