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Physical activity among urban community dwellers with diabetes mellitus: An exploration of experiences

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Abstract

The prevalence of diabetes mellitus in South Africa has increased drastically over the last two decades and ranks third in terms of mortality and morbidity for the general population. Urbanisation plays an important role in the emergence and high prevalence rates of type 2 diabetes mellitus and is associated with more availability of food, eating of unhealthy fast foods and a less physically active lifestyle. Physical activity has gained much attention for its role in preventing premature disease and disability and has become widely recognised as a key health behaviour, associated with reduced morbidity and mortality of chronic diseases of lifestyle such as hypertension and type 2 diabetes, diabetic complications, improved glucose tolerance and insulin sensitivity. This study explored urban community dwellers with diabetes mellitus experiences and or challenges with regards to the inclusion of physical activity in their management of their disease. Focus group discussions were conducted with 26 individuals with diabetes mellitus from 6 randomly selected community health care centres in the Cape Metropolitan Region, Western Cape. The discussions yielded five (5) main themes: safety/fear; lack of time/conflicting responsibilities; co-morbidities; lack of motivation/enjoyment and involvement of others. It is clear that individuals with diabetes mellitus in urban communities experience several environmental and social facilitators and/or barriers to incorporating physical activity in their daily routines. Therefore when designing or promoting physical activity interventions for individuals with diabetes mellitus in urban communities it is important to create safe and supportive environments to enhance participation.

Keywords: Physical activity; diabetes mellitus; environmental, social factors.

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Introduction

Diabetes Mellitus, an international pandemic, is a growing public health concern and its prevalence is escalating exponentially with a high frequency of morbidity, premature mortality, disability, loss of productivity (Steyn, 2007) and socio-economic challenges (Mbanya et al., 2010). South Africa is ranked the country with the 2nd highest number of people affected with diabetes in African countries (IDF, 2003). The prevalence of diabetes mellitus has increased overwhelmingly in the last two decades and in 2007 an estimated 1.5 million South African's were diagnosed with diabetes mellitus, a disease that ranks third

in South Africa in terms of mortality and morbidity for the general population (Steyn, 2007). The prevalence of the "disease of affluence" in South Africa has increased drastically over the years (Somers, Rusford, Hassan & Erasmus, 2006) due to population growth, ageing populations, dietary changes and sedentary lifestyles, all of which are associated with westernisation and urbanisation (Mensah et al., 2004; Wild, Roglic, Green, Sicree & King, 2004; Mennen & Mbanya, 2000). However, many societal impediments such as poor education, illiteracy and low socioeconomic rank also contributes to the diabetic pandemic (Levitt, 2008; Rabi et al., 2006). This is alarming if kept in mind that researchers cautioned that undiagnosed diabetes is not a benign condition (Al Osaimi & Al-Gelban, 2007). Furthermore, the impact of the HIV/AIDS epidemic on the projected prevalence of type 2 diabetes should also be taken into account. The International Diabetes Federation (2014) estimated the number of people with diabetes to be 2.6 million in South Africa in 2013. The rate at which new cases of diabetes mellitus are emerging poses an additional burden on South Africa already stretched to the limit by life-threatening infections such as tuberculosis (TB) and HIV/AIDS. In addition, diabetes management costs have to compete with other health demands such as antiretroviral drugs for HIV/AIDS and tuberculosis treatment (Idemyor, 2010).

Urbanisation plays an important role in the emergence and high prevalence rates of type 2 diabetes mellitus (Holme et al., 2007; Godfrey & Julien, 2005, Aspray et al., 2000; Mennen & Mbanya, 2000). It is associated with more availability of food, eating of unhealthy fast foods and a less physically active lifestyle. People from rural areas have higher levels of physical activity which facilitate high energy utilisation compared to their urban counterparts. This leads to the quadrupling of the prevalence of obesity amongst urban residents (Aspray et al., 2000). Obesity and physical inactivity contribute to insulin resistance, a critical component in the pathogenesis of type 2 diabetes mellitus (Bennett, 2000). A general trend towards a more sedentary society with the advent of modern electronic equipment and computers as well as more time spent sitting at leisure time may be causative components in the increased trend of the disease, especially for urban settings (Hu et al., 2001). Physical activity has gained much attention for its role in preventing premature disease and disability (Valois, Zullig, Huebner & Drane, 2004), and it became widely recognized as a key health behaviour, associated with reduced morbidity and mortality of chronic diseases of lifestyle such as hypertension and type 2 diabetes (Martinson, O'Connor & Pronk, 2001; Prat, Macera & Wang, 2000) as well as diabetic complications (Gill & Cooper, 2008; Kriska et al., 2003). In addition, physical activity, has been shown to improve glucose tolerance (WHO, 2003; Boule et al., 2001) and insulin sensitivity (Irwin et al., 2000), as well as reducing the use of diabetic medication, assisting with weight loss and decreasing hypertension and complications of diabetes mellitus (Willey & Singh, 2003).

