Empowering Culturally Specific Needs and Barriers in Diabetes Education as Identified by Polish Speaking Patients

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Exploring Culturally Specific Needs and Barriers in Diabetes Education as Identified by Polish Speaking Patients

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Chapter 1. Introduction

Background and Significance of the Problem

Diabetes is a serious chronic disease that poses a major public health problem. In 2014, there were 25.8 million Americans diagnosed with diabetes, or 8.3% of the United States population, and an additional 79 million people with prediabetes (Jornsay & Garnett, 2014). According to the Centers for Disease Control and Prevention (CDC), the prevalence of diabetes is growing. In 2017 there were 30.3 million people estimated to have diabetes (CDC, 2017). When it comes to the local region, according to Illinois Department of Public Health (IDPH), approximately 1,342,070 people in Illinois, or 12.8 percent of the population have diabetes (IDPH, 2016). In 2007, direct medical costs for diabetes were $116 billion, with $58 billion attributed to disability, work loss, and premature mortality (IDPH, 2012).

Ethnic minorities are at increased risk for developing diabetes and diabetes complications compared to the general population (Creamer et al., 2016; Dauvin & Lorant, 2014; Nam et al., 2012). The prevalence rate of diabetes among Mexican Americans is 9.5 percent and 13.3 percent among African Americans compared to 8.7 percent among non-Hispanic whites (Nam et al., 2012). African Americans have 2 to 4 times higher rates of diabetes complications such as renal disease, blindness, and amputations (Kutob et al., 2013; Nam et al., 2012). This higher prevalence may be due to a combination of different factors such as genetic, cultural and socioeconomic, and decreased access to quality health care (Attridge, Creamer, Ramsden, Cannings-John, & Hawthorne, 2014; Creamer et al. 2016). In addition, these potentially vulnerable groups face significant barriers to effective healthcare because of migrant status, low socio-economic standing, and linguistic and cultural barriers (Attridge et al., 2014; Dauvin & Lorant, 2014). These factors often result in the ethnic minority possessing inadequate
knowledge about diabetes due to the lack of available information in their native language and lack of incorporating cultural beliefs into educational programs (Attridge et al., 2014; Gaynor, 2014). Due to disparities in healthcare access and diabetes education, ethnic minority patients are at increased risk for poor glycemic control which leads to higher rates of potentially severe complications including amputations, retinopathy, neuropathy, and renal trouble (Attridge et al., 2014; Creamer et al., 2016; Dauvrin & Lorant, 2014;).

The Polish American population group is one of the largest European ethnic groups in the United States. There are an estimated 9.5 million Polish Americans, representing about 3% of the United States population (United States Census Bureau, 2010). The second largest Polish American population is concentrated in Illinois with 932,996 people (The Polish American Association, 2004). Nearly one third of all Polish immigrants, at nearly 70,000 persons, live in the Chicagoland area (The Polish American Association, 2004). The traditional diabetes self-management program that is offered to patients in most clinical settings may be perceived by Polish patients, and others from different ethnic or cultural groups, to be culturally indifferent and consequently, may not be fully effective (Choi & Rush, 2014). The Polish patient population have unmet needs for diabetes education that is specific to their cultural beliefs and dietary habits. One of the studies conducted in Poland showed that 61% of Polish patients with type 2 diabetes do not follow the recommendations for changing their health behavior to self-manage their risk (Życińska, Januszek, Jurczyk, & Syska-Sumińska, 2012). In addition, no studies were identified that assessed the effect of culturally tailored diabetes education for the Polish population.

Patient education is essential for self-management and for tackling this growing epidemic, yet not enough patients are receiving effective diabetes education (Jornsay & Garnett,
2014; Creamer et al. 2016). Proper education enables patients to take initiatives in their preventive care that can have a significant impact on quality care, patient safety, health outcomes, and patient satisfaction (Tamura-Lis, 2013). Therefore, health education is a vital preventative element that should be implemented in the plan of care (Tamura-Lis, 2013). General Traditional lecture on diabetes education, however, is thought to be less effective among ethnic minority groups which can be attributed to the fact that it does not account for cultural beliefs, language variances and different food preparation customs (Creamer et al. 2016).

Multiple research studies emphasize that culturally competent and patient-centered communication may reduce health disparities among ethnic minorities (Attridge et al., 2014; Creamer et al., 2016; Dauvrin & Lorant, 2014; Kirk et al., 2014). Culturally tailored interventions and communication lead to improved physical and mental health status, use of fewer diagnostic tests, and improved recovery (Kirk et al., 2014). When developing the plan of care for diabetes self-management, healthcare providers need to take into consideration their patients’ cultural food traditions. Although diet is an essential factor in diabetes management, Kirk et al. (2014) showed that fifty percent of clinicians did not ask patients about their traditions of food preparation. Food and culture are unique to the individual and for some, food has more meaning than just nutrition (Kirk et al., 2014). Patients may be more inclined to follow the recommendation for lifestyle changes when they see the healthcare provider express the understanding of their cultural background and how it affects self-management (Kirk et al., 2014).

West Town Community Health Clinic, Chicago, IL provides healthcare services to 9,107 patients from various minority ethnic groups that are uninsured and undocumented. There are a
total of 1,086 patients diagnosed with diabetes at West Town Community Health Clinic. Patients who primarily speak Polish comprise almost 23 percent of the patient population served by the clinic. Many of those patients are diagnosed with Diabetes Mellitus type II or are at risk for developing diabetes. Currently, the clinic provides healthcare services to a total of 2,086 of Polish speaking patients with 181 of them having been diagnosed with diabetes. Besides using Polish translators, the clinic currently does not have Polish speaking health educators or dietitians that can address the cultural needs of Polish patients or develop teaching materials about diabetes self-management.

**Problem Statement**

There are a limited number of studies that assess the effectiveness of culturally tailored diabetes education among minority groups and none have been identified for the Polish population (Creamer et al. 2016). The available data shows that culturally congruent diabetes education leads to improved glycemic control and increases diabetes knowledge in comparison to general education (Creamer et al. 2016). With increasing numbers of ethnic minority groups, including the Polish group and their high prevalence of type 2 diabetes, there is a need to better assess the effect of culturally tailored education on diabetes self-management (Creamer et al. 2016). For health education to be effective, patient education must be provided not only at the literacy level of the patient but it must also be culturally sensitive (Tamura-Lis, 2013). Only then can it have a significant impact on the quality of care, safety, health outcomes, and patient satisfaction (Tamura-Lis, 2013). Many studies have reported that culturally appropriate diabetes education interventions are more effective than typical education in improving diabetes knowledge and healthy lifestyles in ethnic minority populations (Pottie, et al., 2013). Despite the large number of Polish speaking patients in Chicagoland area that are diagnosed with diabetes
there is no awareness of any diabetes education programs which consider linguistic and cultural factors for this population.

**Purpose of the project**

The purpose of this exploratory descriptive qualitative study was 1) to explore culturally specific informational needs, barriers, and concerns of Polish speaking patients related to an existing diabetes educational program in one Chicago clinic. 2) To identify effective educational methods to deliver the information. 3) To incorporate and implement these findings into a culturally competent self-care management education for Polish patients with type 2 diabetes.

**Clinical questions**

The following clinical questions were addressed by the project:

- What are the diabetes education needs among Polish-speaking patients?
- What information is needed to be included in the diabetes educational program for Polish patients?
- From the perspective of Polish speaking patients, what are the barriers and concerns to receive culturally specific diabetes education?
- What types of education strategy should be used to best convey the knowledge of diabetes self-care management to the Polish population?

**Theoretical framework**

Reducing health disparities among ethnic minority groups is very challenging due to their resistance to engage in health prevention activities (Wang-Schweig, Kviz, Altfeld, Miller, & Miller, 2014). Modifying health prevention and promotion strategies to be linguistically and culturally appropriate may enhance the participant’s engagement and satisfaction in health care.
CULTURALLY TAILORED DIABETES EDUCATION

(Wang-Schweig et al. 2014). Madeline Leininger’s Theory of Culture Care Diversity was used to enhance the effectiveness, engagement, and adoption of culturally tailored diabetes education by Polish participants. This framework guided the adaptation process of culturally appropriate health promotion and prevention strategy for diabetes self-care education.

