Nigerian Journal of Applied Behavioural Sciences, 4 (June) 2016, 438 - 445

ISSN: 2408-543X

AN EXPLORATION OF COMMUNITY FACTORS IN DIABETES MANAGEMENT

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Abstract

This study examined community factors that impact diabetes management among those living with diabetes. The study was a cross-sectional survey and non-experimental in design conducted among the Igala in Kogi State. The quantitative method of data collection was used. Respondents were purposively selected through convenience and snowballing sampling techniques. A total of 152 persons living with diabetes were selected. The data were analysed using simple percentage, chi square and regression analyses. The results show that availability of physical infrastructure and health educators' visits to the community were statistically related to diabetes management at P<.000 and P<.004, respectively. The Adjusted R^2 =.233 shows that being a member of a voluntary association, availability of physical infrastructure, distance to the clinics, presence of health educators, and access to clinics can explain about 23.3 percent of the variance in diabetes management among the study population. The results further show that availability of physical infrastructure (β= -367, t= -4.870, P < .000) impacted negatively on diabetes management. There is need for comprehensive diabetes education and a policy that will assist those living with diabetes financially.

Key words: Diabetes management, health educators, community factors, and clinics

INTRODUCTION

Type 2 diabetes is a major public health issue globally. According to International Diabetes Federation (2015), about 415 million people have diabetes in the world and more than 14 million people are in the Africa region; and by 2040 this figure will more than double. There are more than 1.56 million cases of diabetes in Nigeria, and 40,815 numbers of deaths in adults were due to diabetes related complications.

There is no cure for diabetes but it can be managed. Managing the condition entails strict adherence to medical recommendations that requires a great deal of self-care or self-management that involves diet and lifestyle modifications, compliance to prescribed medication, regular clinic visit, self-monitoring of blood glucose among other prescribed or recommended activities. Adhering to these activities may prevent complications of diabetes such as heart disease, stroke, hypertension, blindness, renal

disease, nervous system disease, amputations, dental disease and complications of pregnancy (Centre for Disease Control and Prevention, 2007).

However, performing these activities has become problematic for those living with the disease. Different factors have been identified as to why patients default in following recommended activities. For example, studies (Naeem, 2003; Delvin, Roberts, Okaya, & Xiong, 2006) show that culture and religion play a role in the management of diabetes. Specifically, Naeem (2003) identifies that belief in God is a source of strength and an important resource for diabetes management. Egede and Bonadonna (2003) find that fatalism was negatively associated with self-management among African American adults with type 2 diabetes mellitus. Chacko (2003) find cultural background and environmental resources as influencing participants' experience of their disease and their disease management decisions. Also, Fleming, Carter, and Pettigrew (2008) also found that culture does affect diabetes self-management.

Venkataraman et al. (2002) find self-efficacy as the strongest determinants of improved glycaemic control and family support, employment status, formal education, and absence of complications influenced self-efficacy. El-Kebbi et al. (1996) found that lack of family support, family pressure, expense of food, and lack of taste of low-fat and sugar-free foods were barriers to dietary adherence among urban African Americans with diabetes.

Lack of motivation, cultural traditions, lack of affordable and accessible restaurants and stores and accessible recreational facilities have also been identified as barriers to adapting health behaviours regimens (Kieffer, Odeoms-Young, & Guzman, 2004). Adejoh (2012, 2014) found the influence of socio-demographic characteristics and family supports on the management of diabetes among adults studied.

Study have demonstrated that the third sector resources like voluntary organizations and community groups had promoted the active involvement of patients in decision making, especially in lay-led programs (Kennedy, Reeves, & Bower, 2007). In the western world, voluntary organizations and community groups are recognized as having importance for the promotion of quality of life and seen as an element in the range of services available to support the health and well-being agenda within local and national contexts (Evers & Lavile, 2004; Barlow, Bancroft, & Turner, 2005).

Equally, voluntary organisations and Community Groups have demonstrated capacity to reach people who are frequently excluded from traditional health services (Flanagan& Hancock, 2010). Also, study has demonstrated the utility of social support mechanisms such as peer support groups, community health workers, for effective diabetes management (Peek, Cargill, & Husng, 2007).

Community factors are conceptualised as the environmental context of people comprising of norms and values, culture, social structure, physical infrastructure, economy and different institutions that are within the community that could affect disease management. Furthermore, Community components or subsystems that can influence the health status of individuals are churches, volunteer associations, schools and extended family networks (Hill, 1983). There are no published studies on community factors that facilitate or militate against self-management of diabetes among the Igala adults living with diabetes. Identifying these factors will add to web of existing knowledge on factors that affect self-management of diabetes and this will help in designing interventions that are culturally relevant in helping to improve the lives of those living with and managing diabetes.

Hence, this study examines community factors that affect or influence self-management among adults living with diabetes among the Igala in Kogi State. Specifically the study examined the influence of physical infrastructure, distance to clinic, health educator visit to the community and membership of a voluntary association on diabetes management status.

