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kalpana prasai
kprasaisingh@dons.usfca.edu

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Implementing Culture-Centered Diabetes Self-Management for the South Asian

Population

Kalpana Prasai

University of San Francisco

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Dr. Loomis, Jo

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Abstract

Type 2 diabetes is a chronic metabolic disorder that requires complex care and involves a variety of self-management decisions on a regular basis to manage the symptoms and avoid complications. The prevalence of type 2 diabetes among the South Asian population is six times higher than their European and white American counterparts (Gujral et al. 2013). Culturally sensitive education may be the key to overcoming the barriers related to standard diabetes patient education and culturally appropriate type 2 diabetes management. Research and evidence-based practices show Diabetes Self-Management Education (DSME) is associated with significant improvements in glycemic control and overall better health outcomes. Understanding the hurdles of educating patients is key in implementing effective education among diverse communities. The goal of this manuscript is to identify the effectiveness of culturally appropriate diabetes self-care education that improves the quality outcomes among the South Asian population in America.

Keywords: *Type 2 diabetes, diabetes self-management education, cultural sensitivity, Ayurveda, evidence-based, South Asian*

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Type 2 Diabetes Mellitus (DM II) is a progressive, chronic, and complex metabolic disorder. The complexity of uncontrolled DM II leads to higher morbidity and mortality rates. According to the American Diabetes Association (ADA), in 2018, 34.2 million adults had diabetes of whom 26.8 million were diagnosed and 7.3 million remained undiagnosed in the United States of America (ADA, 2019). While Diabetes is the 7th leading cause of death in the United States (CDC, 2020), DM II can present comorbidities such as cardiovascular disease, chronic kidney disease, hyperlipidemia, obesity, hypertension, retinopathy, and neuropathy that can be devastating to the patient and their families. (ADA, 2019). These comorbidities cause complications that can lead to profound physical, psychological, and financial distress among patients and caregivers creating a massive burden on the healthcare systems. The total cost in the United States for diabetes-diagnosed patients was over \$327 billion in 2017 (ADA, 2020). By the year 2050, this cost will increase even more as the Center for Disease Control and Prevention (CDC) has estimated that one in three Americans will have diabetes (CDC, 2014).

The rate of DM II in the South Asian population in America has spiked up to 4% (3.5 million in 2010 to 5.4 million in 2017) in just seven years (Salt, 2019). South Asians originating from Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka have a significantly higher age-adjusted prevalence of diabetes (23%) than other ethnic groups; whites 6%, African Americans 18%, Latinos 17%, and Chinese Americans 13% (Kanaya, et al., 2014). DM II is increasing among these South Asian migrant populations in the United States (Sohal, et al., 2015). High glycemic foods (primarily refined carbohydrates such as rice and refined flour) and other

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nutritional imbalances (such as vegetarian/vegan diets with low protein content), urbanization (population increase and modernization of cities), and a sedentary lifestyle are some of the factors that can lead to the development of the higher prevalence of DM II among the South Asian population (Hu, 2011).

Why are South Asians Profoundly Vulnerable to DM II?

Body-Mass Index

Members of the South Asian population are shown to have a tendency to develop DM II at younger ages as well as with lower body mass index (BMI) because of the phenotype is known as the “normal-weight metabolically obese” phenotype and a higher rate for smoking and alcohol use (Hu, 2011). The rate, and prevalence of obesity is one of the lowest in these countries compared to the rest of the world (Misra, et al., 2014). South Asians are at higher risk of developing DM II even with a lower BMI (≥ 23 kg/m²) (AAPI, et al., 2011). Inadequate prenatal and early life nutrition combined with “overnutrition” later in life also contribute to this increased risk to develop DM II among this population (Hu, 2011).

