

12-16-2015

An Evidence-Based Approach to Determine the Feasibility and Sustainability of a Support Group for Vulnerable Populations with Diabetes in a Free Health Clinic

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AN EVIDENCE-BASED APPROACH
TO DETERMINE THE FEASIBILITY AND SUSTAINABILITY OF A SUPPORT GROUP
FOR VULNERABLE POPULATIONS WITH DIABETES
IN A FREE HEALTH CLINIC

Shawn K. Hillman

A Dissertation Submitted to the Graduate Faculty of
GRAND VALLEY STATE UNIVERSITY

In

Partial Fulfillment of the Requirements

For the Degree of

DOCTOR OF NURSING PRACTICE

Kirkhof College of Nursing

December 2015

Dedication

I would like to dedicate this dissertation to all of my family. Without your support, this would not have been possible. To my husband, Russ, thank you for all your support, love, and encouragement throughout this journey. Your patience and extra work kept our household in order, and kept me grounded during the stressful times. I truly appreciate all you do! To my beautiful daughters, Emily, Megan, and Mekaela, thank you for your support and understanding when I couldn't be present, and for helping out at home when I had to study. You mean the world to me, and I am so blessed to be your mother. To my parents, who have always supported higher education, and have always encouraged and believed in me; Mom, thank you for all the dinners you cooked for us! Finally, to all my extended family, thank you for all your prayers, support, and encouragement that helped me to persevere.

Acknowledgements

I would like to acknowledge the support of Grand Valley State University in producing this work. I also wish to acknowledge the members of my dissertation committee: Dr. Cynthia Coviak, for your guidance and expertise in academic writing, statistical analyses, and the dissertation process; Dr. Dianne Conrad, for your guidance, knowledge, and support, and for allowing me to spend some clinical days with you – I have learned so much from you, and will always be grateful for you being a role model for the DNP and advanced practice nursing, and for your expertise in the specialized field of diabetes; Dr. Lara Jaskiewicz, for your support and guidance in academic writing, and your expertise in working with vulnerable populations; and Holly Dishnow, for your unceasing support and encouragement to persevere, and for your mentorship and clinical expertise in advanced practice nursing. I would also like to acknowledge Christine Plummer and the staff and volunteers at City on a Hill for their support of my project implementation, and for their commitment to serving the health care needs of the underserved.

Abstract

Purpose: People living with diabetes require the appropriate resources, education, and support to avoid long-term complications. Vulnerable people with diabetes are often lacking these vital components, resulting in higher rates of complications, and decreased quality of life. A support group for diabetes in a free health clinic is an effective venue to provide these resources. This project determined the feasibility and factors leading to the potential for sustainability of a diabetes support group for a vulnerable population in West Michigan by implementing a pilot support group. Determinants of feasibility and sustainability were participant and professional feedback, perceptions of value and benefit, operational and financial implications, and projected volunteer availability.

Participants: Eight community members and five professional survey participants contributed to this three-week pilot project. Seven participants had diabetes, and one participant was a support person.

Methods and Materials: This evidence-based project used a one-group pretest-posttest design using the Diabetes Self-Efficacy Scale (DSES), along with participant and professional surveys designed by the investigator. Bandura's methods were used to impact self-confidence for diabetes self-management, as well as evidence-based methods of determining feasibility and sustainability.

Analysis: Wilcoxon signed-rank non-parametric paired analysis was conducted to test the difference between pre- and post-session DSES scores. A Bonferroni adjustment correcting $\alpha = 0.05$ for eight tests was performed to determine any possible increases in self-efficacy scores. Therefore, one-tailed results and a corrected significance level of $p < 0.00625$ were used.

Results: Each of the seven participants with diabetes provided pre-post DSES reports, and all eight participants, along with five professional survey respondents, provided survey feedback, contributing to the determination of feasibility and factors supporting the potential for sustainability. Although DSES scores trended higher after attending the support group, no significant change was identified in DSES scores after attending at least one session. Feedback indicated that a support group is feasible and sustainable in this setting.

Impact: These findings suggest that a support group for vulnerable persons with diabetes in a free health clinic may impact self-confidence for diabetes management, which in turn has been shown to improve self-efficacy over time. Findings also indicate that a diabetes support group is feasible and has the potential to be sustainable in this setting. Providing education and support to a vulnerable population with diabetes can potentially affect positive health outcomes if a support group is sustained in this setting.

