Research Article

Nutritional Counseling and the Recovery Rate among Diabetic Patients in Nakuru Provincial Hospital, Kenya

Lucy W. Karanja
Kenya Methodist University, Kenya

*Corresponding author
Lucy W. Karanja
Email: lucy86karanja@yahoo.com

Abstract: Diabetic has become among the leading killer non-communicable diseases in Kenya. Scholars are deliberating on the best treatment therapies available and accessible to both rich and poor. Among the best approaches for the successful treatment of diabetes is nutritional counseling which buttresses dietary therapies. Therefore, it is important to evaluate the effectiveness of Nutritional Counseling on the recovery rate among diabetic patients. This study was aimed at establishing such a relationship so as to make recommendations based on empirical examples. The study was carried out using a descriptive survey. The sample consisted of 283 respondents that included 8 dieticians and 275 diabetic patients. The study established that there was a significant relationship between the patient's nutritional knowledge and recovery rate. This study recommends that the government must take an active role in promoting the nutritional counseling services offered in hospitals by employing more dieticians, intensifying awareness campaigns on the recommended diet for the diabetics.
Keywords: Diabetic, Kenya, Nutritional Counseling.

INTRODUCTION

Diabetes is among the leading non-communicable diseases killing most people in the world. Proper intervention and measures have been proved to prevent and treat diabetes among the victims. These interventions include dietary counseling which informs the client and at the same time gives him or her psychological therapy. Depression is a common treatable issue for many people who have diabetes but most clinics do not provide the level of intensive care that diabetes patients need. As a result, the treatment of diabetes becomes an enigma among the patients and the concerned stakeholders [1]. Moreover, this proves to be a major hurdle for diabetics in maintaining the strict medication regimen or exercise schedule. There appears to be a kind of laxity among those people who are supposed to do the follow up considering that patients with diabetes often have self-management needs that require only between-visit support [1]. The professionals who give such dietary guidance, therefore, should be informed that though there is considerable evidence about health related benefits of lifestyle modifications for people with type-2 diabetes, it has often been observed that compliance to lifestyle related recommendations is not satisfactory among some populations [2]. In order to be effective, therefore, dietary guidance always needs to be tailored to suit the patient's lifestyle, specific therapeutic goals, and the level of motivation.

To promote compliance among the diabetic, sensitivity to cultural, ethnic and financial constraints is of prime importance [3]. However, lack of relevant data in most health facilities has been pointed out as a constraint in assessing the effectiveness of guidance and understanding the reasons for non compliance.

The second important step in effective dietary counseling among diabetics is to point out the hindrances for the desired outcomes in the treatment of the condition. For example, changing eating behaviors may mean involving other stakeholders, purchasing different foods, planning ahead for social events, or bringing special foods to work. Some common barriers to changing eating habits may also include: inconvenience, social gatherings, and food preferences, lack of knowledge or time and cost [4].

The third step should be setting goals where the nutrition counselor and client set behavior-oriented goals together. The goals should focus on the behaviors needed to achieve the desired dietary change, not on an absolute value, such as achieving a certain body weight [5]. For a person working to prevent weight gain associated with certain medications, for example, his or her goals might be to increase the amount of fruits, vegetables, and whole grains consumed each day. Such changes would help prevent weight gain while placing

the emphasis on needed behaviors rather than on actual weight. Moreover, family members are encouraged to attend nutrition counseling sessions with the client, especially if they share responsibility for food selection and preparation [6]. Self-monitoring, realistic expectations, and continued follow-up can help a person maintain dietary changes [6]. Although the individual must make food choices and take responsibility for dietary changes, having the support and understanding of family and friends makes success more likely. The challenge for the nutrition client lies not in making the initial dietary changes, but in maintaining them over the long term.

Effects of Self Monitoring and Diabetic Patients Behavior

Nutritional counseling should be direct towards guiding patients on monitoring themselves accordingly. Self-monitoring involves regularly checking eating habits against desired goals and keeping track of eating behaviors. Keeping a food diary on a daily or periodic basis helps the individual be more aware of his or her eating behaviors and provides a ready tool to analyze eating habits [7]. Sometimes a simplified checklist to assure adequate intake of different food groups may be used.