Genetics

The Melanocortin 4 Receptor (MC4R) gene has been linked with an increased risk of adiposity and insulin resistance (IR) (Khunti, Kumar, & Brodie, 2009). As compared to their European counterparts, South Asians with the MC4R variation have greater waist circumference and insulin resistance which may be associated with the higher prevalence of DM II in that population (Khunti, 2009). Furthermore, impaired mitochondrial fatty acid oxidation in adipose tissue and skeletal muscle imposes the risk of increasing insulin resistance leading to cardio-metabolic abnormalities such as

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hypertension, hyperglycemia, hyperlipidemia, and obesity. Significantly higher leptin, adiponectin, C-reactive protein (CRP) are found in South Asian men and women than Europeans and Caucasians. Higher CRP and leptin may cause higher IR and adipose fat leading to a prominent risk of DM II (Gujral et al., 2013).

Lifestyle

People of South Asian origins are at higher risk to develop metabolic disorders at the age of 49 years compared to other ethnic groups such as Whites (58 years), Chinese (55 years), and Blacks (57 years) (Chiu, 2011). Furthermore, the South Asian lifestyle causes higher comorbidities due to a diet rich in carbohydrates and foods with a high glycemic index caused by both traditional foods and the adoption of westernized foods, drinks high in sugar, stress, and lack of sleep. Asians also appear to be less physically active than their Caucasian counterparts (Williams, et al., 2011). This sedentary lifestyle causes a higher percentage of visceral fat in the belly area of South Asians which may be associated with a higher prevalence of DM II even with lower BMIs compared to the rest of the world (Misra, et al., 2014).

Self-Management

In conjunction with pharmacologic approaches, patients diagnosed with DM II are required to make a series of daily self-management resolutions along with complex care activities in order to keep their medical issues under control and improve their quality of life. Diabetes self-management education (DSME) and diabetes self-management support (DSMS) are collaborative processes for people who have been diagnosed with diabetes or prediabetes to gain the skills and knowledge to modify their behavior to self-manage their diabetes and comorbid conditions. The process directed

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by evidence-based standards incorporates the goals, needs, and life experiences of persons living with diabetes (ADA, 2020). Diabetes self-management requires seven behavioral changes: healthy eating, being physically active, monitoring blood sugar, being compliant with medications, good problem-solving skills, healthy coping skills, and risk-reduction behaviors (Shrivastav et al., 2013).

Challenges to Self-Management

Ongoing self-management of DM II is critical for positive health outcomes. Diabetes Self-Management (DSM) aids patients in preventing complications and staying healthy by providing a framework to navigate self-management decisions and complex care activities. These practices have demonstrated an improvement in overall health outcomes (Brunisholz et al., 2014). Despite the increased global prevalence of diabetes, there is extended evidence that approximately 80% of diabetes patients have knowledge and skills deficits for adequate self-management (Powers, et al., 2015). Unfortunately, the enormous benefit of DSME is often underutilized due to the lack of resources and/or lack of ongoing patient-centered and culturally sensitive training that addresses the cultural needs of minority groups in diverse communities including South Asian. Approximately a quarter of South Asians diagnosed with DM II do not follow the self-management guideline recommendations such as a healthy diet and adequate exercise (Bhurji, et al., 2016).

Barriers to Self-Management in South Asian Culture

Cultural barriers that hinder self-management of DM II and improved glycemic control among minority immigrant populations include but are not limited to poor communication due to language problems, religious beliefs, health and illness beliefs,

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and low health literacy levels (Zeh, et al., 2014). These barriers can lead to more issues such as difficulty disclosing information or issues to health care professionals and misconceptions or lack of knowledge of what is necessary for self-management of DM II (Sohal, et al., 2015).

There is a negative stigma regarding the diagnosis of diabetes in the South Asian community which has been known to cause denial and compliance issues with treatment among patients. Some of the cultural barriers to diabetes care in the South Asian communities include beliefs that affect body image, diet, health care beliefs, marriage, religion, and social etiquette (Goenka, et al., 2004). South Asians often believe that being bigger in size correlates to being healthy, have misconceptions that physical activity has harmful effects, lack understanding of what a healthy diet is, believe that the use of natural remedies is better than the use of medications and lack trust in western doctors due to cultural differences (Sohal, et al., 2015).

