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Self-Management of Diabetes Mellitus among Tamils in the Batticaloa District, Sri Lanka: A Qualitative Study

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Abstract: The poor lifestyles, rapid urbanization, lack of knowledge, unsatisfactory attitude and practices among patients with Diabetes Mellitus (DM) have resulted for the steady increase in the prevalence of DM in Asian countries. Thus, this study aimed to explore the experiences of physicians and nutritionists on the attitudes of the patients with DM and acceptable practices on self-management of DM. Descriptive qualitative methodology was used to explore the experiences of voluntarily recruited physicians and nutritionists those who had managed the Tamil patients with DM. In-depth interviews including audio recording were used for data collection and verbatim transcripts were analyzed on the basis of content analysis. Three main themes were emerged from the content analysis of interview transcripts. Ignorance of diet habits, changing of lifestyle and healthy eating were the concerns of the health care professional. Ignorance, dietary habits and lifestyles have impacted much among Tamil patients on Self- management of DM. Change in attitudes, modification in lifestyles along with good adherence to acceptable practices would contribute to better self-management of DM among Tamils.

Key words: Practices, attitudes, self-management, diabetes mellitus

INTRODUCTION

Prevalence of Diabetes Mellitus (DM) has been increasing progressively over the years. The impacts of urbanization and industrialization along with genetic and environmental factors, have led to sedentary life, physical inactivity, stress and obesity among people (Wijesuriya, 1997).

The global prevalence of DM has been estimated to increase to 5.4% by the year 2025 from 4% of year 1995 (Ramachandran et al., 2001). In South East Asia, 71.4 million people (8.3%) were affected by DM in 2011 and numbers are expected to rise to 120.9 million (10.2%) by 2030 (Diabetes Association of Sri Lanka, 2011).

In Sri Lanka, around 1.5 million adults suffer from diabetes and the numbers are expected to rise up to 2.1 million by the year 2030 (Somasundaram et al., 2013). As DM is the leading cause of myocardial infarction, stroke, chronic kidney disease, blindness and amputations in adults, evidence based multiple risk factor and patient centered self-management approaches with multidisciplinary support are required in order to prevent these complications (Somasundaram et al., 2013).

The mortality and long-term complications of DM are reduced with good glycemic control. It is also correlated with medication adherence, physical activity, family support and coping mechanisms. In addition, improving glycemic control reduces patient care costs as well (Michal et al., 2008).

Maintenance of satisfactory glycemic control limits diabetes complications. Several studies have demonstrated about the affects of culture and the outcomes of self-management of DM (Napaporn et al., 2009; Ahmed, 2003). A study from Thailand emphasizes to have culturally appropriate treatment guidelines for diabetes management with special consideration of food on the Buddhist beliefs (Napaporn et al., 2009). At the same time, it has been stated that the cultural backgrounds, religious beliefs and practices, family structure and dietary patterns have profound impacts on the progress and care of people with DM (Ahmed, 2003). Thus, an individualized approach has to be undertaken in delivering culturally appropriate care for DM patients (Fleming and Gillibrand, 2009).

The cultural background including beliefs, behaviour, diet and particularly attitudes towards ill health are important factors influencing the different aspects of people's lives (Pawa, 2003). Even for any efficient dietary therapy, culturally acceptable beliefs have to be considered (Ahmed, 2003). Understanding the influence of culture on health care practices may determine the diabetes outcomes. Greater patient satisfaction and disease outcomes are resulting by integrating cultural constructs and targets ethnic groups (Catherine et al., 2009).

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It is important to know the individuals' attitudes toward DM in developing their abilities in the disease management. Attitudes depend on their belief, fears and concerns about the disease (Mathew *et al.*, 2012). Therefore, a better understanding of the attitudes and beliefs might result good outcomes (Clark, 2007).

Therefore, this study aimed to explore the concerns over the experiences of physicians and nutritionists on the attitudes of the patients and the acceptable practices for self-management of DM among the Tamils. The outcomes of this study might be useful for nurses and other health care professional to involve effectively in the management of DM and assisting the self-management among Tamil patients.