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Chapter 1

Introduction

Diabetes is a chronic disease of epidemic proportion that is often accompanied by multiple comorbidities (Centers for Disease Control and Prevention (CDC), 2011). Left uncontrolled, diabetes can cause extensive life-threatening complications. Diabetes affects people of all ages, ethnicities, and geographic regions, although disproportionately. In this chapter, the scope of the problem of diabetes in the United States will be discussed as well as how this problem relates to vulnerable populations with limited access to health care and treatment options. The project question and purpose will be described, with a proposed solution for a specific vulnerable population in West Michigan.

Diabetes: Scope of the Problem

The disease process of diabetes involves elevated glucose levels in affected individuals. Elevated glucose levels are associated with serious complications including heart disease, stroke, blindness, kidney disease, and lower-limb amputation (CDC, 2014). Complications can be prevented with good blood glucose control. Diabetes self-care involves regular monitoring with dilated eye exams, foot care, urine and blood tests, education, and a lifestyle of healthy eating, regular exercise, and weight management (American Diabetes Association, 2015).

Diabetes disproportionately affects certain ethnic and societal groups. Individuals of European descent have a 7.6% rate of diabetes, while 13.2% of African Americans, 12.8% of Hispanic Latinos, 9% of Asian Americans, and 15.9% of American Indian and Alaskan Natives have diabetes (CDC, 2014). Diabetes also disproportionately affects individuals with low income, the uninsured, and the underinsured (Madden et al., 2011). Individuals of low socioeconomic status are not only at higher risk of developing diabetes, but are also more likely

to suffer higher rates of negative outcomes. Lack of health insurance is identified as an independent risk factor for poor outcomes in diabetes, and is most prevalent in low-income populations (Madden et al., 2011). Language barriers, difficulty navigating the healthcare system, and lack of empowerment are other factors contributing to disparity.

Rates of diabetes have increased, and recent statistics show that this trend is continuing (CDC, 2011). Diabetes is the seventh leading cause of death in the United States (U.S.) affecting 29.1 million people or 9.3% of Americans (Centers for Disease Control and Prevention (CDC), 2014), an increase from 7.8% reported in 2008 national statistics. An estimated 86 million, or 37% of adults in the U.S. have pre-diabetes. The CDC (2011) projects one in three adults will have diabetes by the year 2050 if current trends continue. The financial burden of diabetes is estimated by the CDC (2014) to be \$245 billion annually.

The prevalence of diabetes in Ottawa County, Michigan is 7% overall, but increases to 12% for those aged 55-64, and 22% for those aged 65-74 (Carl Frost Center for Social Science Research, 2011). Higher rates are noted in those with less than a high school education and those of lower income. Also, Hispanics comprise 9.3% of the population in Ottawa County, compared to 4.7% statewide (United States Census Bureau, 2014). The higher number of Hispanics residing in Ottawa County is an important consideration due to the increased rates of diabetes in this ethnic group compared to those of European descent. In Ottawa County, diabetes is described by the Carl Frost Center (2011) as a critical problem due to prevalence of the disease and the lack of community response to the problem. Improving control of diabetes in patients in Ottawa County is one of the top healthcare priorities to address. Adults surveyed in Ottawa County listed a lack of health care providers accepting Medicaid and limited or no health insurance as the barriers to accessing care (Carl Frost Center for Social Science Research, 2011).

Problem Description

The population of focus for this project is people with diabetes in Ottawa County who are underinsured or uninsured, many of whom utilize a free health clinic in Ottawa County- City on a Hill Health Clinic. Current statistics by the Agency for Healthcare Research and Quality (2014) show that 12% of Ottawa County residents are uninsured. City on a Hill Health Clinic is a non-profit, community-based organization that offers health care services at no charge to low-income individuals who lack health insurance or who are underinsured. Those who utilize the clinic for their healthcare needs are not asked to verify their income level or health insurance status. The clinic utilizes volunteer physicians, nurse practitioners, physician assistants, registered nurses, social workers, physical therapists, interpreters, housekeepers, and receptionists. City on a Hill Health Clinic partners with other area healthcare providers and community organizations, and has become an important health care resource for the communities of Ottawa County. Initially, the clinic focus was to provide urgent care to the underinsured and uninsured community members. Due to a growing population of uninsured, the focus of services has changed to include the increasing need for care of individuals with chronic health conditions.

