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Original Research Article

Establishment of diabetes association to enhance peer-education and self-management: perceptions of residents from Ogwashi-Uku and Ubulu-Unor communities in Delta state, Nigeria

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ABSTRACT

Background: Diabetes epidemic is an evolving phenomenon in Nigeria and sub-Saharan Africa. Most African governments are showing strong desire to reversing the current trend. However, information on the perception and readiness of rural and suburban community dwellers towards managing this disease need to be gathered.
Methods: This was mixed methods including descriptive observational study and survey regarding establishment of a diabetic network in the rural and suburban localities. Quantitative screening data were collected to assess prevalence of diabetes or prediabetes, as well as investigate the perceptions of diabetic and non-diabetic residents. Establishment of diabetes register was initiated. 180 complete questionnaires were included for analysis, though 199 consented to participate. In the qualitative phase of the research, a convenience sampling questionnaire and focus group discussion on their perception about diabetes association or network. Their perceived response and opinions were then documented.
Results: Among the participants, approximately 12% prevalence of diabetes and 10% prediabetes were observed. 19/25 cases of diabetes were entered in the register. Over 43% of the population never heard about diabetes association/network, but 72% of the diabetes cohort are willing to join diabetes network. A greater fraction of the suburban patients seems more aware, but willingness to accept diabetes is higher in the rural community.
Conclusions: Most of the persons living with diabetes, and their relatives, are willingly to join diabetes network as well as encourage such organisation in their communities. Given the level of unawareness, there is need to establish diabetic association and advance the benefits.

Keywords: Diabetes register, Diabetes association/network, Peer education, Self-management, Social health

INTRODUCTION

Diabetes is one of the important non-communicable diseases that has successfully attracted the attention of all and sundry including health organisation, regulatory organisation and even the United Nation, regretfully as it may seem, the burden of diabetes is rapidly increasing with an estimate that by 2026 there will be 380 million people suffering from diabetes.[1,2] Many drugs have been formulated for the treatment of diabetes mellitus (DM). However, they are not without their side effects, high cost, limited action and secondary failure rates.[3,4] Hence the need for alternative. One of such approach is social health, which entails diabetes registry and diabetes network which can serves as a means of health promotion.

Apart from diabetes register as a tool to manage diabetes complication, another notable approach which has been

proven to work in Africa with a case model of that of Tanzania is the diabetes network.[5] The Community Diabetes Network is meant to be a community non-profit organization founded to address the unique challenges facing community members living with diabetes. This ranges from access to better health care, resources, creating community that understands and support each other with peer-education for better self-management of the disease. Although the issues concerning the formation and operation of diabetes association as a strategic option for improving diabetes management fall under the purview of social health approach. Research in the area of health promotion has proven that the formation of local diabetes association within the community level can be a great means of reaching out to the people effectively and efficiently.[6] However, associations still limited to healthcare practitioners, while that of individuals living with diabetes has yet to be formed.

In Delta State (South-South Nigeria) where Ogwashi-Uku and Ubulu-Unor communities are located, public health policies and efforts have been targeted at reducing disease burden, communicable and non-communicable diseases through public enlightenment, screening, treatment, care and support. There are efforts at strengthening the health system and its management through proper data management, implementation of all primary health care (PHC) activities and health manpower development, but little attention has been attached to the social health approach of diabetes self-management (DSM) for individuals living with diabetes. In the rural and suburban areas such as Ogwashi-Uku and Ubulu-Unor with inadequate medical facilities, the need for diabetes awareness campaign cannot be overemphasized. For instance, the challenges to acceptance of a Diabetes Association could depend on the people's awareness of the benefit and mobilisation strategies to reach out to prospective beneficiaries in the rural villages.

Objectives

Perceptions of diabetics towards establishment of Diabetics association among diabetes patients in Ogwashi-Uku and Ubulu-Unor communities in Aniocha south, Delta State, Nigeria. The specific objectives of this study are to determine the prevalence of diabetes mellitus in Ogwashi-Uku and Ubulu-Unor communities of Delta State, develop a diabetes register, perception and attitude of diabetics and non-diabetics towards the development of diabetes association and register in Ogwashi-Uku and Ubulu-Unor communities and percentage of diabetes mellitus patient willing to join the diabetes association in Ogwashi-Uku and Ubulu-Unor communities of Delta State if formed.