Various studies have been conducted in sub-Saharan Africa to investigate participation in physical activity and have shown the urban-rural discrepancies but most of these made use of self-reported information with questionnaires that are not validated for this population (Mbanya et al., 2010; Neilson, Robson, Friedenreich & Csizmadi, 2008; Sobngwi et al., 2004). Despite these concerns expressed by the Mbanya and colleagues (2010), these quantitative studies, in the absence of others, give some indication of physical activity participation and patterns and trends among individuals. However these studies provide little information regarding the individual, social and cultural factors underlying physical activity participation or the lack thereof. This qualitative study therefore explored urban community dwellers with diabetes mellitus' experiences with regards to the inclusion of physical activity in their management of their disease.

Methodology

Research setting

The study was conducted in the Cape Metropolitan District of the Western Cape, one of the five (5) districts of the City of Cape Town. The Cape Metropolitan District covers an area of 2 460km^2, has a population of 3 740 026 million people, is divided into four substructures on which twenty two (22) Community Health Centres (CHCs) are situated in these sub-structures. Of the individuals diagnosed with type 2 diabetes mellitus in the Western Cape 55% are from the Cape Metropolitan District. Seven community health centres were randomly selected to participate in the study.

Sample

Permission and ethical clearance for the study was obtained from the University of the Western Cape, South Africa. Permission to conduct the study in six (6) of the selected seven health centres were granted by the Western Cape Department of Health. All the health centres have a specific day on which clients with diabetes mellitus are managed by a professional nurse/doctor and 36 clients were conveniently approached to participate in focus group discussions. Written informed consent was obtained from 26 of the clients willing to participate in the study prior to the focus group discussions. At the beginning of the focus group the researchers introduced themselves and welcomed everyone. Participants were all thanked for agreeing to participate in the discussions and permission was sought to tape-record the sessions. The aim of the study was explained and participants were asked to reflect on their experiences with regards to the inclusion of physical activity as part of the management of their disease. They were encouraged to talk freely and participate fully in the discussions. At the end of each focus group discussion, participants were thanked personally for their contribution.

Data analysis

Data from the audiotape recordings was transcribed verbatim by an independent person with experience in transcription to produce a manuscript. A comparison was made between notes taken during the discussions to verify accuracy. Content analysis was done by extracting meaningful ideas of the participants' opinions (coding into themes). Thereafter the transcripts were read through several times by the authors to look for emerging themes. Grouping of the themes into broader categories were done in order to amalgamate smaller categories into one. After the derivation of themes, an independent researcher read through the transcripts and generated themes that were then compared to the themes of the researcher.

Trustworthiness of qualitative data is measured by its credibility, which, in qualitative research, is determined by the match between the constructed reality of the participants and the reality presented by the researcher (Lincoln & Guba, 1985). Several steps were considered to build credibility: prolonged engagement and persistent observation; member checks were ascertained by giving feedback of the data to participants so that they could comment on accuracy of the recordings; responses were transcribed verbatim and independent researchers were asked to read through the transcripts and generate themes.

Results

A total of 26 clients agreed to participate in the study. The mean age of the group was 58.92 years (SD=7.33) and 15 were females and 11 males. Most of the clients expressed awareness of the importance of physical activity although not engaging in it ("*I know I must exercise. ….* [Female, 73 years old]). The content analysis yielded five themes and these are outlined below.