Individuals and nutrition counselors should not expect perfect dietary compliance—slips inevitably occur [8]. The goal is to keep small slips, such as eating a few extra cookies, from becoming big slips, like total abandonment of dietary change. The counselor can help the client identify situations that may lead to relapse and plan ways to handle the situations ahead of time. Nutrition counseling is an ongoing process that can take months or years [8]. In follow-up nutrition counseling sessions, the individual and counselor analyze food records together and problem-solve behaviors that are especially difficult to change. According to Farshchi, Taylor & Macdonald [9] follow-up counseling allows the opportunity to reevaluate how goals and strategies can be achieved by both the counselor and the patient.

Theoretical Framework

This study would not have been complete without applying related theories. Considering that many theories have been developed to explain human uptake of health services. This study adopted Irwin Rosenstock's health belief model. This is a combination of a heath behavior model and a psychological model. The Health Belief Model has been applied to a broad range of health behaviors and subject populations) [10]. In this study much attention was on the health-promoting part of the model which includes; treatment therapies like diet, Sick role behaviors, which refer to compliance with recommended dietary treatment for diabetics, usually following professional diagnosis of illness [10]. It was then tied to the main objective of finding out the effect of nutritional counseling on the recovery rate among diabetic patients under study.

METHODOLOGY

In order to achieve the objective of the study, descriptive survey with ex-post facto design was used. In this type of research, changes in the independent variables have already taken place, and the researcher studies them in retrospect for their effects on an observed dependent variable [11]. This design allowed the researcher to gather information, summarize, present and interpret it with an aim of descriptive research and finally lead to successful reporting and recommendations [12].

The study location was the Nakuru Provincial General Hospital in Nakuru County and situated 160 km North West of Nairobi, Kenya. The hospital has 15 general wards with the bed occupancy of 120% (720) on average at any given point (Ministry of Medical Services, 2010). The hospital serves a population of about 3.6 million in South Rift Valley plus patients coming as far as Western, Nyanza, North Rift Valley and Central part of Kenya (Ministry of Medical Services, 2010). It serves as a referral health facility within Nakuru County and the surrounding districts like Molo, Njoro, and Koibatek (Kenya situational report WHO, 2008) [13]. The facility serves about 1000 diabetic patients and about 700 diabetic patients attend treatment in a month. There are about 10 dietary counsellors who serve patients in the whole hospital.

The target population for this study consisted of all known diabetic patients and nutritionists in rift valley general hospital. The diabetic patients who visit Rift Valley Provincial hospital are about 1000. There are 10 nutritional counsellors/nutritionists, in the hospital, who were available for the study.

The data collected from these respondents was guided by the structured questions in the questionnaire and included their views concerning nutritional counseling for diabetic patients. Two samples were considered for the study. The first sample constituted of diabetic patients and the other one constituted the dieticians. The sample size was determined using a guide for determining the required size of a randomly chosen sample from a given finite population of N cases as constructed by Kathuri and Pals [14]. In this formula, the sample proportion P was within plus or minus 0.05 of the population proportion P with a 95% level of confidence. For this research study, a sample of 278 subjects was selected from the total population of 1010 according to the guide. The researcher collected the data in form of responses through questionnaires, which was administered to the subjects. Since a case of one hospital has been selected, selected patients were used and those who are known to be diabetic and receiving counseling services or were supposed to be receiving such services from the hospital were involved.

The researcher obtained permission from all relevant authorities before embanking on this research. These

included the Rift Valley General Hospital and the ministry of health as well as Departmental Head in the relevant hospital. The researcher also obtained research permit from the National Council of Science and Technology (N.C.S.T) in the Ministry of Higher Education Science and Technology (MHEST) through the Kenya Methodist University Department of Counseling to take to the relevant offices. To maintain confidentiality, the questionnaires did not require respondents' names and was also discussed prior to the filling of the questionnaires with the respondents so that they did not hold essential information. The questionnaires were only issued to those participants who were willing to participate after the discussion with the researcher.

RESULTS

The objective of this study was to determine the effects of nutritional counseling on the recovery rate among diabetic patients. This was analysed using frequencies, percentages and chi-square.

