International Journal of Community Medicine and Public Health
Agyei KG et al. Int J Community Med Public Health. 2022 Nov;9(11):4046-4053
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20222898

Original Research Article

Assessing the quality of life of people with diabetes in a hospital in Takoradi-Ghana

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Received: 09 September 2022
Accepted: 11 October 2022

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ABSTRACT

Background: Persons living with diabetes have been shown to have a significant negative impact on both their physical and mental wellbeing. This study sought to determine the quality of life of people with diabetes.
Methods: A descriptive study was used for this study. A convenient sampling technique was employed to recruit 100 participants at the Nagel Adventist Memorial hospital in Ghana. The instrument that was used to collect data from participants was a questionnaire adopted from the MDQoL-17 questionnaire.
Results: The study showed that a majority of the participants 60% indicated that, they were very satisfied with their treatment at NMAH. In addition, 36% indicated they were moderately satisfied and just 4% indicated they were not satisfied with the treatment at all. Seventy- eight percent (78%) representing the majority of participants indicated they get physically ill and had poor physical functions. A p value of 0.428 was recorded for an association between gender and treatment satisfaction with a Cramer V value of 0.148.
Conclusions: The study found no significant association between gender, age and quality of life. Also, the participants recruited was found to have a poor quality of life. The study therefore suggests that Stakeholders and Ministry of Health should subsidize the cost of treatment or even make diabetes medications free to enable everybody get access to it and also health facilities should inculcate physical and psychological training into their diabetes education to help improve patients' quality of life.

Keywords: Diabetes, Quality of life, Treatment satisfaction, Physical function, Psychological function

INTRODUCTION

Diabetes mellitus (hereafter referred to as diabetes) is a chronic and progressive metabolic disorder characterised by high blood glucose levels.[1] Diabetes is of great concern to all health systems and it has been considered as a global epidemic due to its prevalence.[2] The global prevalence of diabetes for those over 25 years of age, according to the World Health Organisation is 10%, while in the Eastern Mediterranean, the prevalence is 11%.[3] There is scarcity of information on diabetes in Africa, notwithstanding, the IDF indicates that about 7% of healthcare budget is spent on diabetes in Africa.[4] In 2015, it was indicated that about USD 3.4 billion was spent on diabetes and this expenditure is estimated to rise to around USD 5.5 billion in 2040.[4] Currently, the global estimates indicates that diabetes affects about 422 million people annually and it is set to escalate to 642 million by the year 2040.[5] In 2019, diabetes was the cause of about 1.5 million deaths and 48% of all deaths.[6,1] There was a 5% increase in premature mortality (before the age of 70) rates between 2000 and 2016 from diabetes.[7] In sub-Saharan Africa (SSA) the number of adults estimated to be living with diabetes in 2017 was 15.5 (9.8-27.8) million, with a regional prevalence of 6%.[8] It is estimated

that the prevalence of diabetes has been rapidly increasing in low- and middle-income countries as compared to that of countries of high-income rates.[1] This may be due to an increase in sedentary lifestyle and delay in screening and treatment in these countries. Ghana recorded 8,529 diabetes-related deaths in 2013 and these figures are expected to double over the next two decades.[9] Diabetes mellitus management aims at glycaemic control, prevention of acute and chronic complications, and enhancing the quality of life for patients Wattana, Srisuphan, Pothiban, and Upchurch and currently, diabetes self-management education programs are becoming the interest of health care providers, especially in the management of type 2 diabetes.[10,11]