Theme 1: Fear/Safety

The surrounding areas of the community health centers and the areas in which participants reside, are reported to be dangerous, due to activities by local gangs amongst others and expressed below:

"I get up early in the morning to go to work and then I get back very late. It is already dark outside. It is really too dangerous to go for a walk then."
(Male, 60 years)
"I am too scared to walk on my own....It is dangerous where we stay…..lots of gangsters."
(Female, 73 years)

The environment is thus perceived or experienced as unsafe and participants expressed the need for safer environments to facilitate participation in physical activity as quoted below:

"*I wish there was a place in the community where I could go to exercise….. like the church hall or so. And I don't feel safe to exercise around the house."*
(Female, 63 years)
"The communities should get involved and provide safe environments for exercise. It is too dangerous…"
(Female, 43 years)

Theme 2: Lack of time/conflicting responsibilities

Many of the participants highlighted the difficulty they experienced with incorporating physical activity into an already busy day. As some of them described:

"I work full-time in an office and when I get home I must do all my house work myself and cook for the family. I really don't have time to exercise during the week."
(Female, 47 years)
"I work half-day and then look after my grandchildren in the afternoon. There is no time to do formal exercise." (Female, 52 years)

Theme 3: Co-morbidities

Other health problems are often experienced by adults with diabetes mellitus which could make inclusion of physical activity in their daily lives difficult.

"…some days I am too tired to get out of bed. I also have a heart problem."
(Female, 68 years)
"My foot was amputated last year and now I must walk with crutches. My hands get sore and tired when I walk too much." (Male, 64 years)
"I have arthritis in my knees and hips. It pains a lot…."
(Male, 69 years)
"I am so overweight all the years. I don't have the energy to exercise.
(Female, 63 years)

Theme 4: Lack of motivation/enjoyment

Some participants showed complete apathy or indifference to any form of physical activity as described below.
"I am very lazy…I don't even like to walk, I actually hate any form of exercise."
(Male, 69 years)

"I haven't exercise for all the years. I just don't like it and I sat a lot for my work. How can you expect me to start now?" (Male, 48 years)
"I only do some of my house work. Otherwise I sit all day and watch TV."
(Female, 63 years)

Theme 5: Involvement of others

A desire for someone else's involvement in physical activities was expressed by participants, as illustrated below.

"*No one in the house wants to walk with me. I've asked so many times, but they are too busy…."* (Female, 73 years)
"It is so much easier to exercise if someone is doing it with you."
(Female, 58 years)

Discussion

An analysis of the major themes identified during the focus group discussions revealed the challenges experienced by individuals with diabetes mellitus in incorporating physical activity as part of the management of their disease. Although this study focused on community dwellers in an urban setting in the Western Cape, some of the challenges and experiences highlighted could be similar to those experienced by individuals in other settings. Some of these challenges can be seen as complex and interweaving. As an example, practical issues such as lack of time to participate in physical activities were linked with social issues, such as the focus on duties to their next of kin.

A dominant factor that influenced their physical activity participation was the fact that they felt unsafe in their respective communities and their desire to have somebody with whom to exercise stemmed from this. Several researchers (Amesty, 2003; Melilo et al., 2001) have shown that African-American and Hispanic women also experienced neighbourhood safety as a barrier to including physical activity in their daily lives. Although addressing issues such as neighbourhood safety and gang violence seems like a daunting task, requiring the collaboration between several national and local government departments and community forums, interim solutions are highlighted by the study participants and health professionals and/or community organizations should take these into considerations (*"I wish there was a place in the community where I could go to exercise….. like the church hall or so").*

Tailored physical activity programmes within the community such as physical activity classes within community halls by lay health educators could be seen as a possible solution to increase physical activity participation in our respective communities. This type of intervention will not only provide a safe environment

for physical activity but it will also address social support issues, such as the desire to exercise with others and provide opportunities for socialisation. Research has shown that multidisciplinary community activity programmes that take language use and acculturation into consideration can be successful in increasing physical activity participation (Abraido, Lanza, Chao & Florez, 2005; Evenson, Sarmiento & Ayala, 2004).

Several other studies have identified factors such as perceived lack of time and experiences of co-morbidities to be barriers to the participation in physical activity, irrespective of people's ethnic or cultural grouping (Lawton et al., 2006; Grossman & Stewart, 2003; O'Brien Cousins, 2000). Mbanya et al. (2010) urge that anthropological viewpoints are needed to shed some light on the issues on control and prevention of diabetes mellitus in Africa. This qualitative study therefore informs the development and delivery of programmes to increase or promote physical activity amongst individuals with diabetes mellitus and can complement the findings of quantitative research.

Conclusion

It is clear that individuals with diabetes mellitus in urban communities experience several environmental and social facilitators and/or barriers to incorporating physical activity in their daily routines. Therefore when designing or promoting physical activity interventions for individuals with diabetes mellitus in urban communities it is important to create safe and supportive environments that will enhance participation.

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