The research hypothesis stated, "There is no statistically significant effect of nutritional counseling on the recovery rate among diabetic patients in Nakuru Provincial Hospital." To analyse this hypothesis, the researcher first inquired on the patients' access and quality of nutritional counseling and compared it with the rate of recovery. Since majority of the respondents indicated that they had received nutritional counseling, interest on the quality of services was also explored.

Patient's awareness of the recommended diet suitable for diabetic condition

There was a keen interest in knowing whether the interviewed patients were aware of the food recommended to them. The following chart displays the composition of patients who claimed not to know (or otherwise) the recommended diets.
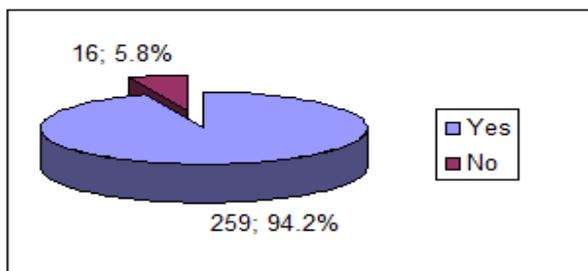

Fig. 1: Patient's awareness of the recommended diet suitable for diabetic condition

As fig. 1 shows, 94.2% of the total respondents indicated to be aware of the recommended diet suitable for their diabetic condition. It was only 5.8% of the respondents who claimed not to be aware. Additionally, majority of the patients were found to know that that the recommended dietary therapies for diabetic conditions helped in maintaining the blood sugar levels low as shown in Table 1.

Table 1: Respondents opinion on whether the dietary therapy helped in maintaining sugar level low

Response	Frequency	Percent
Yes	255	92.7
No	20	7.3
Total	275	100.0

It was, therefore, logical to expect that most adhered to the recommended therapies and, therefore, was making positive progress towards treatment. However, the progress made by majority of the patients towards recovery from their condition was noted to continue to drag.

This is the reason why it was necessary to probe on the actual level of nutritional knowledge possessed by respondents by requesting them to cite examples of recommended diet. On the part of quality of nutritional counseling services received, the researcher noted that despite the receipt of the diet counseling services, some patients still do not know the actual therapy they needed to adhere to. This situation is likely to be caused by factors such as methods of conducting nutritional counseling by the dieticians as well as the dieticians' knowledge of diets along with their level of training.

The following table summarizes the examples of foods cited by the respondents as being the ones recommended to diabetic patients.

The following (table-3) list examples of food habits and associated caution that the respondents cited as being the ones recommended to diabetic patients.

To the respondents who indicated that they are aware of the recommended diet for diabetic condition, the researcher further probed on their exact level of knowledge on the recommended diabetic nutrition and compiled a Likert scale of between 1 (lowest level of knowledge) and 5 (highest level of knowledge) shown in Table 4.

Table 4 shows that majority (38.1%) of the respondents had average level of knowledge on diabetic suited nutrition. About 32.0% of the respondents seemed to have high level of diet knowledge. On the extremes, only 5.7% and 3.1% were noted to have very high or very low level of diet knowledge respectively.

The use of Pearson's chi-square test was employed in determining the relationship between diabetic diet knowledge and hence the effectiveness of the nutritional counseling received and the rate of recovery. The patient's progress made towards the recovery from diabetic condition was measured through and presented in Fig. 2:

Table 2: Types of foods cited by the respondents as being the ones recommended to diabetic patients

Type of foods	Frequency	Percentage
Beans	44	18.9%
Brown porridge	31	13.7%
Sugar free tea	27	11.6%
Ugali no.2 (brown)	21	8.9%
Ugali wimbi (sorghum ugali)	19	8.4%
Carbohydrates	19	8.4%
Fish	11	4.7%
Black beans (njahi)	11	4.7%
Brown bread	10	4.2%
Managu (black night shade)	10	4.2%
Green grams (Ndengu)	10	4.2%
Beetroots	10	4.2%
Arrow roots	8	3.7%