Recognizing these barriers and addressing them enables healthcare professionals to adhere to providing culturally appropriate care. Providing culturally-centered disease management can be sustainable and reduce health inequalities in diverse communities (Zeh, et al., 2014).

Communication Difficulties and Language Barriers

Another significant barrier in terms of treatment of DM II in the South Asian population is “language and communication discordance” with healthcare providers (Sohal, et al., 2015). Many South Asians do not feel comfortable using an interpreter for a variety of reasons including refraining from disclosing their personal health information

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to a stranger due to mistrust and/or worry that information may spread to others in the community (Ahmed, et al., 2017). Due to these concerns, South Asians will opt to use family members as interpreters during health consultations (Rhodes & Nocon 2003). Some concerns when using family members as interpreters may be the lack of adequate knowledge or training to act as an interpreter and intentionally or unintentionally softening the message of the provider when translating (Ahmed, et al., 2017).

Marriage Practices

Another factor that affects the treatment of diabetes in the South Asian population is the cultural practice of arranged marriages. Patients diagnosed with diabetes may refuse treatment for fear that news of the diagnosis will become public and discourage suitors and their families which would ultimately prevent an arranged marriage. (Goenka et al., 2004). Women and their families in the South Asian community try to hide any medical issues from potential in-laws due to the need to provide a dowry, which is a practice of giving “gifts and money” for the care of the daughter as part of the arrangement for the marriage. South Asian families may live in denial about health issues such as diabetes, fearing that dowry demands will be increased due to perceived disease management costs or the opportunity for a successful arrangement will be lost completely (Goenka et al., 2004).

Ayurveda

Ayurveda is often considered to work better than western medicine in the South Asian culture (Chacko, 2003). Ayurveda is a traditional Indian medicinal system from ancient times that takes a more holistic approach to health and personalized

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medicine. It is sometimes referred to as “self-healing science” (Chauhan et al., 2015). The practice of Ayurveda primarily consists of breathing exercises, yoga, and herbal preparations. Some herbs that are used for the treatment of diabetes include bitter gourd (Baby & Dy, 2013; Sridharan, et al., 2013), turmeric (Pivari, et al., 2019), fruits of Babul, seeds of Karanji (Gordon, et al., 2019) and Methi (fenugreek) (Srikanth, et al., 2015). A dose of 2000 mg of bitter gourd has shown to reduce blood glucose levels for people with DM II and had modest hypoglycemic effects through different psychological and biochemical actions (Baby & Dy, 2013) although it was found to be less effective than administration of 1000 mg of metformin (Fuangchan, et al., 2011). It also has been shown to reduce polyuria, which partially prevents renal hypertrophy, and reduces urinary albumin excretion (Gordon, et al., 2019). However, the use of bitter gourd has failed to show improvement in people with poorly managed DM II (diabetes.co.uk, 2019). Other herbs that have been beneficial are fruits of Babul (2.41 µg/g) and seeds of Karanj (2.11 µg/g) due to the high levels of chromium which has aided the action of insulin by maintaining normal glucose metabolism (Gordon, et al., 2019). Curcumin is a bioactive molecule present in turmeric that has therapeutic potential to counteract diabetes complications due to its effects in regulating lipid metabolism and its effectiveness in controlling glycated hemoglobin (Hb1Ac) levels (Pivari, et al., 2019). Methi has shown improvement in blood sugar levels of people with mild DM II when 2.5 grams of Methi powder was used for three months twice a day. If patients are taking any Ayurvedic supplements such as bitter gourd and methi leaves along with other antidiabetic medications, educating the patients to closely monitor their blood sugar

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levels is critical to prevent hypoglycemia and determine efficacy (Fuangchan, et al., 2011; diabetes.co.uk, 2019).