A poll taken by City on a Hill Health Clinic in 2013 asked 800 people who utilize the clinic where they would seek care if the clinic were not in service. Respondents stated they would see a private physician (0.15%), go to a local emergency department or urgent care center (0.60%), or go without care (99.25%). People who utilize City on a Hill Health Clinic have demonstrated vulnerability in their lack of health insurance, or inadequate insurance that does not allow them to seek traditional health care services due to cost. Having a chronic disease such as diabetes compounds their vulnerability by having a higher need for ongoing health care services, appropriate medication, education, and durable medical equipment such as glucose monitoring

supplies. A lack of these resources puts this population at higher risk for chronic complications related to diabetes, and at higher risk of requiring hospitalization for the complications. Control of diabetes is essential to prevent complications, and is possible with adequate knowledge and support. Those who are empowered to self-manage their disease have higher success rates of improved outcomes (Betancourt, Duong, & Bondaryk, 2012).

Data from City on a Hill Health Clinic in 2014 showed 41 patients with diabetes out of 549 total patients who were seen in the clinic for chronic disease management. Ages of these patients ranged from 30-67 years, with an average age of 51 years. Of the patients with diabetes, men comprised 44% and women comprised 56%. Ethnicities of patients with diabetes included 54% White, 24% Hispanic, 7% African American, 5% Asian, and 10% undocumented. Diabetes control varied with glycosylated hemoglobin (HbA1c) levels ranging from 4.8% to greater than 14%. The average HbA1c of all patients seen for diabetes in 2014 was 8.4%. Recommendations for target HbA1c levels in diabetes are given by the American Diabetes Association (ADA, 2015) and the American Association of Clinical Endocrinologists (AACE, 2015) as at or below 7.0% and 6.5% respectively. Special HbA1c considerations are given for those with multiple comorbidities, frailty or limited life expectancy, or severe hypoglycemia. Patients with diabetes who received care at City on a Hill in 2014 had average HbA1c levels above the recommended target, putting them at higher risk for diabetes related complications. Of those with an HbA1c in the recommended range, 67% fell within the recommendation based on the ADA (2015), and 33% were in target based on the AACE (2015).

Key objectives outlined by the ADA (2015) for improving blood sugar control are diabetes education and ongoing diabetes self-management support so that gains achieved in initial diabetes education can be sustained. A united approach is called for by the national self-

management standards, according to the ADA (2015), including self-management skills, clinical content, goal setting, problem solving, and engagement with emotional concerns in all areas of self-management. The ADA (2015) recognizes that barriers such as income, health literacy, diabetes-related distress, depression, and competing demands such as family responsibilities and cultural food practices can prevent patients from achieving target HbA1c levels. Evaluation of these barriers is recommended (ADA, 2015), along with the use of culturally appropriate diabetes education and support methods.

The patients with diabetes who receive care at City on a Hill utilize the clinic because they do not have the resources or health insurance coverage to use conventional health care. The clinic, recognizing the need for diabetes education and ongoing support, implemented a diabetes education program in 2014 and wishes to offer ongoing support in the form of a diabetes support group. The director of City on a Hill Clinic stated that the need for ongoing support is based on what she has observed in patients with diabetes as the ability to self-manage their diabetes if they are given the appropriate education and resources, and can achieve the realization of their own abilities to be successful in disease management (C. Plummer, personal communication, September 9, 2014). The director stated that she has observed patients with diabetes as lacking confidence in their ability to perform diabetes self-care activities, and believes that these patients are capable of self-managing their diabetes if they are able to realize, and have confidence in their ability to do so. The director has envisioned that an ongoing support group for patients with diabetes could facilitate patients in developing confidence in their ability to self-manage their diabetes. Although patients are not asked to verify insurance or income, the director has noted that many patients who utilize the clinic claim to have limited resources (C. Plummer, personal communication, September 9, 2014). As noted, individuals of low socioeconomic status are not

only at higher risk of developing diabetes, but are also more likely to suffer higher rates of negative outcomes (Madden et al., 2011). Interventions aimed at facilitating patients to realize their own abilities to successfully manage diabetes can improve patients' confidence and self-efficacy in disease management. Improved self-efficacy has been shown to result in improved health outcomes (Anderson et al., 1995; Bentacourt, Duong, & Bondaryk, 2012; Davies et al., 2008; Dutton et al., 2009; Funnell et al., 2005; Funnell & Anderson, 2003; Pena-Purcell, Boggess, & Jimenez, 2011; Schillinger et al., 2009).