METHODS

Study design

This was a mixed method study involving descriptive observational and survey approaches (Table 1). Participants comprised residents of Ogwashi-Uku and Ubulu-Unor communities.

Area of the study

The study was conducted in Ogwashi-Uku and Ubulu-Unor communities in Aniocha South Local Government Area of Delta State. Ogwashi-Uku is headquarter of the local government and, for the purpose of comparison in this study, represents a suburban town while Ubulu-unor is rural.

Table 1: Summary of study design.

S. no.	Research objectives	Data collection approach	Evaluation
1	Prevalence of DM in Ogwashi-Uku and Ubulu-Unor communities of Delta State	Diabetes clinic/screening: observational	Descriptive statistics; evaluation of prevalence
2	Develop a diabetes register.	Pilot establishment of register: observational	Descriptive statistics
3	Perception and attitude towards DM association in the communities: diabetics vs. non-diabetics	Survey questionnaire - convenience sampling	Comparison between diabetes vs. healthy cohorts
4	Percentage of willingness to join the diabetes association: rural vs. suburban communities	Survey questionnaire - convenience sampling	Comparison between the two communities

Population and sample size

The total population of Ogwashi-Uku community is approximately 30,000 and Ubulu-Unor community is projected to be approximately 20,000 (FGN Official Gazette, 2009). The study also focused on diabetes patients and their carers who volunteered to respond to clinical observation and provide information about themselves i.e. as apparently healthy participants. On this basis, sample size was predetermined to be 'n≥202'.

Scope of the study

This study was limited to prevalence of diabetes mellitus, perception and attitude of diabetics and non-diabetics towards the development of diabetics register in the locality, percentage of diabetes mellitus patient willing to join the diabetes association in Ogwashi-Uku and Ubulu-Unor communities of Delta State via information gathered from questionnaire.

Selection and exclusion criteria

The selection criteria were limited to persons living with or their carers; and indigenes of Ogwashi-Uku and Ubulu-Unor communities in Delta State who have been resident in the Community for the past 6 months, are above 18 years of age and were willing to participate. Only 180 returned questionnaires were complete and included for analysis. Exclusion criteria included volunteers with incomplete questionnaires, as well as those who were neither living with, nor caring for diabetes.

Data collection

Diabetes screenings including laboratory tests were performed between January 2019 to May 2019. Anthropometric measures were collected. Survey questionnaire was used to generate information regarding perception about diabetes association.

Establishment of diabetes register

A diabetes register was designed as previously described (#2 in the series). For Ubulu-Unor and Ogwashi-Uku communities, the data obtained from the participant included the name of the participants, their addresses, age (date of birth), gender and telephone number, types of diabetes and date of diagnosis amongst others.

Statistical analysis

Descriptive statistics including mean (reported as mean±SEM), frequencies and simple percentages were computed for continuous and categorical variables. Prevalence of DM was computed for the overall population and was also calculated for males and females across all age groups. Statistical comparisons were performed using the SPSS 19.0; while graphical presentations were facilitated with microsoft excel.

Ethical approval

Ethical clearance was obtained from the Department of Public and Community Health, Novena University. Then, verbal consent was obtained from the community leaders to organize the awareness and diabetes screening programs. The survey questionnaire contained a cover letter stating the rationale behind the study, and guaranteeing the participants' confidentiality of their responses.

RESULTS

Of the 203 questionnaire that were received, 199 were included; amounting to a 98% success rate. The remaining 4 questionnaires were incorrectly filled and hence disregarded. The analyses of demographic variables of the respondents are tabulated (Table 2). The results show for instance that approximately 56% were males, 41% constituted age 54 years and above, and 61% married with children. Pertinently worrisome is that among those living with DM, 40% have primary school as their highest educational level, which would define them as illiterate. Thus, majority of the population are literate with variable academic exposures.

Table 2: Analysis of the demographic variables.