The Culture Care Diversity and Universality developed by Leininger’s theory has three theoretical modes: cultural care preservation and/or maintenance, cultural care accommodation and/or negotiation, and cultural care re-patterning or restructuring (Leininger, 1996). The three modes for congruent care, decisions, and actions proposed in the theory are predicted to lead to health and wellbeing of diverse population (Leininger, 2002). The culture care diversity points to the differences in meanings, values, patterns, and lifeways that are related to assistive, supportive, or enabling human care expressions of diverse populations (Leininger, 2002). Both social and behavioral characteristics as well as worldview norms, beliefs, and values were explored by open-ended questions to facilitate open discussion in the format of focus groups. This approach helped to identify effective methods to diabetes education programs that facilitated the promotion and acceptance of new diabetes curriculum among Polish speaking patients.

Chapter 2. Literature Review

A comprehensive review was conducted using computerized academic search engines such as CINHAL, PubMed, and ProQuest Nursing & Allied Health Source. Search results included years 2010 – present and peer-reviewed journals. Keywords used for searching included: communication, culture, diabetes, disease management, disparities, patient perspective, cultural competency, type 2 diabetes mellitus, socioeconomic status, equity, ethnic
minorities, health, and Polish. The search strategy used to extract the relevant articles included keywords with Boolean operators “AND” and “OR”.

**The Polish Population and Their Diet**

The study by Rejman and Kasperska (2011) suggest that even though Polish people are more interested in health and a healthy lifestyle, they still do not make informed decisions when buying food. This can be an explanation as to why there is an increased prevalence of obesity and other diet-related diseases among the Polish speaking population (Rejman & Kasperska, 2011). This study also reported that nutritional and health values of foods were found to be rather weak determinants of purchasing decisions and food choices (Rejman & Kasperska, 2011). Another study found that Polish people are not following the recommendations for a healthy lifestyle (Kwasniewska, Kaleta, Dziankowska-Zaborszczyk, & Drygas, 2009). Their results found that only three percent of the study population ate the recommended amount of fruits and vegetables, exercised regularly to maintain a healthy weight, and did not smoke (Kwasniewska et al., 2009).

Polish people are traditional in their eating habits. Polish cuisine is robust, using a lot of cream, eggs, meat, and fat. The traditional Polish meal is high in caloric values with soft drinks instead of plain water or juice. A regular daily diet consists of three main meals of breakfast, dinner, and supper. The usual breakfast consists mainly of sandwiches with cold cuts, scrambled eggs, or some dairy products. Dinner consists of two dishes- a soup and the main course, preferably a meat dish. Supper is similar to breakfast and is eaten late at night. Polish people also like to snack on some chocolate or chips instead of an apple or some other healthy food (Centrum Badania Opini Publicznej, 2014). Culturally specific diabetes education for Polish patients will need to increase the awareness of healthy behaviors and their impact on health and
diabetes self-care management. In order for the dietary advice to be effective in changing dietary habits, it must fit the Polish dietary traditions and food preparation customs.

**Patient-Provider Communication**

Multiple studies show that some portion of health care outcome disparities are due to ineffective patient-provider communication (Jornsay & Garnett, 2014, Kirk, et al., 2014; Kutob et al., 2013; Nam at al., 2012). Research findings indicate that patients who perceived their communication with their provider as poor had their Hg Alc levels 1% higher than those with good communication (Kirk et al., 2014). Clinician’s acknowledgement of the patient's perception of an illness and cultural beliefs help to build on the provider-patient relationship and open communication (Kirk et al., 2014, Kubot et al., 2013). Patients may have better trust in their providers’ judgment when they see that their providers inquire about their cultural background and how diabetes affects their lives (Kirk at al., 2014).

Patient-centered communication, along with the use of cultural components, can ultimately positively affect patient and physician satisfaction, patient adherence to therapy, and health outcomes (Kubot et al., 2013). The researchers suggested that the use of culturally competent communication may lead to improved medication adherence and glycemic control among diabetic patients from different ethnic groups (Kubot et al., 2013). All healthcare providers should learn how to use culturally competent communication to be able to sustain a therapeutic relationship and to effectively treat patients from any cultural, ethnic, or racial background (Kubot et al., 2013).
Health Beliefs in Ethnic Minority Populations

Minority ethnic groups have different health beliefs about causes of diabetes, diet and weight management, medication, and physical exercise. However, healthcare providers rarely recognize and address these barriers to healthier lifestyles (Carr, 2012; Gaynor, 2014). Healthcare providers must be aware that diet-related health behaviors are affected by a variety of social and cultural influences and the nature of the individual’s diabetes experience (Carr, 2012; Gaynor, 2014). Diet is an important component of diabetes care but dietary advice for people with diabetes tends to be based on a typical U.S diet (Carr, 2012). Hence, the ethnic groups can face problems with diabetes dietary advice because of the variance of food beliefs and food preparation habits that those groups have.

Healthcare professionals need to be cognizant of the health beliefs and attitudes of different cultural groups in order to adapt effective educational strategies to empower the individual from minority group to take control over their own life (Carr, 2012; Gaynor, 2014). Specific ethnic beliefs relating to religion, traditional medicine, and poor knowledge of nutrition and disease process need to be addressed while providing diabetes education (Carr, 2012).

Cultural Considerations

Many researchers propose that providing cultural competency to different minority groups is essential for eliminating health disparities. Understanding the patient's cultural beliefs and how they relate to diabetes self-management can provide guidelines for health education (Kirk et al., 2014). Given the significant concern about disparities in diabetes facing many minority communities, there is an urgent need for diabetes educators who speak more than one language because diabetes disproportionately affects ethnic and racial minorities. There is a need
to increase the number of diabetes educators in order to improve quality and safety of patient’s care and minimize the gap in diabetes education for ethnic minorities (Jornsay & Garnett, 2014).

The findings throughout the literature review consistently emphasize the need for cultural competency among healthcare providers and culturally competent diabetes education for minority ethnic groups (Attridge et al., 2014; Creamer et al., 2016; Kutob et al., 2013; Nam et al., 2012). Education in cultural competency is recommended as a key element for improving communication between the provider and the patient. Improved communication fosters relationships that positively affect the adherence to therapy and improves health outcomes, quality of care, and reduce health disparities (Kutob et al., 2013). An approach to teach the skills that enables healthcare providers to explore and learn their patients’ own sense of cultural inheritance and perception of a disease, and how to engage the patient in developing a plan of care, creates a background for a therapeutic relationship that nurtures patient centered care (Kutob et al., 2013).

**Culturally Appropriate Health Education**

The Cochrane review of randomized controlled trials was consistent with the findings that culturally appropriate health education improves blood sugar control and diabetes knowledge (Attridge et al., 2014). The findings throughout the reviewed studies found that patient education and lifestyle modification produce positive patient outcomes (Attridge et al., 2014). Additionally, research also suggests that there is little evidence that ethnic minority groups benefit from traditional diabetes educational programs (Attridge et al., 2014; Nam et al., 2012). It is important to develop and evaluate culturally effective diabetes educational strategies for ethnic minorities so they can be used to improve health outcomes and to reduce the health disparity gap (Attridge et al., 2014; Nam et al., 2012). The aspects that need to be assessed in
culturally competent diabetes interventions include cultural beliefs, family participation, values, customs, food patterns, language, literacy level, and health practices (Nam et al., 2012). The results of the study by Creamer et al. (2016) suggest that culturally appropriate diabetes education may bring long-term benefits in terms of improving glycemic control and diabetes knowledge. However, future studies need to assess how both socioeconomic and ethnic factors influence study outcomes (Dauvrin & Lorant, 2014).