MATERIALS AND METHODS

Study design: The qualitative approach was used in this study as an effective methodology to explore the experiences (Mack *et al.*, 2005) of physicians and nutritionists on the attitudes of patients with DM as well as to understand the culturally acceptable practices for self-management.

Study setting: This Study was carried out in Teaching Hospital, Batticaloa (THB). This hospital serves as a tertiary care multispecialty institution with the bed strength of 943 catering the needs of multilingual patients of the whole Batticaloa district as well as for adjacent districts of Ampara, Trincomalee and Polonnaruwa.

Sampling: Convenience sampling technique was used to achieve maximum variation within the in-depth interviews (Reed *et al.*, 1996). Sample size was not calculated prior to data collection. It was determined during the research process on the basis of theoretical saturation point where new data gathered by conducting further interviews no longer bring additional insights to the research questions (Mack *et al.*, 2005) which were achieved with six in-depth interviews in this study. Four consultant physicians and two nutritionists (key informants) who treated the patients with DM in the Tamil culture were recruited by the principal investigator on voluntary basis at the study setting.

Data collection: Informed written consent was obtained prior to in-depth interviews and data were gathered using a semi-structured interview protocol guide by the principal investigator (PI). The interview protocol guide covered the sections on acceptable dietary patterns of Tamils in self-management of DM and behavioral attitudes among Tamil with DM. However, in most cases, it was a dialogue between the interviewer and the informants.

All interviews were conducted face to face in Tamil language. All key informants were interviewed once

initially in a natural comfortable setting at the hospital. The length of interviews varied from 45-60 min. The interviews were carried out in an open, compassionate and non-judgmental manner. Informants were informed about the nature of the interview and confidentiality was assured. Permission for tape recording the interviews was obtained from the participants. Personal data such as names, addresses were not obtained. Field notes were also written by the PI prior to the completion of each interview, all field notes and interview tapes were kept under confidential cover.

During the process of the interview, the researcher encouraged the participant to clarify and elaborate the details of his/her experiences by probing or focused questions, for e.g., "That's very interesting", "Please explain what do you mean by......?". However, in order to avoid interrupting the participant's flow of thought, the researcher asked the questions only when the participant has finished speaking. Subsequent clarifications were made to add, clarify or verify on what was said in the first interview and to respond to the findings from the ongoing data analysis. Immediately following the interview, the investigator summarized key issues by re- playing the audiotape. Investigator verified information given in interviews as important.

Data analysis: Tape recorded interviews were transcribed verbatim by the PI and then translated to English. The reliability of translation was checked by comparing translations done by a co-investigator on a selected section of the text with that of the PI. The transcription, translation and analysis were all done during the data collection phase.

Qualitative content analysis method as described by Graneheim and Lundman (2004) was used to analyze the translated text. The transcribed and translated text from each interview was read and each sentence or group of words were formed into meaning units. These meaning units were then summarized and the condensed meaning units were used to develop categories, which emerged from the text itself rather than imposing the researcher's own pre-determined ideas. Ethical approval (ERC No: 627/12) was obtained from Ethic Review Committee, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka. The participants' rights of self-determination, autonomy, privacy and anonymity were ensured throughout the study.

Data trustworthiness: Data trustworthiness was established following the four criteria proposed by Lincoln and Guba (1999). Credibility was ensured through a review of the findings and interpretations by experts. Sufficient descriptive data were supplied to aid in the transferability of the findings to other settings and situations. The interview transcripts were analyzed by all

authors; while coding or sorting data into categories or themes during the data analysis phase, comparing and contrasting existing data verified the coherence of the data. The inclusion of content and the preliminary categories and their properties were compared and discussed with >90% agreement. Finally, a decision trail which included verbatim transcripts and a description of how the data were analyzed was maintained and documented for the future audits.

RESULTS

Six in-depth interviews were conducted in total. The major three themes related to concerns of physicians and nutritionists emerged from data analysis of interview transcripts. Brief descriptions of these themes are presented here since it is difficult to report all the qualitative data (Burnard *et al.*, 2008).