Quality of life means an individual's perception of standing in a specific cultural, social and environmental context.[12] Studies have shown that Quality of life is an important measure of future morbidity, mortality, and the measure of the impact of disease as an outcome measure in clinical trials.[13] Currently, the contemporary healthcare approach tends to achieve and maintain the highest possible level of quality of life within the specific limits inflicted by the disorder and size daily life functioning, since the full recovery has been very unlikely.[14] Quality of life has become highly emphasized in recent years as an important health care outcome. As stated by Spasić, Radovanović, Đorđević, Stefanović, and Cvetković, medicine should aim for the preservation and restoration of both the health and the dignity of the patient.15 Consequently, it should influence the quality of life of patients. Persons living with diabetes have been shown to have a significant negative impact on both their physical and mental wellbeing.[16] Diabetes requires individuals to adjust and adapt to the symptoms of the disease and lifestyle behaviours. The objective of the study was to assess the quality of life of patients living with diabetes at Nagel Memorial Adventist Hospital, Takoradi, Ghana.

METHODS

Study setting

Nagel Memorial Adventist Hospital is situated at Takoradi in the Western Region of Ghana. The hospital is a non-profit private organization, solely owned by the Adventist Church, Ghana and as an Adventist health institution operates by the doctrines of the church through policies formulated by the Ghana Adventist Health Services (GAHS) under the Christian Health Association of Ghana (CHAG). The hospital has a 41-bed capacity. The facility has a staff capacity of about 200.

Study population

A descriptive survey design (quantitative approach) was undertaken from February to April 2022 at the Nagel Memorial Adventist Hospital, Takoradi-Ghana. The study population comprised of all the patients with diabetes who attended the diabetes clinic and out patient department (OPD) of the Nagel memorial Adventist Hospital.

Inclusion criteria

The study included all patients with diabetes (who have lived with the disease for more than a year) who attended the OPD and diabetes clinic and were aged 20 years and above.

Exclusion criteria

The study excluded patients who have had diabetes for less than a year and patients who were aged below 20 years. Patients who had challenges with communication were also excluded from the study.

Sample size and sampling technique

Purposive sampling was used in selecting the participants for the study. The Cochran formulae was adopted to calculate the sample size.[17] The sample size for study was therefore hundred (100) patients with diabetes who consented to participate in the study.

Questionnaire

The instrument that was used to collect data from participants was adopted from the modified diabetes quality of life (MDQoL)-17 questionnaire which was developed and validated in 2010 in the local South Indian languages - Kannada and English.[18] It consists of 17 questions that comprise seven domains, which include role limitations due to personal or emotional problems, physical functioning, role limitations due to physical health problems, emotional well-being, social functioning, energy/fatigue, and general health perceptions.[16] The questionnaire was adapted for use in the research, however the domains and some of the questions were reframed to suit the Ghanaian context. The domains were categorised into three key sections which include treatment satisfaction, physical function and psychological function. The questions were translated into the local languages as well during the data collection for those who could not speak English; hence the administration of the questionnaires was undertaken face to face. After data collection the reliability assessment of the different subcomponents of the questionnaire revealed a Cronbach's alpha value of 0.75 (9 items) for psychological function, 0.71 (5 items) for physical treatment and 0.34 (10 items) for treatment satisfaction. All the Cronbach's alpha values were above 0.70 which is considered acceptable as a good indicator for internal consistency except one (treatment satisfaction subcomponent) that had 0.34.

Analytical framework

Data analyses was undertaken using the statistical product and service solutions-version 21. Descriptive statistics

were computed to describe frequency and percentages and the results were displayed in tables. Descriptive statistics such as percentages, and frequency were used for the presentation of respondents' responses on sociodemographic characteristics, their treatment satisfaction, physical and psychological functions of diabetes patients. The descriptive statistics were complemented with inferential statistics to find the association between the sociodemographic characteristics and quality of life. A Chi-square analysis was performed. Each participant gave their consent after explaining the purpose of the study and was reminded that participation was voluntary and the discussion would remain confidential.

RESULTS

Sociodemographic characteristics of the respondents

The study requested participants to indicate their background characteristics since these characteristics and attributes could affect their responses. These included age, gender, educational level, religion and occupational status. Majority of the study participants (63%) were females. The age group with the highest frequency (34%) was between 50-64 years while a few (17%) were within the ages 20-34 years and below.