Because of the chronic nature of diabetes, and the severity of its complications and means required to control complications, diabetes is a costly disease. Costs associated with diabetes are not only for the affected individual, but also for his or her family and the health care system. The healthcare costs of a person with diabetes in the United States are between two and three times the healthcare costs for people without diabetes (World Health Organization (WHO), 2014). Intangible costs such as pain, anxiety, inconvenience, job loss, disability, and lower quality of life also have great impact on the lives of patients, families, and communities, and are difficult to quantify. Direct costs include hospital services, lab tests, physician services, and the items needed for daily management of diabetes such as medications, hypoglycemic agents, and glucose testing supplies. People with diabetes who do not have health insurance have 79% fewer physician office visits and are prescribed 68% fewer medications than people with insurance coverage—but they also have 55% more emergency department visits than people who have insurance (ADA, 2014). The biggest expenditure for diabetes is a hospital admission to treat a complication such as heart disease, stroke, kidney failure, or foot problems (WHO, 2014). Many of these complications are preventable with prompt diagnosis, effective patient and professional education, and comprehensive long-term care.

Estimating the cost to society for the loss of productivity is difficult. Where estimates have been made, the costs of lost production may be as great or even greater than direct health care costs (WHO, 2014). Estimates of indirect costs in 2012, according to the ADA (2014), include increased absenteeism costs of \$5 billion; reduced productivity while at work costs of \$20.8 billion for the employed population; reduced productivity for those not in the labor force costs of \$2.7 billion; inability to work as a result of diabetes-related disability costs of 21.6 billion; and lost productive capacity due to early mortality costs of \$18.5 billion.

Contributing to the burden of diabetes is the lack of knowledge about how to self-manage the disease. Multiple factors affect diabetes control, requiring daily consideration of diet, activity, blood glucose monitoring, taking medications, and balancing the psychosocial components of having and managing diabetes. People with diabetes have twice the rates of depression compared to those without diabetes (ADA, 2014). Having the knowledge to make healthy decisions day-to-day, and having the support of others can have a significant impact on confidence levels and perceptions of self-efficacy in disease management. Knowledge involves obtaining necessary education to understand the intricacies of daily self-management, including making informed choices regarding food, activity, monitoring, and medication adherence. Knowledge also mediates feelings of empowerment through a sense of control over future health outcomes. Empowering the person with diabetes to be equipped to make healthy choices is fundamental to successful outcomes (Funnell & Anderson, 2003).

Empowerment, Self -efficacy, and Social Support

The term ‘empowerment’ is derived from the Latin verb for power “potere,” which means “to be able” (Covey, 1996). The prefix “em” means “cause to be” or “provide with”.

Empowerment therefore represents both a process and an outcome involving the individual or group’s ability to pull from within themselves the power to influence or control significant events in their lives (Rappaport, 1987). In a sociological sense, empowerment reflects the process by which the less powerful are given the opportunity to gain more power and control. The meaning of empowerment is often determined by the context in which it is used. Roberts (1999) indicated that there is “no consensus regarding how best to define empowerment” (p. 83). Johnson (2011) identified that empowerment is not clearly defined in the literature. Rappaport (1987) stated that empowerment will look differently in its manifest content for different people. To be empowered is to obtain the ability or power to change a circumstance for improvement for one’s self or for a group. To empower is to facilitate or give someone or a group the ability or power to accomplish something that can improve their well-being. Empowerment is the process or the outcome of this transfer of power, and can occur on an individual basis or in the context of a group. Empowerment can be personal, social, or political.

Self-efficacy is defined as the belief one has in one’s abilities to perform certain activities that influence the events that affect their lives (Bandura, 1994). Self-efficacy beliefs regulate one’s feelings, thoughts, motivation, and behavior. These beliefs yield varied effects through cognitive, motivational, affective, and selection processes (Bandura, 1994).

Individuals’ levels of self-efficacy can be factors in what they are willing to do, or perceive themselves as having the ability to do. This perception of self-efficacy, according to Bandura (1994), can be influenced by previous experiences, modeling behaviors from others, and social

influence. In contrast to empowerment, self-efficacy does not necessarily involve a transfer of or increase in power, rather it is related to a belief system regarding self. As described by Bandura (1994), this belief system can be influenced by multiple factors. Whereas empowering involves facilitating the *means* to accomplish something, self-efficacy involves enhancing the *self-perception* of having the ability to accomplish something. For people with diabetes, since daily self-care is part of how they manage their disease, *knowing* what to do by obtaining knowledge (power) is necessary, but also believing they have the capacity to *do* the things they need to do, or having confidence in their ability to do them, is also important. Social support is another concept that applies to a structured group that will give attendees connectedness to others that is potentially assistive in meeting their needs.