Ignorance of diet habits: A large majority of those who suffered from DM did not recognize diet as a key factor to manage their disease. Without a healthy diet, patients may not be able to manage their blood sugar levels within the required ranges and ultimately making them more vulnerable to long-term consequences such as heart disease, kidney failure, blindness and amputation. Diabetes Mellitus and cardiovascular disease could be prevented through appropriate diet and physical activity. The traditional dietary and lifestyle patterns have been changed due to the urbanization of Tamil communities. This change of dietary habits emphasized by the key informants:

"Traditionally most of the Tamils consumed vegetable foods. But At present, choice of food moves towards these fast foods items due to the busy life and lack of knowledge. As a results, the habits of eating homemade food seems very poor"

"Change of food style due to the rapid changes happened as a results of urbanization, people consuming of chips and soft drinks"

Majority of the patients had not followed the dietary recommendations since they had not been experienced symptoms during initial stage of disease. On the views of physicians were the following:

"Though, I have served for 22 years, generally, majority of Tamils do not follow our advice regarding food habits because, Diabetes does not cause much problems during initial stage of illness"

"I rarely see a few numbers of people who adhere to the advice relating to food, physical exercise, drugs etc. dispensed by doctors at clinic. Only 20% of the patients follow the advice"

"According to my experiences, of course most of Tamil people do not follow the instruction regarding the diet"

Changing of lifestyle: The majority of Tamil patients with DM had not been adhered to the lifestyle changes according to the disease. The inappropriate physical activities of patients have been observed by the informants as:

"As far as Tamil culture is concerned physical exertion has been reduced. That is doing domestic chores, home gardening has been reduced"

"Working on computer and watching TV and munching snacks have been increased. Due to these reasons, they may face difficulties in controlling blood glucose in Tamils"

"Usually patients do not exercise, specially male. But female fairly do some home works and kitchen work. overall, I feel physical activities are not enough among all patients"

Maintaining good glucose control is difficult for many people with DM, because the conventional treatment plans require changes in behavior and lifestyle. In addition, mental relaxation has been shown a significant influence in controlling DM:

"Not only diabetes but also many other diseases can be controlled by practicing yoga and meditation. But nowadays, that practices are not following by any one in our culture even- though we have paid more attention"
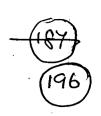
Healthy eating: Nutrition therapy is an integral part of the treatment and it is well recognized as a keystone of management in patients with DM. Healthy eating as an effective measure and has a great potential influence for better outcome.
Diabetes diet need not be a monotonous one or completely different from normal diet. Informants stated that as patients have to adhere to diabetic diet throughout their lives. The following statements were emphasized by the physicians and nutritionists:

"Diabetes is not being an infectious disease, life style modification is important to control it. This disease could be controlled by maintaining a proper diet control"

"......by using Kurincha (Wattakaka volubilis) and bitter gourd (Momordica charantia) better glycemic control can be obtained"

"The patient with diabetes should eat the fruits before they become over ripe. That is when they become 3/4 ripe"

"It is better to avoid all underground stems such as potatoes, manioc, carrot, beet root etc..."

Moderation in eating is a powerful strategy with increasing more vegetables roughage in the diet. It was emphasized by the nutritionist and the physician as follows:

"As far as rice is concerned, red rice is the best one, including vegetables equal to rice is compulsory"

"Patient must fill up their stomach with vegetables and green leave than the carbohydrate containing foods"

"Steam vegetables are good for dinner than any other meals"

DISCUSSION

The findings of current study indicate that the self-management of Diabetes Mellitus among Tamils largely depends on their attitudes and beliefs. All the interviews of physicians and nutritionists revealed that controlling DM is not so easy unless there is sincere commitment of time and effort by DM patients. Meanwhile, the Tamils during past few decades have changed their eating habits by selecting diets that contain high calories and fats than their traditional diet and they also have greatly reduced the levels of physical activity. Thus, necessity arises to emphasize the importance of maintaining regular healthy lifestyles and healthy dietary habits as effective disease prevention and health promotion interventions to control DM well.

It has been clearly stated that therapeutic control generally involves with strict, rigorous and permanent lifestyle changes including dietary interventions, physical activity as well as strict medical regime (Siddiqui et al., 2010). Therefore lifestyle modification is the cornerstone of treatment of DM and has to be continued, even when other medical therapies are instituted (Cowell, 2008). The transition of population from a traditional lifestyle to contemporary urban sedentary lifestyles has resulted in various changes in the levels of physical activity and in dietary patterns led to increase the prevalence of chronic diseases like DM.