It was also revealed that majority (66%) were married while (14%) were single. In addition, (6%) were divorced and the remaining (14%) were widowed. The educational level of participants showed that most of the participants (39%) had tertiary level education while a few had (13%) had no formal education. Majority of the participants were Christians, which represented 83% of the sampled population while just 1.3% were traditionalists. The employment status also showed that thirty-eight percent (38%) of participants representing the majority were employed. Details of all participants have been provided in (Table 1).

Knowledge on diabetes

Most of the participants (49) representing 61% of the sampled population indicated they knew very little about diabetes and its complications before they were diagnosed with diabetes. Also, 23 (29%) showed they had no knowledge on diabetes, and a few of the participants, 8 (10%) indicated they were very knowledgeable about diabetes. Participants were then asked if they have received any form of education after their diagnoses regarding the complication, treatment, and management. Ninety-eight percent (98%) of the participants indicated that they have had education on diabetes while a few (2%) showed they have not had any education. Majority of the study participants (77%) indicate they obtained their education from health workers. Further details are presented in (Table 2).

Treatment satisfaction of patients with diabetes

Patients were asked whether or not they were satisfied with the treatment they have been receiving and majority of the participants (60%) indicated they were very satisfied with their treatment. Of the selected participants, 99% indicated they were on routine drugs and from this, majority (68.8%) of them indicated they were on oral medications while 31% showed they were on only injectable.

Table 1: Distribution of sociodemographic characteristics of participants (n=80).

Variables	N	%
Gender		
Male	30	37.50
Female	50	62.50
Age (years)		
20-34	14	17.50
35-49	25	31.25
50-64	27	33.75
65 and above	14	17.50
Marital status		
Single	11	13.75
Married	53	66.25
Widowed	11	13.75
Divorced	5	6.25
Educational level		
No formal education	10	12.50
Primary	12	15.00
Secondary	27	33.75
Tertiary	31	38.75
Religion		
Christian	66	82.50
Muslim	13	16.25
Traditionalist	1	1.25
Employment status		
Employed	30	37.50
Unemployed	16	20.00
Retired	7	8.75
Self-employed	27	33.75

A greater number of the participants (63%) did not have any side effects of the treatment and 38% indicated they had side effects. Again, majority of the participants (55%) indicated they cater for their health care using their national health insurance. Twenty-seven representing (33.8%) indicated they pay for healthcare themselves. Details are shown in (Table 3).

Physical functions of participants

Assessment regarding physical functions among participants were assigned values on a three-point Likert scale format (1-often, 2- sometimes, 3- Never). The nearer the total percentage of responses to a given statement by the respondents is to 100 percent, the more satisfactory is the statement. Seventy- eight percent

(78%) representing the majority of participants indicated they get physically ill. Moving forward, participants who indicated they get tired when performing daily activities were 75% of the sampled population who represented the majority. In addition, 54% showed they mostly feel pain during physical activities.

Table 2: Knowledge on diabetes.

Variables	N	%
How long have you been diagnosed?		
1-2 years	21	26.25
3-5 years	28	35.00
Above 5 years	31	38.75
Did you have knowledge of diabetes before being diagnosed?		
Very well	8	10.00
Not much	49	61.25
No knowledge	23	28.75
Have you received any form of education after diagnosis?		
Yes	78	97.50
No	2	2.50
Where did you receive your education?		
Health person	58	72.50
Health books	3	3.75
Internet	3	3.75
Radio and TV	16	20.00

Table 3: Treatment satisfaction of participants.