Variable		Normal	Pre-diabetic	Diabetic	Chi-sq.	P value
		N (%)	N (%)	N (%)		
Gender	Male (n=112)	87 (56.1)	12 (63.2)	13 (52.0)	0.553	>0.05
	Female (n=87)	68 (43.9)	7 (36.8)	12 (48.0)		
Age in years	16-24 (n=23)	21 (13.5)	1 (5.3)	1 (4.0)	9.371	>0.05
	25-34 (n=60)	47 (30.3)	7 (36.8)	6 (24.0)		
	35-54 (n=34)	21 (13.5)	6 (31.6)	7 (28.0)		
	>54 (n=82)	66 (42.6)	5 (26.3)	11 (44.0)		
Marital status	Single	96 (61.9)	10 (52.6)	15 (60.0)	4.376	>0.05
	Married with children	34 (21.9)	7 (36.8)	8 (32.0)		
	Married without children	16 (10.3)	1 (5.3)	2 (8.0)		
	Widowed or divorced	9 (5.8)	1 (5.3)	0 (0.0)		
Academic qualification	PHD	3 (1.9)	0 (0)	1 (4.0)	8.249	>0.05
	MSC or MBA or MPH	1 (0.6)	0 (0)	0 (0)		
	B.Sc	44 (28.4)	9 (47.4)	8 (32.0)		
	NCE or OND	5 (3.2)	1 (5.3)	2 (8.0)		
	Secondary	46 (29.7)	6 (31.6)	4 (16.0)		
	≤Primary	56 (36.2)	3 (15.8)	10 (40.0)		
Family history	Positive	45 (29.0)	6 (31.6)	4 (16.0)	1.991	>0.05
	No or not sure	110 (71.0)	13 (68.4)	21 (84.0)		
Location	Ubulu-Unor	94 (60.6)	8 (42.1)	18 (72.0)	4.065	>0.05
	Ogwashi-Ukwu	61 (39.4)	11 (57.9)	7 (28.0)		

Table 3: Prevalence of diabetes and hypertension among the participants.

Variable	Frequency (%)	95% confidence interval
Fasting blood sugar		
Normal	155 (77.9)	79.14-81.21
Pre-diabetic	19 (9.5)	84.38-97.25
Diabetic	25 (12.6)	127.84-141.21
Blood pressure		
Normal	66 (33.2)	126.31-133.88 (systolic)
Pre-hypertensive	45 (22.6)	72.67-76.87 (diastolic)
Hypertensive	88 (44.2)	71.66-75.86

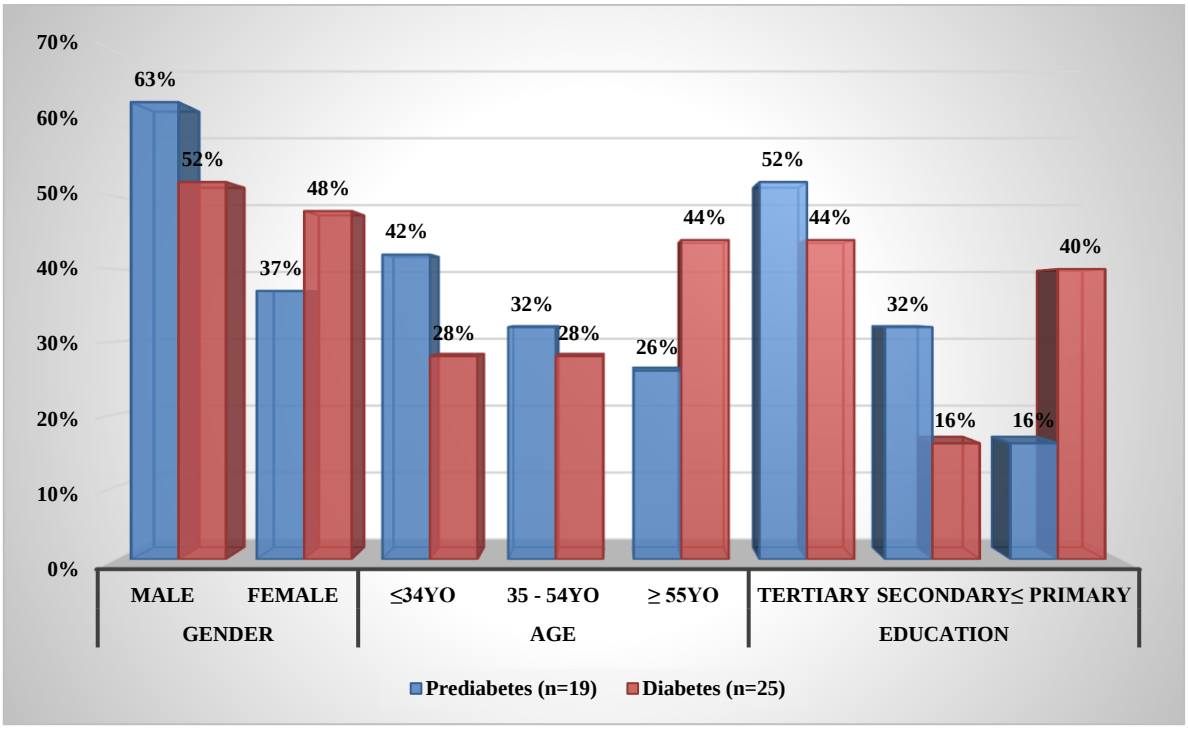

Figure 1: Sociodemographic distributions of diabetes and prediabetes participants.