The study addressed the following questions: Is there any significant relationship among the independent variables (social infrastructure, distance to the clinic, health educator visit to the community, and membership of an association and the dependent variable – diabetes management status?

What is the joint contribution of the independent variables (physical infrastructure, distance to the clinic, health educator visit to the community, and membership of an association) on diabetes management status?

What is the relative contribution of the independent variables (physical infrastructure, distance to the clinic, health educator visits to the community, and membership of a voluntary association) on diabetes management status?

Diabetes Management

This refers to the activities performed or carried out by those living with diabetes in order to manage their condition or bring the glucose level under control and live a normal life. This includes the following: eating well-planned balanced diet, taking medication as prescribed, exercising regularly, eye and foot examinations, weight control, checking blood pressure and visiting the clinic as scheduled. Diabetes management demands lifestyle modification on the part of those living with the condition.

METHOD

Setting of the Study

The study adopts the multistage sampling procedure. The procedure begins with the purposive selection of Kogi State and selection of Kogi east senatorial district as the preliminary investigation shows that diabetes is common among the people. Further, no study has ever been conducted on diabetes management among the people. Also, the study purposively selected four Local Government Areas that have government general hospitals, faith-based hospitals, and private hospitals to have easy access to respondents.

Participants and Setting

Participants

The socio-demographic characteristics of the respondents with diabetes show that 54.0% were women, while 46.0% were men. The Respondents' mean age was 56.20. The mean age supports Akinkugbe's (1997) claims that diabetes increases 3 to 4 times after age 44 and Nyenwe, Odia, Ihekwaba, Ojule, & Babatunde (2003), who state that diabetes is more frequently found in people aged 50 years and above in Nigeria. About 29.0 % of the respondents had no formal education; 32.0 % had primary education, 18.0% had secondary education; and 26.0% had post-secondary education. A total of 75.0 % of the respondents were married, 12.0 % were never married, while 10.5

% and 3.0 % were widowed and divorced, respectively. Besides, 34.0% of them were civil servants; 15.0 % were both retired and unemployed; 18.0 % were self-employed.

Measures

A combination of quantitative and qualitative methods was used. However, only the quantitative data are reported in this article. Question were asked on the diabetes management activities on dietary management, medication taking, glucose testing, weight management, clinic visit, eye and foot examinations and regular exercise. For examples questions asked include: Do you take your diabetes medication on daily basis? Do you follow recommended dietary pattern? Do you go for fasting blood sugar testing?. Questions on community factors included for example if health educator visits the community to talk to them about their diabetes? If distance of the location of the clinic discourages one from visiting the clinic as recommended?

Procedure

The sample consisted of 152 respondents living with diabetes and managing the condition using orthodox means of management. Contacts with some of the respondents were made in both the public and privately owned hospitals during appointment with their doctors, while for some others a snow ball procedure was used. That is having contact with someone with diabetes through another person, who knows another person with diabetes. Respondents that were recruited through snowballing must be making use of orthodox clinic for managing the condition. The inclusion criteria for respondents were: that they had been diagnosed as being diabetes, mental soundness in order to consent to participation, willingness to participate and must have visited the clinic three times within one year before the commencement of the study. This is to ensure that those that participated were using biomedical pathway of managing the condition and may have adjusted to living with the condition.

Immediately after receiving approval from the Kogi State Ministry of Health, research assistants were trained for data collection by the principal investigator. Eight research assistants were trained to assist in data collection. Respondents were selected through hospitals as they come in for their appointments and also through snow balling. The purpose of the study was explained to the respondents and thereafter their consents obtained before the administration of the questionnaire. Each questionnaire took about 40 minutes for completion.

Data Analysis

The data were analysed based on the method of data collection used. The quantitative data were edited to make them error-free, while the open-ended questions were categorized before coding. The data were analysed using SPSS version 15.0. Univariate analyses were conducted to describe the socio-demographic characteristics of the sample. Associations among categorical variables were tested for statistical significance, using chi-square. Relationships among the dependent and independent variables were investigated using regression techniques.

To establish bivariate associations between diabetes management status of the respondents on the one hand and each of the hypothetically-related factors on the other hand, cross tabulation is utilised. To test the significance and magnitude of such associations, I proceed to the non-parametric approach of Chi-square. The Chi-square

procedure is used to test whether association exists between diabetes management and each of the community factors. Note, significant association is established at the 5% level ($p<0.05$).

Ethical Considerations

The study was reviewed and approved by the Ethical Review Committee of Kogi State Ministry of Health. Participants gave verbal informed consent before the administration of the questionnaire and in-depth interviews.