Choi and Rush (2012) conducted a pilot study which adds to the evidence that culturally tailored diabetes education programs are effective in improving health outcomes in minority populations. However, there is a need for further studies with a bigger sample size, with controlled groups, and of longer duration to investigate clinical outcome of diabetic complications, long-term mortality, and patient quality of life among different ethnic minority groups (Choi & Rush, 2012; Creamer et al., 2016). More research is needed into other various ethnic minorities (Choi & Rush, 2012; Nam et al., 2012). Similar studies will not only help strengthen the evidence and enhance the generalizability, but also improve self-management and health outcomes in this and other ethnic minority populations (Choi & Rush, 2012).

**Raising Cultural Awareness among Healthcare Providers**

Healthcare organizations and individual healthcare providers should make an effort to provide culturally competent interventions to ensure equality and fairness among minority groups (Creamer et al., 2016; Dauvrin & Lorant, 2014). Patient-centered care based on community assessment, may help address the needs of patients with a low literacy level by providing culturally sensitive diabetes education programs and thereby improving health outcomes and reducing health disparities among immigrants and ethnic minorities (Dauvrin & Lorant, 2014; Swavely et al., 2014). Healthcare providers need to take action to transform
systems of care that raises awareness of the minority groups’ social determinants of health and take a culturally appropriate approach to reduce health disparities (Swavely et al., 2014).

The culturally appropriate interventions have implications for diabetes education that may enhance its effectiveness to minority communities. The beneficial effect of a flexible approach was supported in research trials where culturally relevant but unstructured intervention worked significantly better than a structured nutrition and physical activity education program (Pottie, et al., 2013). For health education to be effective it needs to be conducted in a learner-centered manner, with understanding and respect to linguistic, cultural, and religious needs of a patient (Hawthorne, Robles, Cannings-John, & Edwards, 2010). With the limited number of the research studies done to date among cultural groups, there is a need to expand the knowledge of culturally appropriate health educations for various minority groups to improve health outcomes and quality of care (Hawthorne et al., 2010).

In summary, many previous studies have demonstrated that culturally specific diabetic education has been shown to effectively improve diabetic patient outcomes in various ethnic populations. However, there are very few research studies conducted to date that explore the diabetes self-care management knowledge and the need for culturally tailored diabetes education among different cultural, ethnic, and racial groups. The Polish population has not been studied deeply in regards to their cultural background and the impact of acculturation on their health outcomes. Developing and assessing the effectiveness of culturally specific education interventions is imperative in addressing the unmet healthcare needs of the Polish population in the United States.
Chapter 3. Methods

Research Design

An exploratory, descriptive, qualitative study was performed using focus groups methodology to explore health related beliefs. Eight focus group sessions were held to identify the culturally sensitive information needs, barriers to self-care, and effective educational methods necessary to connect to the Polish-speaking diabetic population. This qualitative data obtained from the focus groups will be used to modify the diabetes curriculum, that is currently used at Community Health Clinic, to be more culturally competent and specific to the Polish-speaking diabetic patient population.

The diabetes education program at Community Health Clinic is designed to help patients manage and prevent complications of diabetes. The aspects of the class are concerned with understanding the process of disease progression, complications, and treatment options. The diabetes education program provides information about the important role of nutrition and exercise in controlling diabetes. Patients are taught how to monitor blood glucose and how to use the results to manage the disease and prevent complications. The curriculum is based on the American Diabetes Association’s recommendations and teaches patients to actively manage their disease in areas such as healthy eating, physical activity, self-glucose monitoring, and routine foot care. Education facilitates the development of skills that will assist patients to improve diabetes self-management, cope with stressors, and make appropriate decisions. However, this program did not take into consideration ethnic differences in self-management behaviors among Polish speaking patients (Grzywacz et al., 2012). Optimal diabetes self-management requires that patients adhere to a strict multifaceted regimen. This regimen must include the patient’s perspectives and adoption of interventions tailored to the resources, and culture of the Polish population, which components were missing (Grzywacz et al., 2012).
Focus groups provide a means for obtaining insights into individual characteristics by obtaining information directly from individuals with diabetes that is difficult to obtain using other methodological procedures (Carolan, Holman, & Ferrari, 2015; Long et al., 2012). This methodology gives researcher the opportunity to get an insight into understanding how people think as it allows individuals to answer the questions in their own words, using their own categorizations and perceived associations (Nagle & Williams, n.d; Stewart & Shamdasani, 2015). The open-ended questions are used during focus group sessions with the intent to promote discussion with broad feedback and to capture deeper information on studied phenomenon (Nagle & Williams, n.d.; Stewart & Shamdasani, 2015). This approach allows researchers to obtain valuable insight into the Polish participants’ cultural beliefs and diabetes knowledge. The target size of the study group was based on the literature review that suggests a minimum of five participants per group is needed for obtaining meaningful insight into research phenomenon (Carolan, Holman, & Ferrari, 2015; Long et al., 2012). Research findings recommend that groups should be small enough for everyone to have an opportunity to share their insights about culture and diabetes, but at the same time large enough to provide diversity of opinions, as smaller groups tend to be dominated by one or two study participants (Carolan, Holman, & Ferrari, 2015; Long et al., 2012; Stewart & Shamdasani, 2015). The anticipated number was three groups of five participants each in order to obtain sufficient information on the phenomenon.

**Focus Group Discussion Guide**

The focus group discussion guide was developed based on a review of the literature and the researcher’s experience of working with the Polish population (Appendix A). The focus group sessions were conducted using a semi-structured discussion guide to assess the health-
related beliefs, attitudes and practices, and the participants’ view regarding diabetes (Long et al., 2012). Focus group sessions were conducted by the researcher who is a native speaker of the language of the participants. This approach helped to increase the rigor of the research and the reliability of the findings (Long et al., 2012). The ability of the researcher to conduct the focus groups in the primary language of the participants facilitated the conveyance of meaning of the participants’ thoughts and experiences to the researcher’s.

Example of the open-ended questions in the focus group discussion guide were as follow: What does health mean to you? What do you do to maintain your health? How has diabetes affected your health? What is most difficult about managing your diabetes? What do you think is different in your own culture that makes it harder to control your diabetes? What do you currently know about diabetes? Have you ever received information in your own language? If so, what types of information? What is the best way for you to receive health information? (Carolan, Holman, & Ferrari, 2015; Long et al., 2012). What are the information needs, barriers, and concerns related to diabetes education that is unique to Polish patients like you?

Sample and Setting

The researcher had previously worked with Health Education Coordinator at West Town Community Health Clinic, Chicago, Illinois, where the need for culturally tailored education for Polish speaking patients was recognized. The clinic provides healthcare services to a total of 2,086 Polish speaking patients with 181 diagnosed with diabetes. Thus, the Polish patients with diabetes were recruited after obtaining the clinic support letter.

To recruit study participants, a purposive sampling method was used beginning with identification of Polish patients that were diagnosed with diabetes and were referred by the primary health care provider to the clinic health education department for diabetes education
classes. Selection criteria included: living in the Chicagoland area, being of Polish descent, having diabetes, and being within the age range of 21 to 65 years old. Potential participants were approached at the beginning of the diabetes education class, which was held at the Community Health Clinic, and the patients were invited to participate in the study. The researcher explained the purpose of the study and inclusion criteria to the group and invited everyone who would like to participate in the study to stay after the diabetes class.

Community Health Clinic mandates every newly diagnosed patient with diabetes to take five diabetes education classes, which are divided into 3 meeting sessions. The potential participants were approached before the beginning of those diabetes education session. The researcher explained the purpose of the study and participants selection criteria and asked everyone who would like to participate to stay after class for approximately one hour for the focus group discussion. Those patients who stayed for the focus group were asked to sign the consent form. The group consent approach was used where the researcher read and reviewed the consent with the group, answered any questions, and then obtained individual consent signatures.

Based on the literature review, the size of the group should be small enough for everyone to have an opportunity to share their opinions and the sample size should be large enough to provide diversity of opinions (Long et al., 2012). The researcher anticipated a minimum of three focus groups with at least five members for each group, but the response rate was poor and the number of participants was based on data saturation. We held eight groups with total of 14 participants.