Analysis for research objective 1

Table 3 above shows the prevalence of diabetes and hypertension among the sampled community, data emanating from the study depicts that of the 199 participants 155 which constitute 77.9% were normal that is having fasting blood sugar level of within less than 100mg/dl, while 19 participants (9.5%) were pre-diabetic, 25 participants (12.6%) were diabetic. The table also shows that 33.2% of the sampled populations had normal blood pressure while 22.6% pre-hypertensive and 44.2% were hypertensive respectively

On a further critical review demographics presented in Table 2; results show that besides 40% of those living with diabetes having primary school as their highest educational level, the prediabetes cohort 16% comprises this educationally disadvantaged group. On the consideration of age, 42% of the prediabetes are 34 years old or younger (Figure 1).

Analysis for research objectives 2

A total of 16 entries were made from participant that are resident in Ubulu-Unor while 3 entries were made of participants in Ogwashi-Uku. The entries on the register show that approximately 79% are types 2 DM while type 1 or gestational diabetes are 10.5% each (Table 4).

Analysis for research objective 3

On the questionnaire survey, only 'n=180' (out of the 199 participants) were complete and included in analysis. The results of data emanating from questionnaire survey on the perception of the respondent towards diabetes association among resident (DM patients vs. apparently healthy group) show the program will be welcomed. 57% of healthy participants reported to have heard of diabetes association/networking and about 50% knows the benefit. Comparatively, similar proportions of diabetic respondents reported to have heard and knows the benefit. 93% of healthy respondent reported that they will join the

association and 88.0% of diabetes cohort also share similar taught. Impressively there was no statistically significant association between healthy and diabetes groups (Figure 2).

Table 4: Entries onto the diabetes register being developed.

S. no.	Address	Name	Age (years)	Gender	Types of diabetes
1	Ubulu-Unor	Respondent A	65	F	Type 1
2		Respondent B	61	F	Type 2
3		Respondent C	63	F	Type 2
4		Respondent D	72	F	Type 2
5		Respondent E	45	F	GDM
6		Respondent F	45	M	Type 2
7		Respondent G	45	F	Type 2
8		Respondent H	47	F	Type 2
9		Respondent I	80	M	Type 2
10		Respondent J	45	F	Type 2
11		Respondent K	56	F	Type 1
12		Respondent L	80	M	Type 2
13		Respondent M	77	F	Type 2
14		Respondent N	56	F	Type 2
15		Respondent O	72	M	Type 2
16		Respondent P	65	F	Type 2
17	Ogwashi-Uku	Respondent AA	42	M	Type 2
18		Respondent BB	56	M	Type 2
19		Respondent CC	45	F	GDM