Variables	N	%
Are you currently on routine drugs?		
Yes	79	98.75
No	1	1.25
How satisfied are you with treatment?		
Very satisfied	48	60.00
Moderately satisfied	29	36.25
Not satisfied	3	3.75
What type of treatment are you on?		
Injectables	25	31.25
Oral	55	68.75
Have you experienced side effect of the drug?		
Yes	30	37.50
No	50	62,50
What side effects		
None	49	61.25
Diarrhoea	1	1.25
Dry mouth	9	11.25
Low sugar levels	13	16.25
Nausea and vomiting	5	6.25
Low sugar and dry mouth	3	3.75
How do patients cater for treatment?		
Self-payment	27	33.75
Health insurance	44	55
Family	7	8.75
Organization	2	2.50

Finally, 56% of participants, which also represented the majority, also showed they often get limited in performing physical activities. This is shown in (Table 4).

Table 4: Distribution on the physical functions of participants.

Statement	Often (%)	Sometimes (%)	Never (%)
Do you get physically ill?	2.50	75.00	22.50
Do you get tired performing daily activities?	8.75	66.25	25.00
Do you experience pain that prevents you from performing activities	5.25	48.50	46.25
How often do you feel limited in performing activity	3.75	52.50	43.75

Table 5: Distribution of psychological functions of participants.

Statement	Often (%)	Sometimes (%)	Never (%)
How often do you worry you will pass out?	17.50	55.00	27.50
How often do you worry your body looks different?	11.25	30.00	58.75
How often do you hide from others because of DM?	17.50	33.75	48.75
How often do you feel restricted by diet?	42.50	53.75	11.25
How often do you worry about your health?	35.00	53.75	11.25
How often do you worry about your sex life?	16.25	40.00	43.75
How often does DM interfere with your life?	11.25	52.50	36.25
Do you worry you will not be able to care for family	18.75	46.25	35.00
How often do you worry you will lose job?	8.75	23.75	67.50

Physical functions of participants

Assessment regarding physical functions among participants were assigned values on a three-point Likert scale format (1-often, 2- sometimes, 3- Never). The nearer the total percentage of responses to a given statement by the respondents is to 100 percent, the more satisfactory is the statement. Seventy- eight percent (78%) representing the majority of participants indicated they get physically ill. Moving forward, participants who indicated they get tired when performing daily activities were 75% of the sampled population who represented the majority. In addition, 54% showed they mostly feel pain during physical activities. Finally, 56% of participants, which also represented the majority, also showed they often get limited in performing physical activities. This is shown in (Table 4).

Psychological function of participants

To ascertain for the quality of life of patients with diabetes, their psychological function and well-being were also considered. Seventy-three percent (73%) representing majority of the participants indicated they always worry they will pass out. Moving forward, the study analysis evinced that, majority (96%) of the participants showed they often feel restricted by their diet which made them to worry. Furthermore, majority (89%) of the study respondents revealed that they always worry about their health. Most of the participants (56%) were worried about their sex life because they are diabetic which made them depressed. This is shown in (Table 5).

Association between sociodemographic variables and quality of life

A chi-square analysis was undertaken to determine the association between sociodemographic characteristics and quality of life using the individual statements under treatment satisfaction, physical function and psychological functions of diabetics. The association between gender and quality of life is depicted in (Table 6). A p value of 0.428 was recorded for an association between gender and treatment satisfaction with a Cramer V value of 0.148. Additionally, there was no association between gender and physical function as well as psychological function as indicated by p values of 0.411 and 0.614 respectively. Another sociodemographic variable (age) was used to determine the association between age and quality of life. A p value of 0.005 was recorded with a Cramer V=0.342. Also, with regard to having side effect of treatment, participants who were between the ages of 50-64 had the most frequency (11) followed by those above 65 (7), those between 35-49 (7), and lastly those between ages 20-34 years (5) (Table 7).

Table 6: Association between gender and quality of life.