No monetary incentive was given to participants. The clinic ensured the space and printed materials needed for the process of conducting the research was available in an effort to improve the quality of the project. The researcher had devoted the time needed for conducting the focus
groups, data analysis, developing the culturally specific diabetes education plan/guidelines and summarizing the research findings. The Health Education Coordinator was assisting with assigning some Polish speaking volunteers to add with the project progress and assistance.

**Data Collection**

At the beginning of the focus group session the participants were asked to fill out the anonymous questionnaire which included assessment of demographic data, health concerns and beliefs, perceived barriers to healthcare assessment, and preferred ways to obtain health information. Each of the focus group sessions was audio-recorded using a Sony digital audio recorder. Recordings obtained from each focus group session were transcribed verbatim into written notes in Polish and then translated in full text to English. The researchers, who is fluent in Polish and English language, then performed both the transcription and translation with the help of lay personnel fluent in Polish and English to ensure validity and reliability.

**Translation and Transcription Procedure**

First, the audio-recordings from the focus groups was transcribed verbatim, including pauses, emotional expressions, and annotations in Polish. Then the data was systematically analyzed to identify and code the major themes and significant meanings within the narrative material (Chen & Boore, 2010; Twinn, 1997). All transcripts in Polish were analyzed by the researcher and another independent reviewer for identification of themes that answer the research questions and were driven from the health belief model. To draw implications from the findings, the data was revisited two times with two persons to confirm the conclusions (Chen & Boore, 2010).

After the concepts and categories emerged, the researcher translated them into English and used another bilingual colleague, who is fluent in both Polish and English to translate them
as well. The final English version was established by reaching agreement between both translators. These two bilingual persons were used to ensure a high quality of translated transcripts and awareness of possible errors in translation (Chen & Boore, 2010). Only the key themes or issues that emerge in the process of translation were translated in order to save time and resources (Regmi, Naidoo, & Pilkington, 2010). In the next step another bilingual colleague performed the back translation of the concepts and categories from English back to the Polish language to ensure the adequacy of the meaning of the translation (Chen & Boore, 2010). Those initial steps were repeated due to inconsistencies in translation to reduce any discrepancies that emerged between the original version and the back-translation (Chen & Boore, 2010).

**Rigor, Validity, & Trustworthiness**

Strategies to ensure trustworthiness of research findings included detailed descriptions of research methods, two researchers independently evaluating the data, external audit of the procedures and results to ensure technical accuracy in recording and transcribing the audio recording. Important non-verbal aspects of communication to capture the cultural differences were also noted (Henderson & Rheault, 2004; Roberts, Priest, & Traynor, 2006).

The external audit method was employed, where another researcher reviewed the study data to independently arrive at a comparable conclusion (Henderson & Rheault, 2004). The review of the data by an experienced qualitative research peer, not involved in the study, also assisted in verifying the consistency of the findings which is considered to be a rigorous test of the validity of qualitative analysis (Plummer-D'Amato, 2008). Additionally, NVivo, the computerized data analysis packages was used to enhance reliability by applying the rules built into the program (Roberts, Priest, & Traynor, 2006). The researcher was moving back and forth between the data and interpretation to ensure association between research question, literature,
recruitment of participants, data collection strategies, and analysis (Morse, Barrett, Mayan, Olson, & Spiers, 2002; Roberts, Priest, & Traynor, 2006). Checking and rechecking transcripts against the translated interpretations during analysis and synthesis added more credibility to research findings (Regmi, Naidoo, & Pilkington, 2010).

To enhance the credibility, the reflexivity method was used which involved the assessment of the researcher’s own perceptions and beliefs on the research process (Henderson & Rheault, 2004). The use of a field journal allowed the researcher to record personal thoughts and detailed notes on decisions made throughout the process to differentiate the influence of researcher bias (Henderson & Rheault, 2004; Roberts, Priest, & Traynor, 2006). This approach allowed for transparency of the research process which added to the study validity and reliability (Roberts, Priest, & Traynor, 2006). In order to increase the transferability of the research methods and finding, the researcher also obtained background information about the study participants and ensure that the sample is representative of the clinical population (Henderson & Rheault, 2004).

**Human Subjects Protection and Ethical Considerations**

After obtaining Institutional Review Board approval from DePaul and the support letter from the clinic, the focus groups were held at the West Town Community Health Clinic in the designated room with privacy. The researcher informed participants about the purpose of the focus group, information obtained from the participants was used to develop diabetes education specific to the needs for the Polish population. Consent was obtained from participants and the participants were advised that they can leave the group at any time. No names were exchanged in the groups except for the researcher. The study participants were asked to consent to being audio recorded and assured that their responses were to be kept confidential. The privacy concern was addressed by setting ground rules at the beginning of the focus group session and participants
were cautioned to respect other people in the group by keeping everything that was said in the group confidential (Plummer-D’Amato, 2008). All consent forms and questionnaire data was kept securely locked in a file cabinet and secured by the researcher. Transcribed data was stored on the researcher password protected computer under the password-protected computer file, and all the audio recordings were erased once the transcriptions had been verified as accurate. The researcher was responsible for storage, maintenance and back-up of the data. All research data collected as part of this project were to be stored for two years. The central aim for this storage time, is that sufficient materials and data are retained to justify the outcomes of the research and to defend them if they are challenged.

**Data collection**

The Researcher facilitated eight meetings from January 2017 through May 2017 in the form of focus group or semi structured interviews. The group meetings were conducted on evenings and weekends in a community health clinic, either after a diabetes education class or diabetes cooking class. In keeping with a semi structured focus group format, a facilitator led each group through the set of predetermined questions with accompanying prompts that allowed for additional probes as needed. The group size ranged from one to three people; average group size was two participants (Appendix C). Few meetings had only one person when other scheduled participants did not show up. All focus group participants consented to being audio recorded, and their responses were kept confidential.

**Demographic data**

Polish speaking patients with diabetes are mostly middle age people (Appendix D). Most of the patients were over 50 years old. They appear to be well educated with most of them having
some type of college education and considered their diabetes knowledge as good. Only one of 
the study participants reported the diabetes self-knowledge as poor. The Majority of them 
mentioned, during the focus group session, that they are still working and live with their spouses, 
very few still live with their children, and two were living alone. They were in most cases 
medication compliance and reported taking their medication as prescribed by their healthcare 
providers. Only one person admitted not taking her prescribed oral medication and trying to 
manage her diabetes by life style changes by eating healthy and exercising.

Chapter 4. Data Analysis

Demographic data was entered into Statistical Package for the Social Sciences (SPSS) for 
frequency distributions. Transcribed interviews were reviewed to identify frequently recurring 
themes and the information were compared within and across study groups. After each focus 
group, the researcher documented initial general impressions about its process and content. Next, 
the researcher listened to the audio recordings and transcribed the discussions verbatim. The 
documents were read to identify themes that occurred most frequently and compared this 
information within and across study groups. A second reading was done to identify initial themes 
to emerge from the responses to each of the questions asked. NVIVO program was used for data 
analysis and significant themes were assigned codes. The constant comparison methodology and 
thematic analysis was used throughout analysis to examine themes across responses to all 
questions. This method helped ensure the content and construct validity of the study and help to 
ascertain that chosen themes are representative of the common comments from participants. A 
final evaluation of the emerging themes yielded common threads in terms of special needs 
among Polish diabetic patients and guided the researchers in making recommendations for 
further diabetes education programs.
The following themes emerged from the data analysis:

**Challenges of Polish speaking patients**

Most Polish speaking patients consider themselves as eating healthy, but fried meat is still the main dish on many Polish tables. They report that healthy foods are relatively expensive and patients simply cannot afford them. Additionally, patients lack guidelines and recipes to follow while preparing daily meals with the use of different spices and healthy alternatives. Method of food preparation was determined relative to time, knowledge, self-discipline/perseverance, and affordability in preparing healthy meals. In terms of barriers to incorporating healthier lifestyle behaviors, the groups consistently emphasized the importance of challenges associated with obtaining and preparing healthy foods. Identifying the need for financial assistance in addressing the high costs, combined with the challenge of balancing work outside the home with providing healthy food for themselves and their family members. And lastly, the lack of time for grocery shopping and food preparation is cited.