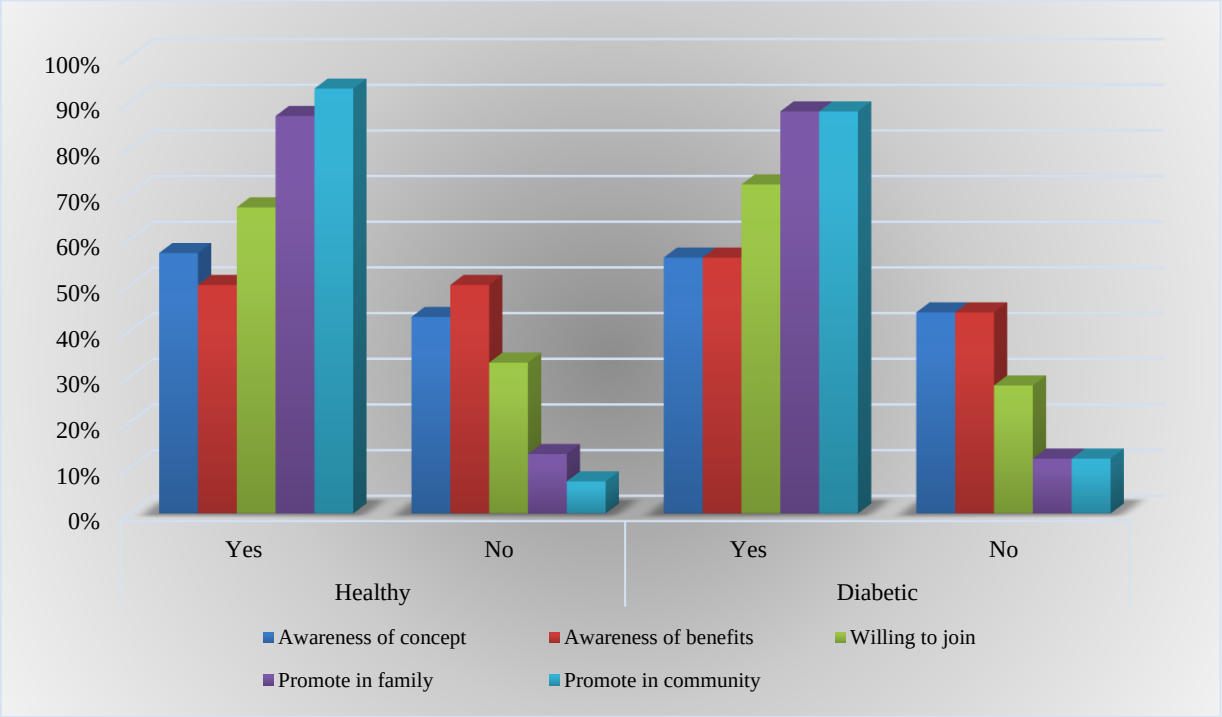

Figure 2: Perceptions of respondents regarding diabetes association (n=180).

Analysis for research objective 4

44.4% of the diabetes participants from the rural Ubulu-Unor have heard of Diabetic association/networking and know the benefit; while the proportion in suburban Ogwashi-Uku community is 85.7%. Results further show 88.9% of diabetic respondents from Ubulu-Unor community agreed that they would encourage their family members who are diabetic to join just as 85.7% of those from Ogwashi-Uku community also share same views (Table 5).

Table 5: Percentage of DM participants willing to join diabetes register.

Items / Location →	Ubulu-Unor			Ogwashi-Ukwu		
	Response			Response		
	Yes	No	Chi-square	Yes	No	Chi-square
	N (%)	N (%)		N (%)	N (%)	
Have your heard of diabetic association/networking	8 (44.4)	10 (55.6)	0.892	6 (85.7)	1 (14.3)	1.351
Do you know the benefit of diabetic association/networking	8 (44.4)	10 (55.6)	0.274	6 (85.7)	1 (14.3)	2.432
Will you join such association	12 (66.7)	6 (33.3)	0.537	6 (85.7)	1 (14.3)	0.957
Will you encourage your family member who are diabetic to join	16 (88.9)	2 (11.1)	1.707	6 (85.7)	1 (14.3)	0.152
Will you promote the activities of such organisation in your community	16 (88.9)	2 (11.1)	0.956	6 (85.7)	1 (14.3)	4.402

DISCUSSION

Diabetes epidemic is an evolving phenomenon in Nigeria and sub-Saharan Africa. Most African Governments need to reverse the current trend where Diabetes occupies very low priority in their national health care agenda. Information on the humongous costs of diabetes care in Nigeria and other developing nations needs to be evaluated and documented, such that policy makers and policy drivers will appreciate the need to focus on introducing early, cost effective interventions for both primary and secondary prevention.

This study offers numerous interesting findings. Majority of the respondents from this study are male (56.3%) within the age of 54 years and above, those married with children (60.8%). First degree academic qualification (30.7%). People who are not sure of their family history of diabetes (72.4%) this shows a high level of health illiteracy. In another independent study, it was also established that many of diabetes patients in Delta State are married couples with children and also majority of adults over 54 years old.[7] This justifies the fact that lifestyle and lack of exercise could be the driving factors in the management of diabetes.

Prevalence level of diabetes in Ogwashi-Uku and Ubulu-Unor communities

This study found out, that there is a high prevalence of diabetes in Ubulu-Unor and Ogwashi-Uku communities in Delta State. This result may also suggest a rising prevalence of this disease in other rural communities across the country. This finding also highlighted the need for increased public awareness on the risk factors for this disease and the establishment of institutionalized DSM strategies such as the use of diabetes register and Diabetes Association. This will bring about shifts in current public health priorities and augment the efforts of various stakeholders from within and outside the health facilities.