Human clinical trials currently available on Ayurveda in the treatment of DM II are not high powered due to low statistical power and poor study design and are therefore limited in their generalizability (Baby & Dy, 2013). Patients need to be educated about Ayurveda and taught that multiple herbs are typically used when treating DM II so that their misunderstanding or unrealistic expectations of Ayurvedic techniques do not hinder or delay their treatment of DM II (Choudhury, et al., 2009). Hence it is necessary to conduct better-designed human clinical trials to assess the efficacy of different herbs working together in the treatment of DM II before recommendations can be made on the safety of Ayurveda (Baby & Dy, 2013; Gordon, et al., 2019; Rizvi & Mishra, 2013; Sridhran, et al., 2013; Krawinkel, et al., 2018).

Health literacy

Many South Asians have a poor understanding of western medicine and its effectiveness in treating certain diseases/disorders. They often have misconceptions about medicine being used for prevention and management. Some misconceptions may be that exercise can lead to deteriorating health, they may have inadequate knowledge of foods that are appropriate for diabetes management and poor medication-taking behaviors in general (Sohal, et al., 2015). Many South Asian patients may not be able to read English or even their native language, especially older patients who did not receive a formal education hence, health communication and plans need to be simplified and/or translated to match the patient's level of education (Estacio, et al., 2014).

Implementation of Culturally Sensitive Self-Management Education

Employ the Help of Family

To South Asians, family has a special significance (Bhandari, 2017), so bringing family into the equation of self-management is not only vital (Baig, 2015) but it provides a foundation from which the patient can be empowered. Family can be a fundamental source of social support for self-management. Involving family members can provide emotional support, help facilitate and motivate the patients with the lifestyle changes, and behavioral changes that they are required to make as part of their self-management (Pamungkas et al., 2017). Providing education for family members along with the patients provides a combination of didactic teaching and interactive learning approaches which have been proven to help create a more positive impact on the health outcomes, behaviors and improve quality of life (Pamungkas et al., 2017).

Improving Health literacy

Providing adequate education to patients and their families about self-management practices required to manage diabetes will improve the quality of life and reduce complications. Due to the recent growth of telemedicine, it has become much easier to reach patients of all ethnic and socio-economic backgrounds to increase the quality of care and provide cost-saving methods (Ashwood, et al., 2017). As healthcare professionals, the goal is to ensure that the patients understand the information being provided to them and making sure all of their questions are answered. In order to reach as many patients and families as possible and ensure information is being retained, it is imperative to have materials available in many different languages as needed by the community population served (Jacobs, et al., 2006) including but not limited to Bengali, Hindi, Nepali, Punjabi, and Tamil. As healthcare professionals, it is important to identify

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misconceptions among patients and educate them in order to improve their health literacy and provide much-needed treatment. At times, this may mean simplifying the information to match the patient's literacy level since the South Asian community is composed of people with varying education levels (Estacio, et al., 2014).

Improving Diet and lifestyle

Self-care for diabetes often involves lifestyle changes. Changing to a healthier diet and adding in physical activity can improve the health of patients with DM II. Family is crucial to involve in an individual's plan for a major lifestyle change, especially if the patient does not cook (Baig, 2015). In order to change the diet and lifestyle of a patient with DM II, educating the cook of the family on the types of food and underlying nutritional value of different types of food is crucial. Nutrition is extremely important in managing diabetes (Quyang, 2017), so introducing the help of a dietitian who is familiar with South Asian cuisine can be helpful for nutritional education. Some changes that can be implemented by the dietitian can include but are not limited to substituting brown rice instead of white rice, using whole grain, chickpea or buckwheat flour, avoiding beverages with high sugar levels, reducing sodium intake, and practicing portion control (Benavides-Vaello et al., 2017). Other suggestions would be to replace oil-fried foods with air-fried foods, introduce a low-carb diet using foods low on the glycemic index (Gopalan, et al., 2018) and replace starchy vegetables with leafy green ones (Wagle, 2014). Additionally, for those with a vegan or vegetarian diet who tend to be protein-deficient, protein can be increased by replacing flour (atta) with chickpea-based flour (besan) and adding soy or almond milks, nuts such as almonds, cashews, and lentils/legumes (moong dal, masoor dal) to their diet (Rampal, 2018).