...“I think, Polish people who live here in USA worry more about work, bills and money. *Polish people lead a very fast paced lifestyle full of stress and unhealthy eating habits*”...

The most frequently reported challenge in getting regular physical exercise was simply laziness, lack of motivation/self-discipline, and physical pain due to hard physical work or other comorbidities such as arthritis or back pain. Polish patients reported a struggle to exercise every day on a regular basis even for 15min a day due to fatigue after working long hours. The hardest part was to maintain a regular exercise routine after stopping for one or two days and the struggle to begin exercising again. Patients explained that even though they do not exercise regularly, they do lead active lifestyles. They walk their dog daily or work requires walking up and down
many flights of stairs at work. Regular stretching exercises are easier to accomplish as those can be performed for example while watching TV.

Patients also reported that they have limited supply of the glucose strips, which are too expensive for them to afford in a quantity needed for frequent blood glucose monitoring. The number of strips provided by the clinic allows patients to monitor blood glucose once a day or every other day. Those on an insulin regimen are provided 50 strips per 3 months, where those on oral diabetic medications get the same amount for the duration of 6 months. Besides lacking an adequate supply of glucose strips or not having a glucometer at home, patients also frequently report that they do not check their blood glucose because they do not want to prick themselves with the lancets.

Maintaining health and perception of being healthy

Polish patients’ perception of being healthy is not necessarily to be free of any pain or illnesses, but being healthy means living well, eating healthy, and having a rather stress-free lifestyle that prevents them from getting depressed.

Most patients reported that in order to maintain their health, they take their medication as prescribed and keep up with follow-up doctors’ visit. They watch their food and calorie intake as they believe that healthy eating is crucial for wellbeing. Most of them believe that they need to work on choosing better food options, food with better nutritional value, and use ingredients that are keys in keeping the body healthy. It is important to know how to combine different foods together, so they work for optimal health. However, many of the patients expressed that the food products nowadays are not as healthy as they used to be.
...“Healthy eating is crucial for wellbeing. We need to know how to choose food with better nutritional value and ingredients that are key for our health, what it is not easy nowadays is food is not as healthy as it used to be”... 

**Difficulties with managing the diabetes and effect of diabetes on Polish patients’ life**

The Diagnosis of diabetes has a big impact on almost all patients participating in this study but many of them stated that is was not until they took diabetes classes that they realized how dangerous this disease is for their health. The classes helped them realize how this disease affects the entire body and the profound future consequences it can bring if not controlled. Some participants stated that having diabetes forced them to change the way they look at food and nutrition and forced them to make better life style choices. Many participants also stated that diabetes affected all aspects of their lives due to the fact that the disease cannot be cured. It is a lifelong challenge due to the inconvenience of having to plan for meals, testing blood sugars, and manage fluctuating blood glucose levels. The biggest challenge for Polish patients was to keep their blood glucose levels steady. They struggle with fluctuating blood glucose levels, inability to keep the blood glucose under control, inability to function during the day when blood glucose is elevated despite eating the appropriate diet. Polish people struggle in the US with getting enough time and money to consistently afford healthy meals. They report that they are overworked and too tired after work to prepare healthy meals or exercise. The majority of patients reported that they do not have time to prepare healthy meals or exercise due to long working hours.

...“I am working too many hours and coming back home late in the evening and eat too late. If only, I could work less so that I could be home around 5 or 6 PM, then I think I would eat better. I wish, I could afford to buy organic food, because now I only think that I need to work a lot”...
Some of the Polish patients expressed that better access to Polish speaking health care providers would help them to manage their diabetes better. They believe that they would be able to communicate their needs easier and more completely in their primary language and get all of their questions answered. Also, a better supply of the glucometers and glucose strips would help with the awareness of what level of their blood glucose was and what interventions they would have to take to control it. Participants also identified additional health issues as being a barrier to their diabetes management. The most prevalent health issues for this study population in addition to diabetes were: hypertension, hyperlipidemia, and chronic pain associated with back problems or arthritis.

Almost all participants stated that the food here in Chicagoland area was different from what they were used to eat in Poland. They think that Poland has better quality of food, which is less processed, where in the US everything is chemically treated and has a negative effect on health. As to Polish cuisine, they believe that it is rather unhealthy, heavy and greasy. Polish people eat big meals without portion control instead of eating more often in smaller portions.

...“I think, the problem is what we eat and how we eat. Our Polish cuisine is rather unhealthy and we do not exercise regularly. I think we need help of certified dietitian to tell us how to compose the daily diet otherwise it is really hard to do on your own”...

The last most frequently mentioned problem was that Polish people do not eat enough fruits and vegetables. Beside unhealthy eating habits, Polish patients also admitted that they do not go to the doctors for annual health checkups due to a lack of health insurance, time or financial difficulties. They only go when it is already too late, when the health problem is obvious.
The most important things to learn from diabetes education program

Participants stated that it would be most helpful if they were taught how to control their diet and how to change their bad habits. They would like to learn how to lead a healthy lifestyle and follow a healthy diet. Some would like to attend cooking classes that would teach them how to prepare a healthy meal. They are in need of easy recipes for inexpensive meals and a meal planner for someone on a tight budget and limited time to cook.

“I think, I would find the most useful some recipes for easy and inexpensive meals. A meal plan for someone on a tight budget and limited time to cook”.

Polish patients believe that diabetes education classes should put an emphasis on complications caused by untreated or uncontrolled diabetes to raise a fear of the disease and encourage them to take action. Teaching should be provided to patients who are at risk for developing diabetes or prediabetes and not only to those who already have diabetes.

The most frequently mentioned topics that should be discussed in detail during diabetes education classes include: how to monitor and control the blood sugar; how to self-control the temptation to eat unhealthy food, and how to adhere to a healthy diet; the importance of taking medications and taking them at the same time daily; how to recognize the amount of sugar and carbohydrates in the food; how to combine foods together to create healthy and balanced meals to better control blood sugar levels; how to read food labels in order to choose healthy products; how much insulin to take and when to take more or less of it, and how to recognize signs of low and high blood sugar.

As a method of conveying diabetes knowledge, Polish patients prefer diabetes classes over any other method. Diabetes classes gives them an opportunity to interact with the instructor, ask
questions and explore areas of diabetes information that they find most important to know in order to manage their diabetes.

...“Only here at Community Health Clinic during the diabetes class I have learned what exactly insulin is responsible for. Polish people do not analyze this disease they just live with it, here I learned how to control it”...

Their second choice was the written materials that they can go back to and review during their leisure time. Offering, diabetes classes or cooking classes for diabetic patients were regarded as most beneficial; as they allow for interactions not only with the class facilitator but also with other diabetes patients. This gives the participant the opportunity to share their real-life experience with diabetes management as it comes to its challenges and successful stories.

...“I prefer written form of information or simply meeting with other diabetic patients to exchange opinions and experiences. Everyone has their own methods of coping with and managing the diabetes disease. It will not hurt to try something that works for someone else”...

Discussion

It appears that an increased incidence of diabetes among the Polish population in the US may be contributed to lifestyle changes, such as increased calorie intake, lower level of physical activity, and higher prevalence of overweight and obesity. Polish patients with diabetes reported significantly more problems in areas such as self-care, usual activities of daily living and anxiety/stress. Thus, they would benefit from educational classes that would teach them how to deal with stressors that accompany their everyday life as immigrants. Further, health education programs that include not only activities that increase the level of health education and health
awareness, but also include aspects such as changes in beliefs, sense of self-efficacy and social support.

Despite the fact that most of the study participants reported their level of diabetes knowledge as good or even very good, they lacked the knowledge about preventive measures such as well check-up visits and inquiring about preventive health information. Preventive teaching for Polish patients should be started early, even before diabetes is diagnosed, to increase awareness that diabetes in its initial stages remains low-symptomatic and therefore undiagnosed, only to be detected when more serious complications such as heart attack, stroke, renal failure, or vision deterioration occur. As the prevalence of diabetes disease is increasing amongst the Polish population in the US, there is a need to increase the public understanding and awareness of the disease. This can be achieved by providing education for the whole family, related to making positive lifestyle changes such as the role of daily physical activity and consumption of fruits and vegetables. Even though over-all the Polish patients self-reported good adherence to their medication regime, a few of them admitted missing their dosages due to various reasons. Thus, education that increases family support may have a positive influence on the patients’ adherence to a medication regime and blood glucose checks which are crucial for diabetes management.