The prevalence of 12.6% of diabetes in our study is also higher than the reported global prevalence of 8.8% and much more than the 2.3% indicated for Nigeria by the IDF on diabetes atlas.[8] This finding is much higher than those reported from Ndokwa-West local government area, as well as reports from other parts of Nigeria.[9-13] A very higher prevalence of 59% has been reported from Agbor metropolis, although the study focused on "suspected persons".[14] Therefore, relatively higher prevalence in this study may be due to the fact that the outreach was a free screening exercise before referral. Such situations may have attracted individuals who already suspect their diabetic status.

Development of diabetes register and association

Another notable finding emanating from this study is the limitations that could hinder establishing a diabetes register. This study unearthed some of the following limitations such as (1) paper-based diabetes registers are not cost effective. The amount of time and effort required to set up such systems is enormous and this partly explains the limited number of population-based registers seen in typical underdeveloped countries. Paper based registers do not offer data validation. There will be lack of automated messaging. Lack of extensive reporting and integration with clinical notes. Difficulty in integrating other health records in health facilities and (2) there may be governance bottlenecks and logistical issues to address before anonymous linkage of data is possible without explicit individual consent from all people whose information is included in a database. For instance, 25 individuals were diagnosed with diabetes during this exercise, but only 19 consented to be entered on the register being developed. That is, 24% of the prospective clients dissented from being registered.

A total of 16 entries were made from participant that are resident in Ubulu-Unor while 3 entries were made for participant that are resident in Ogwashi-Uku, while nearly 80% of the entries are types 2 DM. A point of note is that

only 18/25 indicated willingness to join diabetes association in the questionnaire, which is less than the total number of entries in the register.

Perceptions towards diabetes association/network among residents

From this study, majority of the non-diabetes are knowledgeable about Diabetic Association and networking even as diabetic respondent (Figure 2). However, appreciation of the benefits of diabetic association was far more from diabetics than non-diabetes respondents. This could be attributed to the fact that naturally those who are sick always tends to look for any means necessary for them to get well. Majority of the diabetic respondent ascertained that they will join and encourage members of their family to join the association. This observation advances previous report of the parent study that diabetes as a multifaceted disease requires the collaboration of experts from various disciplines for healthcare to achieve good DSM.[7]

The percentage of DM patients willing to join diabetes association

This study also established that majority of the diabetic respondents that have knowledge of diabetic association were those from Ogwashi-Uku communities when compared to those from Ubulu-Unor community. This finding is in agreement with existing opinion that Diabetes Association is gaining awareness in sub-Sahara Africa.[15,16]

The study also recorded that 44.4% and 85.7% of the sampled population from both Ubulu-Unor and Ogwashi-Uku respectively knows the benefit of diabetes association/networking. The difference between Ubulu-Unor and that of Ogwashi-Uku could be as a result of the wide network of information dissipation on diabetes education enjoyed by the community members of Ogwashi-Uku than those from Ubulu-Unor communities. Another possible reason could also be related to the fact that Ogwashi-Uku communities enjoy secondary health institution opportunity and health personnel than those from Ubulu-Unor community. It could also be connected with the fact that Ogwashi-Uku has been the local government headquarter with early exposure to governments and better health institutions. Majority of the diabetic respondents who affirmed that they will join diabetic association/networking were those from Ogwashi-Uku community, although more than half of the diabetic respondents from Ubulu-Unor also agreed that they will join such association and that they will encourage their family members and promote the activities of the association in the communities (Table 4).

These findings are strongly consistent with another report that using diabetes association/networking as a means of DSM will definitely be a welcome development among Africa communities, provided adequate information dissipation is made towards such association formation.[17] They know the benefits that using the social health approach could serves as a better alternative.[18,19] Therefore, it needs to be advocated that health promotion through the formation of associations can be a great means to reach out to the people effectively and efficiently improve DSM.[20,21]

CONCLUSION

The study concludes that diabetes programmes such as diabetes association/networking and keeping a diabetics register are acceptable to the people in rural and suburban communities. Therefore, it should be integrated into clinical practice to effectively advance diabetes management plans. Most of the diabetic residents studied showed more enthusiasm towards the prospects of the establishment of a diabetic network and association, hence it can be concluded that diabetic patients are far more willingly to join diabetic association/networking and also encourage such organisation in their communities than the non-diabetic participants.

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