Table 3: Eating habits/cautions imposed to diabetic patients

Eating habits	Frequency	Percentage
To take a lot of fruits	58	26.1%
To take a lot of vegetables/greens	41	18.5%
To take low fat foods or substitute fat with oil	23	10.4%
To replace red meat with white meat	23	10.4%
To eat high fibre foods	18	8.1%
To avoid sugary foods	18	8.1%
To ensure that the diet is balanced	14	6.3%
To avoid proteins alone (mix with other foods)	7	3.2%
To take 8-12 glasses of water per day	7	3.2%
To avoid refined foods	7	3.2%
To eat less starch	6	2.7%

Table 4: Respondents average level of knowledge on diabetic diet

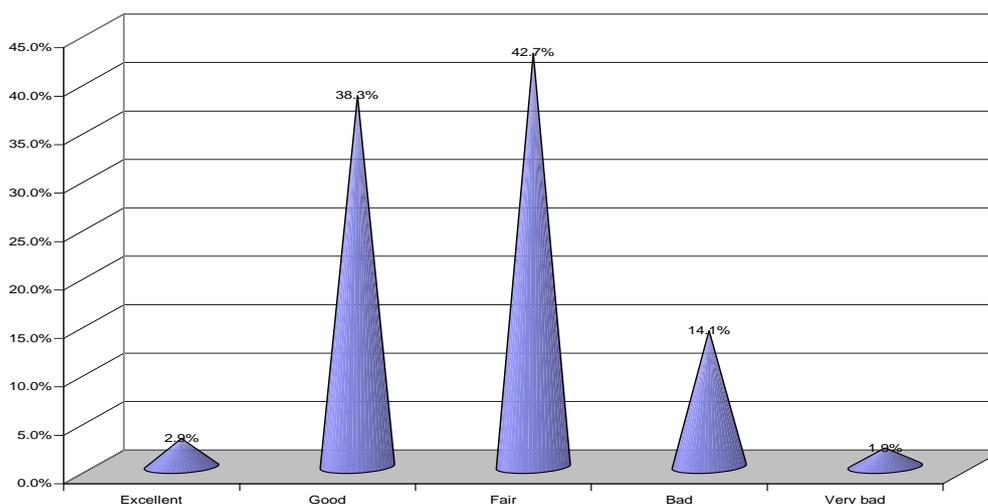| Likert scale	Description	Frequency	Percentage
1	Very low	8	3.1%
2	Low	55	21.1%
3	Average	99	38.1%
4	High	83	32.0%
5	Very high	15	5.7%
	Total	259	100.0%

Fig. 2: Respondents reported recovery progress of diabetic condition

Majority (42.7%) of the respondents reported fair recovery progress. This was closely followed by high recovery that was reported by 38.3% of all respondents. However, due to a number of factors, some respondents reported that their progress was poor (14.1%) and very poor (1.9%). It is only 2.9% of the patients that reported that their recovery progress was excellent.

In comparison of the relationship between the patient's knowledge on recommended diets and their recovery rate, a cross tabulation was done and chi-square statistic computed as shown in Table 5:

Table 5: A cross tabulation of the relationship between the patient's knowledge on recommended diets and their recovery rate

Sl. No.	Nutritional Knowledge	Recovery progress					Total
		Excellent	Good	Fair	Poor	Very poor	
1	Very low	0 (0%)	1 (20.0%)	3 (40.0%)	0 (0%)	3 (40.0%)	7 (100%)
2	Low	0 (0%)	4 (11.1%)	11 (29.6%)	20 (55.6%)	1 (3.7%)	36 (100%)
3	Average	0 (0%)	40 (31.9%)	75 (59.6%)	11 (8.5%)	0 (0%)	125 (100%)
4	High	1 (2.2%)	40 (65.2%)	16 (26.1%)	3 (4.3%)	1 (2.2%)	61 (100%)
5	Very high	5 (18.2%)	13 (45.5%)	8 (27.3%)	3 (9.1%)	0 (0%)	29 (100%)
	Total	7 (2.6%)	99 (38.1%)	112 (43.3%)	36 (13.9%)	5 (2.1%)	259 (100%)