Participants stated that they would prefer to meet in small groups where the approach to education can be more personalized. Participants also identified having limited time as a barrier to diabetes management. Thus, providing education in longer sessions but for a lesser number of times would address the patients’ impediments traveling long distances to the clinic and having a busy work schedule. Additionally, teaching interventions for working people with diabetes should include advice that addresses social, emotional, and lifestyle supports for working patients that strive to balance family and work responsibilities.
Implication for health care providers

Diabetes education classes for Polish speaking patients should provide them with fast and easy recipes for preparing healthy meals. The emphasis need to be put on the fact that food high in carbohydrates and fat has to be eliminated from diabetic diet and substituted with increase intake of vegetables and fruit low in sugar content. In collaboration with certified dietitian, who preferably is familiar with Polish population, health educator or health care provider should develop samples of diabetic meals that are inexpensive and easy to prepare. Polish patients should also be taught muscle relaxation, deep breathing, meditation, or visualization as they report that their immigration status cause them to have a lot of stress in their life. Healthy recipes along with the information on exercises that help to relax and decrease stress, should also be readily available for health care provider who can distribute them to diabetic patients during routine control visit. As Polish patients found the information on “my plate” most helpful to understand the portion size for variety of food that they should be consuming each meal, this information should also be conveyed to diabetes patients not only during the education classes but also during routine health visit. As immigration status of Polish patients has an effect on their ability to obtain health insurance and access to healthcare services, healthcare providers should assess their ability to obtain services and assist patients with finding appropriate resources to ensure continuity of care.

Study Limitation

The author would like to highlight the limitation of convenience sampling used in this pilot study. These results may be viewed as preliminary because of the small sample size caused by inadequate and inconsistent participant numbers in focus groups. Additional study limitations pertain to more specific participant inclusion criteria that should be used, in order to increase the
rigor and validity of the study results. Future research studies on this population should use a mixed methods approach with qualitative focus groups/ interviews with a pre and post-test design of diabetes knowledge understanding. Also, quantitative data such as fasting blood glucose level log or Hemoglobin A1C values should be used to evaluate improved diabetes self-care management based upon cultural competent diabetes education for Polish speaking population. Future studies should concentrate on increasing the present study’s generalizability and expanding the study throughout Chicagoland area. And nationally future studies should consider addressing these limitations and examining how culturally competent diabetes education influences the health outcomes in a larger sample size of the Polish population in the US.

Conclusion

Diabetes is a lifetime disease that requires the management of many factors such as controlling blood sugar and blood pressure, maintaining a healthy weight, and performing regular screening to avoid diabetic complications (Attridge et al., 2014). Providing information on effective self-care management is crucial for diabetic patients to stay in the best health with diabetes. Effective diabetes education is also important for medical home health education departments and community clinic management to ensure the best quality of care, with the best healthcare outcome. Culturally specific diabetes education should address differences in lifestyle and health behaviors that are unique to every ethnic, cultural, and religious group. This type of approach can have a motivational effect to encourage patients from different cultural backgrounds to choose healthier lifestyles and empower them to take control over their lives. This study provides information which can serve as a pilot for future, in depth qualitative research in designing, implementing and evaluating culturally specific diabetes education, which
will improve health outcomes amongst the Polish speaking population in the United States. Findings from this study can be applied to the practice of diabetes education in general as well as health care providers working with Polish immigrants with diabetes and contribute to the growing body of evidence that culturally tailored diabetes education programs may be effective in improving health outcomes.
Appendix A

Focus Group Guide

1) At the beginning of the focus group, we asked that you respect the other people in the group by keeping everything that is said in the group confidential, meaning we are asking that you do not tell other people what is said.

2) The focus group session will be audio recorded and later transcribed into written notes in Polish in order to get an accurate record of what you said. All the audio recordings will be erased once the transcriptions have been verified as accurate.

3) Restate the purpose of the meeting:
To obtain input into the design of a program on how to prevent and manage diabetes among Polish speaking patients.

4) Explain reasons for the focus on Polish population:
T2DM has become epidemic so we will begin with a specific program for Polish speaking patients and then add programs for other groups.

5) Introduce the concept of diabetes self-management education for prevention and treatment of T2DM:
Indicate 4 major health behaviors (eg. diet, physical activity, medications, glucose self-monitoring, foot care), 2 of which are important for diabetes prevention (diet, physical activity). We desire input into a program, offered in Polish that would be useful for managing diabetes in individuals already diagnosed with T2DM and preventing diabetes in individuals who have not yet been diagnosed.

4) To begin the dialogue, ask about current barriers to:
(I) eating healthy
(II) getting recommended physical activity
(III) taking their medication(s)
(IV) monitoring their blood glucose at home

4) Spend the majority of time discussing the following questions:
1) What does health mean to you?
2) What do you do to maintain your health?
3) What do you currently know about diabetes?
4) How has diabetes affected your health?
5) What is most difficult about managing your diabetes?
6) What will encourage you to take action in managing your diabetes?
7) What do you think is different in your own culture that makes it harder to control your diabetes?
8) Have you ever received information in your own language? If so, what types of information?
9) What do you think about that information? Was it helpful in managing your diabetes?
10) What is the best way for you to receive health information?
11) What are the informational needs, barriers, and concerns related to diabetes education that is unique to Polish patients like you?
12) How often should program sessions occur? Would you be willing to do “homework” in between sessions (eg. watch an educational DVD/video)?
13) For how many weeks would you be willing to attend meetings?
14) What would be the most important things you would like to learn from this program about preventing and managing diabetes?
15) What other information could you provide that would be helpful to us in designing this diabetes program for Polish speaking patients?
## Appendix B