Nutrition therapy is an integral part of the treatment. It helps to improve patients' quality of life and reduces of HbA1c of 1-2% by nutrition therapy alone (Dworatzek et al., 2013). However, this study revealed that the patients had not been compliance with the dietary advices given by consultant physicians and nutritionists. Furthermore, it has been emphasized that consumption of fast food had been increased among Tamils as a result of busy life, impacts of rapid urbanization and lack of knowledge on healthy diet. It has also shown in this study that the life style modifications had not been practiced among Tamil patients even after diagnosing of DM. In order to

support this a study done by Banerjee et al. (2007) and Butterworth et al. (2004) noted that, though there were scientific evidences about health related benefits of lifestyle modifications for the patients with DM, the compliance to lifestyle related recommendation had not been satisfactory among people in South Asian region. In diabetes mellitus, patients follow a complex set of expected behavioral actions to care for their disease on a daily basis. The degree of self-management of DM depends on the way patients perceived the diseases and its complications. Essentially, the view of free from consequences of illness in early stage of disease seemed to decrease the patients' adherence in diabetes management. Even though the long-term complications have been resulted in both types of Diabetes Mellitus and usually had not occurred within the first 5 to 10 years of the diagnosis (Smeltzer et al., 2009). But, a study done by Anderson et al. (1990) reported that patients with DM believed that diabetes was not a serious disease; therefore, significant number of patients did not want to be told what they should have been done in the care of disease management. This study further revealed that the impacts of urbanization had led to change the life style in relation to diet and physical activity resulting reduction in physical exertion with sedentary life pattern as watching television, working on computer and using own vehicle for transport most of the time. It has been proved that physical activity was not only a mode to reduce weight in obese, but also improved glycemic control among diabetic patients (Dworatzek et al., 2013). As such, lack of physical activity becomes a barrier for patients in attempting good glycemic control. Therefore, these actions involves engaging in healthy lifestyle practices, including following a meal plan, engaging in appropriate physical activity and compliance to medication regime would be the better choices.

Furthermore, traditional meditation especially yoga has been practicing among Tamils in the past and has been reduced considerably in nowadays. The importance of meditation for self-management of DM has been highlighted in a study as more effective and in turn yoga meditation helped diabetic patients to turn from all unhealthy behaviors which have been barriers for successful self-management of DM (Sowattanangoon et al., 2009). Maintaining good glucose control may be difficult for many people with DM, because the conventional treatment plans require changes in behavior and lifestyle. In addition, mental relaxation for its positive role in the management of several chronic diseases has been accepted. Since the Yoga being an old, traditional, Tamil culture based psychological, physical and spiritual exercise regimen for controlling both the symptoms and the complications associated with DM, but, at present, practicing of yoga has been reduced in the Tamil culture.

A major barrier in self-management of diabetes is consuming a wide variety of starchy food. However, it is best to have the normal diet with a few necessary changes including fiber contents. At the same time, there is strong evidence that fiber rich foods help lower total cholesterol which lowers the risk of cardiovascular disease (CVD) among patients with DM.

This study provides valuable information in relation to the main causes as unhealthy eating, ignorance of dietary advice and changing of lifestyle for achievement of good glycemic control among Tamils with DM. Furthermore, the diabetic education has been identified as an important strategy that would clarify many inappropriate assumptions about diet habits and lifestyle changes and in the level of compliance. Further research study is needed in future to determine the strategies to enhance compliance of patients with diabetes to encourage on self-management.

Conclusion: Tamils with DM currently face challenges in managing good glycemic control in this study as the level of compliance to dietary advice and physical activity were not to an acceptable manner due to unfavorable attitudes and practices were revealed. These findings contribute to understand the cultural influences in management of diabetes and helps to take appropriate measures on promote for better self-management among Tamils. Adherence to the acceptable practices and fostering favorable attitudes among Tamils would enable health care workers to assist in better self-management of DM.
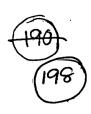
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