Treatment satisfaction					
Gender	**Very satisfied**	**Moderately satisfied**	**Not satisfied**	**P value**	**Cramer V**
Male	19	9	2	0.428	0.148
Female	29	20	1		
Physical function (how often do u get physically ill)					
Gender	**Often**	**Sometimes**	**Never**	**P value**	**Cramer V**
Male	1	20	9	0.411	0.149
Female	1	40	9		
Physiological function (how often do you worry about your health)					
Gender	**Often**	**Sometimes**	**Never**	**P value**	**Cramer V**
Male	12	14	4	0.614	0.110
Female	16	29	5		

Table 7: Cross tabulation between age and quality of life.

Age (years)	**Yes**	**No**	**P value**	**Cramer V**
20-34	5	9	0.005**	0.342
35-49	7	18		
50-64	11	16		
65 and above	7	7		

**p value< 0.05 is statistically significant

DISCUSSION

This study aimed at assessing the quality of life of patients with diabetes in Ghana. The study revealed that 61.3% of the sampled population indicated they knew very little about diabetes presentation and complications before they were diagnosed with diabetes. This is may be because there is lack of education on diabetes in the society/ community.[19] Abazari et al further indicate that because people are mostly not educated on the risk and

complications of diabetes, it becomes something new to patients who tend to develop this disease and as a result, it makes it difficult to comprehend the pathophysiology of the disease, which will in turn have a toil on the treatment of the disease. However, this study revealed that after being diagnosed with diabetes, 98% of the participants indicated that they have had education on diabetes while only 2% showed they have not had any education. Educating patients with diabetes is one of the key roles of health personnel as this helps these patients to know how to manage their sugar level through dieting, exercising and drug management.[20] With regard to the treatment satisfaction of patients with diabetes, participants indicated they were satisfied with the treatment since majority (63%) of the patients were not having any drug complications and with the 38% that indicated they had side effects it was known to be the common side effects which were diarrhoea, dry mouth, low blood sugar level, nausea and vomiting. Taking into account the educational level of the participants, the type of medication used for diabetes treatment, complications from treatment and the treatment satisfaction, the finding of this study is inconsistent with Al-Aujan et al who indicated that treatment satisfaction is lower among patients with diabetes who have a lower educational level, who are insulin-treated, or have a diabetic complication and is related to difficulties in taking medications and coming to follow-up.[21] The present study acknowledged the importance of educating patients with diabetes on the side effects of the medication administered. Another study by Biderman et al showed less satisfaction among patients with diabetes who experienced increased number of complications (foot ulcer being the most common complication).[22] The physical function of diabetics is another key factor to look at when estimating the quality of life of patients with diabetes. This study revealed that 75% representing the majority of participants indicated they get physically ill. This could be attributed to the increase in body weight among the people with diabetes which exposes them to a lot of other complications.[23] People with diabetes should be able to do some minor activities and this can reduce their body weight and in turn help to regulate the body's glucose level.[24] In addition, majority of the participants indicated they get tired when they are performing daily activities. In addition, a little over half of the respondents (54%) showed they mostly feel pain during physical activities which disturbs their functional capacity and limits them in performing physical activities. This was explained in the findings of previous studies that patients with type two diabetes experience impaired functional capacity.[25] The plausible explanation for the low functional capacity might be because of the negative effect of hyperglycaemia on muscular strength, endurance, and poor glucose metabolism.[25]

This present study acknowledged that psychosocial problems that are most common in patients with diabetes often result in a serious negative impact on patients' well-being and social life, if left unaddressed. Addressing such psychosocial aspects including cognitive, emotional, behavioral, and social factors in the treatment interventions is imperative in overcoming the psychological barriers, associated with adherence and self-care for diabetes.[24] In this study, the psychological function of participants was analysed using a series of indicators. Among these, majority (73%) of the participants asserted that they were worried they may pass out, 96% showed they feel too restricted by their diet, 57% were always worried about their health, 56% showed they often worry about their sex life, 65% were worried they may not be able to care for their family and finally 63% indicated the disease has interfered with their life. It was ascertained that majority of these participants were very worried about the fact that they were diabetic and were worried about their overall health. A little over half (55%) of the participants indicated they use national health insurance to cater for their treatment, however, they further explained the insurance do not cover for most of their medications so they always have to buy these drugs themselves. This led to them having worries anytime they had to go to the hospital for their medication. The study acknowledged that this in turn affects the psychological function of these patients and deter them from going to the hospital for their reviews and medications. Prajapati et al revealed in their study that patients who had health insurance demonstrated a better quality of life as they could attend the hospital for regular check-up as the insurance companies catered for the cost especially with regards to medication. It is therefore imperative to have effective insurance policies.[16]