### Evidence-based Table/Synthesis on Culturally-Tailored Interventions

<table>
<thead>
<tr>
<th>Study Author &amp; Year</th>
<th>Purpose</th>
<th>Design</th>
<th>Sampling &amp; Sample</th>
<th>Human Subject Issues</th>
<th>Questions Concerning Interventions</th>
<th>Outcomes Measurement Tools</th>
<th>Adverse Effects of Interventions</th>
<th>Limitations</th>
<th>Statistical Analysis (ANOVA, t-tests, etc.)</th>
<th>Study Findings</th>
<th>Conclusion</th>
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<tr>
<td>Kirk et al. (2014).</td>
<td>To evaluate whether clinicians consider the impact of culture on diabetes management,</td>
<td>A survey the random sample of patients with type 2 diabetes</td>
<td>A survey was mailed to 300 randomly selected patients &gt; 50 years with type 2 diabetes and 153 surveys were returned.</td>
<td>Patients were assigned randomized data identification numbers to keep all collected information confidential. The study was approved by the Institutional Review Board.</td>
<td>How truthful the participants were when answering the mailed survey?</td>
<td>The survey scales DBMS, GGS were used.</td>
<td>None</td>
<td>Of the 300 patients contacted, a total of 157 completed the survey resulting in a small sample size. Participants represented Medicaid and self-pay, the sample may not be representative of population. No evaluation of the clinician’s previous exposure to cultural training was done. The Survey was mailed, there was no control if patients completed this survey on their and how truthful the responses were.</td>
<td>The data were analyzed using descriptive statistics with SPSS version 17.0</td>
<td>Both African Americans (AA) and non-Hispanic whites (NHW) reported that the majority of clinicians discussed the benefits of controlling blood sugar, but did not discuss the effects of cultural issues on blood Sugar. Almost half asked about the importance of how food is prepared in their culture but only 40% of clinician acknowledged the importance of the patients’ cultural beliefs and less than a third clinicians asked patient’s beliefs about insulin. Also, clinicians acknowledged the importance of cultural beliefs with a slightly higher percentage for African American females versus non-Hispanic White females.</td>
<td>Providers may experience challenges in fully assessing the patient’s cultural perspective during short appointment but understanding the patient’s views of cultural beliefs as they relate to diabetes self-management is crucial for guiding the care. There is a need to further assess providers’ cultural competence and its impact on health outcomes.</td>
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<tr>
<td>Author(s)</td>
<td>Study Design</td>
<td>Participants</td>
<td>Intervention</td>
<td>Outcome Measures</td>
<td>Findings</td>
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<td>Kutob et al. (2013)</td>
<td>Randomized controlled trial</td>
<td>Primary care physicians participating in Medicaid program, randomly assigned to intervention or control group, 110 physicians - 51 in control group and 59 in intervention group. A total of 90 physicians completed the study: 41 in the control group and 49 in the intervention group.</td>
<td>The study protocol was approved by the University of Arizona's Human Subjects Protection Program. The course was online which brings the concern how well and how long the participants were reviewing the content.</td>
<td>Cultural Competence Assessment Tool (CCAT)</td>
<td>The course could change the sense of &quot;cultural humility&quot; among physicians by encouraging continuous self-evaluation and self-critique regarding cultural identity. Study included only primary care physicians, sample size was relatively small, actual time spent on the course was not measured and posttest-only design, Chi-square and independent sample t-tests</td>
<td>No significant differences were found on total CCAT score for control versus intervention group or in subscales measuring cultural knowledge. Cultural self-awareness and knowledge remain as a challenging concept to teach and assess. A skills-based approach to teach cultural competency would help providers to treat patients from any ethnic background with humility and the ability to create therapeutic relationship that foster patient centered care.</td>
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<td>Dauvin &amp; Lora (2014)</td>
<td>To assess whether Culturally Competent (CC) interventions in the management of Type 2 diabetes mellitus (T2DM)</td>
<td>Search in MEDLINE; IsiWeb of Sciences; DARE; Scopus, and Dopher. The main MESH terms were Glycosylated hemoglobin, Congruence score with the reduction of health inequalities.</td>
<td>Search limited to English, Spanish, Dutch, or French language studies and to published indexed studies and limited databases, Analysis was focused mainly on the</td>
<td>N/A</td>
<td>41 interventions was reviewed in which there was no culture-specific component identified. 20 interventions had specific interventions that targeted cultural or linguistic aspects of the ethnic groups. Most interventions focused on the</td>
<td>Further interventions should be aimed at reducing ethnic inequalities by delivering equity-competent care. Future studies need improvements in their design that assess both socioeconomic and ethnic factors into measurement and</td>
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match the recommendations to reduce health inequalities.

The inclusion criteria were:

- interventions with a clear focus on T2DM;
- 61 studies met the inclusion criteria.

The theoretical aspects of the interventions and not on their clinical outcomes.

Individual level and the modification of patients' health behavior. Only 10 studies compared ethnic minority groups to majority groups. 23 studies had a very low average congruence score. The highest score of congruence was achieved by one study. Overall, CC interventions addressing T2DM are not congruent with the reduction of ethnic health inequalities.

Authors experience problems assessing potential effects of an intervention in the presence of other competing diabetes health services. The interventions reviewed in this research were unique which made difficult to compare and judge the components of interventions by considering the outcomes.

Interventions work better where ethnic community has unmet needs for diabetes services and when the interventions use ethnic languages, are sensitive to religious beliefs, and consider gender differences in the intervention design. Using health workers from the same ethnic group, promotes acceptability of the intervention. A positive learning environment, a flexible and less intensive approach, one-to-one teaching in informal settings compared with a

<table>
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<tr>
<th>Study</th>
<th>Design</th>
<th>Control</th>
<th>Outcomes</th>
<th>Methodological issues</th>
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</thead>
<tbody>
<tr>
<td>Pottie, et al. (2013)</td>
<td>Systematic review</td>
<td>11 randomized controlled trials from a Cochrane systematic review.</td>
<td>HbA1c level, control of blood pressure and behavioral and attitudinal changes.</td>
<td>Authors experience problems assessing potential effects of an intervention in the presence of other competing diabetes health services. The interventions reviewed in this research were unique which made difficult to compare and judge the components of interventions by considering the outcomes.</td>
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</table>
CULTURALLY TAILORED DIABETES EDUCATION

most effective. alone. group approach led to improved retention rates and improved HbA1c levels.

| Choi & Rush (2012). | Pilot study | 58 Korean immigrant adults was recruited from a Korean community on the West Coast using flyers, center newsletters, and Korean newspapers. Only 41 participants complete the study | Informed consent and IRB approval was obtained | How well was the culturally tailored education designed? Were two class sessions of 1.5 and 2.5 hours enough to convey enough knowledge for effective diabetes self-management? | Diabetes self-management behaviors were measured with the Summary of Diabetes Self-Care Activities revised scale (SDSCA). Mood was measured by the Patient Health Questionnaire (PHQ-9). Diabetes knowledge was measured the Diabetes Knowledge Test. Self-efficacy was measured using a diabetes self-efficacy Scale. | None the pre and post-test single group only study design, there was no control group and short duration of follow-up and small sample size, | Paired t tests and repeated-measures ANOVA was used to analyze dependent variables Descriptive statistics was used to examine the feasibility and acceptability of the intervention. | There was a significant decreased in A1C level and waist circumference from baseline to 3-month follow-up, where HDL levels significantly increased. There was an increase in weekly feet checks, and increase in frequency of exercise activities. The participant also expressed satisfaction with the program. However, the results did not show any significant changes in health and well-being variables. Study showed that culturally tailored diabetes education program may be effective in improving health outcomes in majority populations. There is a need for further studies with bigger sample size and control groups to strength the evidence and enhance the generalizability. Also, similar studies should not only be extended to different Korean immigrant populations but also to other ethnic minorities to improve self-management and health outcomes in those populations. |
| Jornsay & Garnett (2014) | To describe a diabetes champion program designed to increase direct diabetes patient education | Description of Diabetes Nurse Champion Program | 134 registered nurses, 2 nurse practitioners, 1 physician, 10 physician assistants, 3 pharmacists, 3 registered dietitians, and 1 physical Therapist working in inpatient hospital | participants voluntarily enrolled in the program | Does a 90min course provide enough information about diabetes management? | N/A | None | The study did not use any measurement tools that would allow for the assessment of program effectiveness | N/A | Program was extended to eight other hospitals reduction in the 30-day readmission rate from 48.4% to 7.7% for was seen among patients who received free diabetes medications 6 months after program implementation. Program also helped prepare 52 diabetes champions from various ethnic backgrounds with 12 of the them speaking a language other than English (Spanish, French, Slovakian, Russian, Haitian Creole, Korean, Kannada, Yoruba, Hindi, and Malayalam) | There is a need for bigger number of diabetes educators that speak more than one language because the type 2 diabetes is disproportionately prevalent in ethnic and racial minorities, and there is a tremendous need for diabetes education. Programs like this may be an effective approach to improve quality and patient safety and help patients to transition from inpatient to outpatient settings. |
| Creamer et al. (2016) | to extend the knowledge of the short and long-term effects of culturally appropriate diabetes education to identify specific aspects of interventions that lead to successful outcomes | Meta-analysis Randomized Controlled Trials (RCTs) assessing the effects of culturally appropriate health education for Type 2 diabetes in a specified ethnic minority group | N/A | N/A | HbA1c, validated measures of health related quality of life and adverse events of the intervention. | N/A | The generalizability may be affected by the majority of RCTs (24/33) coming from the USA, and also by the heterogeneity that exists both between and within ethnic minority groups across the world glycemic control at 3 months [weighted mean difference (WMD); [standardized mean difference (SMD): 22 new trials were suitable for inclusion Those publications confirm and strengthens the evidence for consistent benefits from culturally appropriate diabetes education over conventional programs. | N/A | The authors concluded that culturally appropriate diabetes education may bring long-term benefits over conventional care in terms of reducing glycemic control and improving diabetes knowledge. However, there is a need for further trials of longer duration to investigate clinical outcome measures such as development of diabetic complications, long-term mortality and patient quality of life. |
and to suggest directions for future research.