RESULTS

Community factors and Diabetes Management

Results in Table 1 showed that there is a relationship between physical infrastructure, comprising markets, hospitals, schools, religious bodies and diabetes management, as 89.0% of the respondents who had between 1 and 2 of physical infrastructure in their communities had good management status, while those with 2 to 4 of physical infrastructure as 64.0% had good management status and those with 5 and above infrastructure had 24.0% of good management status. The chi-square test shows that there is an association between physical infrastructure within the community and management status at .000 ($p<.05$).

Table 1: Distribution of Respondents by Community Factors and Diabetes Management

Independent variables	Diabetes Management status			*Df*	X^2	*P*
	Poor	Good	Total			
No of physical infrastructure						
1-2	4(11.1)	32(88.9)	36(100.0)	2	42.911	.000
3-4	18(36.9)	32(64.0)	50(100.0)			
5+	50(75.8)	16(24.2)	66(100.0)			
Total	772(47.4)	80(52.6)	152(100.0)			
Distance as barriers to visiting clinic						
Yes	10(41.7)	14(58.3)	24(100.0)			
No	62(48.4)	66(51.6)	128(100.0)	1	.372	.542
Total	72(47.4)	80(52.6)	152(100.0)			
Health educator visit to the community						
Yes	8(25.0)	24(75.0)	32(100.0)			
No	64(53.3)	56(46.7)	120(100.0)	1	8.135	.004
Total	72(47.4)	80(52.6)	152(100.0)			
Active member of any voluntary association						
Yes	50(44.6)	62(55.4)	112(100.0)			
No	22(55.0)	18(45.0)	40(100.0)	1	1.268	.260
Total	72(47.4)	80(52.6)	152(100.0)			

Table 1 also indicates that 75.0% of the participants who had access to health educators in their communities had good diabetes management status compared with

46.0% without access to health educators but good management status. The Pearson Chi-square test shows that there is an association between access to health educators and diabetes management status at P<.004.

Table 2: ANOVA analysis showing the Joint Influence of Community factors on Diabetes Management Status

R =.508
R. Square = .259
Adjusted R. square = .233
Std. Error of the Estimate = 1.75

		Sum of squares	**Df**	**Mean square**	**F**	**Sig.**
Model 1	Regression	156.654	5	31.331	10.180	.000*
	Residual	449.346	146	3.078		
	Total	606.000	151			

Table 2 above shows significant joint impact of community physical infrastructure, access to clinic, distance to clinic, health educator visit and membership of an association to the prediction of management status (R= .508, P<.05). The multiple regression coefficient R^2 = .259, Adjusted R^2 = .233. The five factors jointly accounted for 23.3 percent in the variation in diabetes management. The analysis of variance shows a significant impact of the factors on diabetes management, (F (5, 151) = 10.180, p<.05)

Table 3: Relative Influence of Community Factors on Diabetes Management Status

	Unstandardized coefficients		**Standardized coefficients**		
	β	**Std. Error**	**Beta**	**t**	**Sig**
Constant	7.653	.514	-	14.902	.000*
No of physical infrastructure	-.367	.075	-.433	-4.870	.000
Distance	.560	.394	.102	1.422	.157
Health educator visit	.745	.418	.152	1.781	.077
Membership of association	.104	.334	.023	.312	.755

Results showed the contribution of community components to diabetes management status. The result reveals the relative impact of the variables to the prediction of diabetes management status. The result shows that one out of five variables is a potent predictor of diabetes management status. Physical infrastructure (β = .367, t = -4.810, P <.000). This implies that physical infrastructure have negative impact on diabetes management status. All other predictors are not potent predictors or have no impact on diabetes management status.

DISCUSSION

The findings of this study provide information on community factors that are likely to affect effective management of type 2 diabetes. The study shows that physical infrastructure in a community and health educator's visits to the community are associated with diabetes management. The findings reveal that infrastructure in the community - hospitals, schools, markets, religious bodies and government establishments and health educators' visit to the community have relationships with diabetes management.

The study found that community factors had significant impact on the management of type 2 diabetes. The relative negative impact of physical infrastructure on diabetes management could be explained in terms of lack or inadequate provision of these infrastructures. For instance, in a community without a clinic or hospital, the individual will have to travel to another community to access health care. This will cost an individual extra burden of financial cost of transportation and time spent travelling. This may be used as excuse to miss appointment on the part of the patient. Similarly, if a community has no market the individual will have to travel to buy relevant foodstuffs. Money spent travelling could have been used to buy drugs that would have lasted a long period. This will have implications for the management behaviour of an individual managing such condition. This is important as individuals operate through these institutions to meet their daily needs. Consequently their diabetes management will be influenced.

CONCLUSION

The identified influence of community factors includes the availability of physical infrastructure and health educator's visit to the community to educate those living with diabetes on their health needs, access to recommended foodstuffs, and on the need to follow their doctors' recommendations. If individuals living with diabetes are to effectively manage their condition, the provision of macro and meso factors necessary for managing the condition must be provided by whichever arm of government the responsibility lies as managing the condition goes beyond individual factors.

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