It was also ascertained that some of these patients were worried with the fact that they are not able to perform certain activities they used to do because of their condition (diabetes). The findings of this present study is in disagreement with Adeyege et al indicated that about (15%) which represented few of their study participants with diabetes presented with depressive symptoms as they had many worries.[26] However, Mezuk et al is in agreement with this current study and showed that the presence of type two diabetes is likely to result in psychological issues including depression. Similarly, Chima et al, Cherrington et al reported the incidence of depression in patients with type two diabetes.[26-29] It could be that the impact of the disease on the metabolic system with high blood sugar, sudden dietary restriction, easy fatigability, and sudden changes in social life may impact negatively on the psychological wellbeing of patients with type two diabetes.[30] Moreover, to assess the association between sociodemographic characteristics of participants and quality of life, a chi-square analysis was done to determine the association between sociodemographic characteristics and quality of life using the individual statements under treatment satisfaction, physical function and psychological functions of diabetics. A p value of 0.428 was recorded for an association between gender and treatment satisfaction with a Cramer V value of 0.148 which indicated there

was a weak association between gender and quality of life. This study shows that gender does not have any effect on the quality of life.[30] This corresponds with the study of Prajapati et al who indicated that gender had no influence on the quality of life of patients with diabetes (p value of 0.713). This is in disagreement with Degu, et al study who showed that age and gender have particular roles to play in the health-related quality of life among patients with diabetes.[31] Venkataraman et al study also showed an association between gender and quality of life.[32] Another test for association was performed between age and quality of life variables. It was deduced that there was no association between age and physical function as well as psychological function. However, there was an association between age and treatment satisfaction with a p value of 0.005 with a Cramer V=0.342 which showed that the more advance the age of participants, the more they had side effects of treatment and the less they were satisfied with treatment. This finding corroborates with that of Prajapati et al.[16] who observed in their study that as age increases there was a significant decrease in the quality-of-life score (p=0.024). To note, notwithstanding the in-depth findings revealed by this study, these findings cannot be generalized on the larger population due to the small sample size used for the study.

CONCLUSION

This study has revealed that most of the participants were satisfied with the treatment because they were not experiencing any complications of diabetes and this can be due to the fact that these patients are given insightful education about how they should take their medication and also how they can check the glycaemic index of foods so as to help regulate their sugar levels. However, the study shows that most of the participants have low or reduced physical function since most of the participants indicated they cannot perform physical activity. Furthermore, some of the participants were showing low psychological function and were worried about their health, restriction of diet and how they were going to care for their family. This also had a toll on their psychological function. In summary, the study participants were found to have a poor quality of life considering their physical and psychological function. The study also showed that quality of life of people living with diabetes is not influenced by sociodemographic characteristics such as gender. There is therefore the need to inculcate education on the importance of physical exercise during diabetes education sections to help improve physical function of people with diabetes. It is also necessary to make diabetes medications readily available at a subsidised or no cost to enable every patient with diabetes to continually assess treatment/medication.

ACKNOWLEDGEMENTS

Authors would like to thank administrator and management of Nagel memorial Adventist hospital as well as the heads of the outpatient department and diabetes clinic of the Hospital. The authors also express their gratitude to all the patients for their participation in the study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Agyei KG, Anderson SE, Avege NS. Assessing the quality of life of people with diabetes in a hospital in Takoradi-Ghana. Int J Community Med Public Health 2022;9:4046-53.