| Gaynor (2014) | Review article | N/A | N/A | N/A | N/A | N/A | Type 2 diabetes disproportionately affects the people of South Asian, African and African-Caribbean origin. Individuals from BME groups are less likely to admit that diabetes is a chronic condition, which poses a threat to their health or that it has a great impact on their lives. Healthcare professionals must be aware of those beliefs to ensure that the condition is managed effectively. The provision of diabetes education for individuals from BME groups is very complex, where language difficulties may add to other potential barrier. Different BME groups exhibit a tendency for certain complications from diabetes, which can lead to significant morbidity and mortality. Providers must be aware that ethnic differences in diabetes care contribute to the more adverse outcomes. People from different ethnic groups have different beliefs about the cause of diabetes, diet and weight management, medication and physical exercise. Healthcare providers must be aware of the health beliefs and attitudes of the different groups in order to adapt effective educational strategies to empower the individual from a BME group to take control over their own lives. |
| Nam at al. (2012). | To evaluate the Meta-analysis search within PubMed, | N/A | quality of studies assessed | N/A | Search was confined to English- meta-analysis for the effect of diabetes | The 12 studies were included with total of 1495 participants. Based on this meta-analysis, CTDEI is effective in improving the glycemic control among... |
effectiveness of a culturally tailored diabetes education intervention (CTDEI) on glycemic control in ethnic minorities with type 2 diabetes.

Cumulative Index to Nursing and Allied Health Literature (CINAHL), Education Resources Information Center (ERIC), PsycINFO, and ProQuest for randomized controlled trials (RCTs), 12 RCTs were included in analysis using 4 items (appropriate randomization procedure, information about number of withdrawals/dropouts and reasons, description of culturally tailored interventions, and description of inclusion and exclusion criteria. Egger’s test, and Begg’s test to assess publication bias. Language articles, which could introduce selection bias. Also, possibility of publication bias because the unpublished studies were not included in the analysis what may have influenced the results. The results may only be generalizable to African American or Hispanic women due to type of population included in RCTs (majority of study participants were women either African Americans or Hispanic Americans). Educational intervention on glycemic control using glycosylated hemoglobin (HbA1c) value. Computed effect size (ES) (mean difference) of HbA1c change from baseline to follow-up between control and treatment groups.

Most studies (84%) used either group education sessions or a combination of group sessions and individual patient counseling. The duration of interventions ranged from 1 session to 12 months. RCTs with culturally tailored interventions were showing statistically significant effect size of A1C change when measured at the last follow-up.

Carr (2012) To identify the main issues people with T2D from minority ethnic groups have when they...systematic search of existing literature using CINAHL, Library Information and Technology Abstracts, N/A. The Critical Appraisal Skills Program (2006) tool for qualitative research was used to evaluated N/A. The results suggested that people with diabetes were not clear about the nature of their condition, and the important role that diet plays in its management. Dietary advice did not take into account traditional foods or ways of cooking.

Healthcare professionals need to be cognizant about dietary advice for patients from minority ethnic groups. They also need to remember to educated patients about diabetes and how their diet is affecting their condition. Healthcare professionals must be trained on type of foods that different...
are given dietary advice from healthcare professionals. Medline, AMED, International Bibliography of the Social Sciences, British Nursing Index and Science Citation Index. 6 studies were chosen for review.

<table>
<thead>
<tr>
<th>Study</th>
<th>Methodology</th>
<th>Findings</th>
<th>Implications</th>
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<tbody>
<tr>
<td>Hawthorne, Robles, Cannings-John, &amp; Edwards (2010)</td>
<td>Systemic review with meta-analysis</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Swavel y et al. (2014)</td>
<td>A prospective pre-posttest evaluation</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Study</td>
<td>Design</td>
<td>Retention</td>
<td>Group</td>
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<tr>
<td>Rejman &amp; Kasper ska (2011)</td>
<td>Snowball sampling among 200 adult consumers in Warsaw in April and May</td>
<td>There is no statement that the study was approved by IRB or how the human subjects</td>
<td>A t test was performed for gender and education level as grouping variables, and</td>
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</table>
In 2009, on a sample of 200 adult consumers, inhabitants of Poland's capital city, were protected. The analysis of variance (ANOVA) was performed for income level. This behavior was the only one significantly influenced by consumer income, while the others were determined by education level and gender. Labels had a rather low influence on purchase decisions. Half of participants always looked for information such as brand, producer, expiry date or price, and only 2% of the sample never looked. In contrast, only 3%–6% always checked the list of ingredients, nutrition facts, and nutritional choices and their impact on health.

| informati on on food labels affect consumers’ dietary choices and shopping behavior | 2009. on a sample of 200 adult consumers, inhabitants of Poland’s capital city. | were protected. | analysis of variance (ANOVA) was performed for income level. | This behavior was the only one significantly influenced by consumer income, while the others were determined by education level and gender. Labels had a rather low influence on purchase decisions. Half of participants always looked for information such as brand, producer, expiry date or price, and only 2% of the sample never looked. In contrast, only 3%–6% always checked the list of ingredients, nutrition facts, and nutritional choices and their impact on health. |

Abbreviations: DBMS, Disease Beliefs and Management Scale; BME, black and minority ethnic; CC, culturally competent; CTDEI, culturally tailored diabetes educational intervention; CCS, Cultural Concerns Scale; HbA1c, glycosylated hemoglobin; RTCs, randomized controlled trials.
Appendix C

Focus group structure

<table>
<thead>
<tr>
<th>Focus group</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>1</td>
</tr>
<tr>
<td>#2</td>
<td>3</td>
</tr>
<tr>
<td>#3</td>
<td>1</td>
</tr>
<tr>
<td>#4</td>
<td>2</td>
</tr>
<tr>
<td>#5</td>
<td>2</td>
</tr>
<tr>
<td>#6</td>
<td>1</td>
</tr>
<tr>
<td>#7</td>
<td>1</td>
</tr>
<tr>
<td>#8</td>
<td>3</td>
</tr>
</tbody>
</table>

Appendix D

Participant Demographics (N=14)

<table>
<thead>
<tr>
<th>Continuous Variables</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of diabetes mellitus (months or years)</td>
<td>3.8 (1.5)</td>
</tr>
<tr>
<td>Glucose checks per week</td>
<td>3.7 (2.4)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Categorical variables</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>78.6</td>
</tr>
<tr>
<td>Male</td>
<td>21.4</td>
</tr>
<tr>
<td>Age (y)</td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>0</td>
</tr>
<tr>
<td>30-39</td>
<td>0</td>
</tr>
<tr>
<td>40-49</td>
<td>7.1</td>
</tr>
<tr>
<td>50-59</td>
<td>42.9</td>
</tr>
<tr>
<td>60 and over</td>
<td>50</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>&lt; High school</td>
<td>14.3</td>
</tr>
<tr>
<td>High school</td>
<td>28.6</td>
</tr>
<tr>
<td>2 y of college</td>
<td>21.4</td>
</tr>
<tr>
<td>4 y of college</td>
<td>35.7</td>
</tr>
<tr>
<td>Graduate school</td>
<td>0</td>
</tr>
<tr>
<td>Self-reported level of DM knowledge</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>7.1</td>
</tr>
<tr>
<td>Fair</td>
<td>21.4</td>
</tr>
<tr>
<td>Good</td>
<td>42.9</td>
</tr>
<tr>
<td>Very good</td>
<td>28.6</td>
</tr>
<tr>
<td>Excellent</td>
<td>0</td>
</tr>
<tr>
<td>Self-reported medication compliance: taking the medications as prescribed by PCP</td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>7.1</td>
</tr>
<tr>
<td>Seldom</td>
<td>0</td>
</tr>
<tr>
<td>Sometimes</td>
<td>0</td>
</tr>
<tr>
<td>Most of the time</td>
<td>21.4</td>
</tr>
<tr>
<td>Always</td>
<td>71.4</td>
</tr>
</tbody>
</table>
References


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