Pearson Chi-Square = 128.501, Degrees of freedom = 16, p-value = 0.001

The findings in Table 5 show that there is a significant association between the patient's nutritional knowledge and recovery (p-value < Alpha value of 0.05). It can be noted that 40.0% of the patients whose nutritional knowledge was very low had very poor recovery progress. Out of the respondents with very low nutritional knowledge, 40.0% and 20.0% had fair and good progress of recovery respectively. None of the respondents whose nutritional knowledge was very low had excellent rate of recovery. For those respondents whose nutritional knowledge was rated as low, majority of them (55.6%) reported poor recovery progress while 29.6% reported a fair recovery progress. Other responses were good (11.1%), very poor (3.7%) and excellent (0.0%). For those respondents whose nutritional knowledge was rated as average, majority of them (59.6%) reported fair recovery progress while 31.9% reported a good recovery progress. Other responses were poor (8.5%), very poor (0.0%) and excellent (0.0%). For those respondents whose nutritional knowledge was rated as high, majority of them (65.2%) reported good recovery progress while 26.1% reported a fair recovery progress. Other responses were poor (4.3%), very poor (2.2%) and excellent (2.2%). For those respondents whose nutritional knowledge was rated as very high, majority of them (45.5%) reported good recovery progress while 27.3% reported a fair recovery progress. It is only 2.9% and 0.0% of this category that reported poor and very poor recovery progress respectively. A sizeable proportion of this category reported excellent recovery progress (18.2%)

These results agree with Harris & Haughton [15] findings that proved that there is a relationship between nutrition knowledge and success of diabetic management. As the nutritional/diet knowledge among the diabetic patients increases, a positive effect on recovery rate is expected to be realized. However, there are other factors that are believed to influence the recovery progress as evident from the fact that despite a cumulative of 75.8% of the total respondents having average, high or very high nutritional knowledge, only 40.7% of the total respondents had good or excellent progress.

Summary of findings

The following is a summary of the salient results of the findings of the study.

- Majority of the respondents indicated that they had received nutritional counseling and that they are aware of the recommended diet suitable for their diabetic condition. However, despite the receipt of the diet counseling services, some patients still do not know the actual therapy they need to adhere to and consequently the progress made by most of the patients towards recovery continue to drag.
- For those respondents whose nutritional knowledge was very low had very poor recovery rate. This study noted a significant association between the patient's nutritional knowledge and recovery rate. It was noted that 40.0% of the patients whose nutritional knowledge was rated as very high, majority of them (45.5%) reported good recovery progress while 27.3% reported a fair recovery progress. It is only 2.9% and 0.0% of this category that reported poor and very poor recovery progress respectively. A sizeable proportion of this category reported excellent recovery progress (18.2%).

CONCLUSION

The following conclusions were reached based on each of the stated objectives:

- Nutritional counseling affects the rate of recovery among diabetic patients. Diabetic patients who do not access nutritional counseling services are likely to fail to adhere to therapies and treatment.
- Nutritional counseling services are generally available to diabetic patients and consequently most patients had received diet counseling from different sources. However, the means of disseminating the services by nutritional counselors, poverty and cultural interference negatively affects adherence and effectiveness of counseling which eventually impairs the rate of recovery among diabetic patients.

Recommendations

Based on the findings of this study, the following recommendations were made:

- The government must take an active role in promoting the nutritional counseling services offered in hospitals by employing more dieticians, intensifying awareness campaigns on the recommended diet for the diabetics.
- Civil society, especially the churches have to take an active role by holding workshop and seminars to sensitize the community about the diabetic condition, psychological support and fighting against stigma to the patients. This can contribute to improved dissemination of diabetic related information and hence nutritional counseling which leads to quick recovery rate especially to the patients who live far away from the hospitals.
- Necessary facilities such as well equipped hospitals and dieticians in all health facilities need to be established throughout the country. Long distances to the hospitals may contribute to lack of access to nutritional counseling services among the diabetics.
- A strong guidance and counseling intervention should be revamped in government hospitals to help deal with psychological issues that patients, especially the diabetics go through in life. Stress factors have a significant effect to the recovery rate of the patients.

Suggestions for Further Research

The findings of this study would act as a base for more findings on the issue of nutritional counseling among the diabetic patients in the study area. However, the study was not exhaustive and the researcher suggests the following:

- A research on the level of stake holders input in promoting nutritional counseling in hospitals should be conducted.
- Similar study to be undertaken that includes a larger population in order to confirm whether the investigation shows similar results.

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