Providing Culture Centered Care

Advice from healthcare professionals can contradict the beliefs of the people in the South Asian community, so healthcare workers should make a conscious effort to understand the culture of their patients (Patel, et al., 2012). Understanding the patient's culture will not only help healthcare professionals provide better care for the patients but also make patients feel more comfortable with that provider and will help create more trust and a positive environment for everyone involved (Saha, et al., 2010). Familiarity with people of a South Asian background will help health care providers better understand and be better able to provide care for that population (Cooper, et al., 2002). An example of showing an understanding of the patient's culture could be providing alternatives to traditional medicine and exercise by introducing yoga and group Bollywood dance classes. A one-hour Bollywood dance class two times per week showed significant improvement in HbA1c levels of people with DM II which can be a risk factor in causing comorbidities related to diabetes (Natesan, et al., 2015). If a patient requests advice on the use of Ayurveda for their treatment of diabetes, knowledgeable healthcare professionals should listen to those concerns and beliefs in order to work with the patient in creating a care plan that is acceptable to the patient. As healthcare professionals, it is also crucial to provide care that is respectful of and responsive to the patient preferences, needs, and values and ensuring that patient values are taken into consideration when making clinical decisions (Powers, et al., 2016). So, keeping in mind the patient's needs and wants it is necessary to emphasize the safety of the use of ayurvedic herbs by educating the patients on which herbs have been proven to treat DM II such as Methi (lowers blood glucose), Bitter Gourd (lowers

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blood glucose and regulates HbA1c) and Turmeric (regulates HbA1c and lipid metabolism) and advising them not to take any ayurvedic supplements without consulting their healthcare team first (Gordon et al., 2019; Pivari, et al., 2019).

Being open and respectful to the patient's culture will allow them to open up and be honest about their lifestyle which will, in turn, help healthcare providers make realistic achievable goals and continue providing recommendations for change in medications, diet, exercise routine, ayurvedic supplements, and other care plans (Shrivastav, et al., 2013). The fruits of culture-centered care in terms of provider-patient relationships will be revealed in positive outcomes of patient satisfaction surveys (Watts, et al., 2017).

Implications for Practice

Diabetes Self-Management Education in the United States often lacks the emphasis of culture-centered education which is crucial for patients, families, and communities. Often minority and disparity issues are not actively addressed. Since there isn't a 'one size fits all' approach, in order to make a difference in the prevention, management, and care of people with diabetes, the implementation of culturally centered diabetes education for patients and their families makes all the difference.

Positive health outcomes are dependent on proper self-management of diabetes. Failure to adequately manage diabetes causes profound physical and psychological distress for patients as well as caregivers and creates a massive burden on the healthcare system. Cultural and racial disparities are significant in America despite being the most diversely populated country in the world. Proper evaluation of the cultural differences in a minority population and the need to match the health

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education language to the culture can improve overall outcomes and raise the level of health for all.

Conclusion

The South Asian population is at higher risk for DM II due to genetic as well as lifestyle factors. In order to provide culturally appropriate care, it is necessary for health care professionals to understand barriers that hinder their self-management practices such as religious beliefs, language barriers, health literacy, and ayurvedic and home remedial practices. Along with understanding these barriers, it is crucial to aid these patients to overcome them by providing resources in a variety of languages and in a simplified manner, creating self-management plans with regards to the patient's culture such as suggesting group alternative physical activities such as culture-oriented dance classes rather than traditional exercise, working with a dietitian who is familiar with South Asian cuisine and involving family members in the process to help ease the language barrier and provide support. By providing culture-centered care, there is a higher chance that these self-management practices will improve the health, lifestyle and care of South Asian patients with DM II. Culturally diverse research and creating cultural centered care is important to bridging the gap in not only diabetes but other chronic disease management as well.

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