Social support is defined by the American Psychological Association (2015) as “resources, including material aid, socio-emotional support, and information aid provided by others to help a person cope with stress” (American Psychological Association, 2015, “Social Support,” para. 1). Social support involves a connectedness to others; this may be informally with family, friends, peers, and neighbors, or formally with an organization, church, or human service facility that may involve professionals and a structured environment (Wills, 1991). Enacted social support is what people do when they provide support such as listening, expressing concern, helping with a task, lending money, giving advice or guidance, counseling, and other forms of assistance (Wills, 1991). Social support can be a lifeline for people in illness, emotional crisis, or any other situation where help from others facilitates improved well-being.

For the vulnerable population group that is the focus of this project, a group diabetes education class was introduced in September of 2014. Each class is a series of three two-hour classes that cover the topics of the disease process of diabetes, monitoring blood glucose, acute

and chronic complications, stress management, foot care, medications, immunizations, sick day care, exercise, nutrition, and goal setting. Currently, there is no follow-up scheduled with class attendees once the class series is completed. No other comprehensive group education class for diabetes is offered for free in Ottawa County. A weekly chronic disease clinic is also offered for people with diabetes at the City on a Hill Health Clinic. At this clinic, lab work, foot exams, and assessment of other co-morbidities are provided. At the chronic disease clinic, there is not enough time to cover the comprehensive details of day-to-day diabetes management, so participants are encouraged to attend the free education class. No other interventions have been introduced to provide ongoing support to help sustain this population in their journey of disease management.

Purpose and Project Question

The purpose of this project was to conduct a pilot support group at City on a Hill Health Clinic to determine the feasibility and sustainability of the support group beyond the initial pilot. Feasibility and sustainability of the group was determined by participant attendance at the support group, feedback from group participants, feedback from the clinic director, and projected availability of volunteers to facilitate support group sessions. The primary question for this project was whether a support group for diabetes self-management targeted to the educational and cultural needs of an adult population without adequate insurance would be beneficial, feasible, and sustainable at City on a Hill Health Clinic. In order to determine the answer to the primary question, secondary questions that further explored this issue asked what the benefits, barriers, and facilitators are to the feasibility and sustainability of a diabetes support group from the perspectives of various stakeholders including patients, staff, and volunteers at City on a Hill. Also, this project assessed the operational and financial implications of sustainability of the

diabetes support group at City on a Hill from the perspective of the clinic director, staff, and volunteers, and what benefits, skills, knowledge, and confidence in diabetes self-management were gained by patients who attended the pilot group sessions. Participants were asked for their input regarding the setting of the support group, day, time of day, and frequency of sessions.

The expected benefit of sustaining the support group at City on a Hill Health Clinic was to provide a vulnerable group of adults with diabetes an ongoing support system for self-management of their disease. A support group for people with diabetes offers the opportunity to receive social support from others in the group, to be empowered for diabetes self-management through knowledge gained, and to improve confidence and self-efficacy through practicing skills, modeling of health behavior, and behavioral goal setting to successfully manage diabetes. An important component of managing diabetes is one's self-perception of the ability and personal responsibility for self-management of the disease (Davies et al., 2008). Support for diabetes self-management using patient-generated behavioral change goals and frequent engagement is an effective approach to improving patient self-efficacy and self-management behaviors (Schillinger, Handley, Wang, & Hammer, 2009).

As noted by Bandura (1994), self-efficacy can be influenced by previous experiences, modeling behaviors from others, and social influence. In a support group setting, interaction with others who have diabetes can provide knowledge of others previous experiences including successes and failures, and can be a source of modeled behaviors and social influence and support. The pilot support group took place at City on a Hill Health Clinic, and was facilitated by a certified diabetes educator. The director of City on a Hill Health Clinic has verbalized a vision for an ongoing support group for patients with diabetes. This vision aligns with the mission of City on a Hill for providing health care services to those who would otherwise not

have access to health care, and is supported by board members, and other key stakeholders in the organization.

This scholarly project is significant to nursing due to the impact of diabetes on the physical and mental health of those afflicted, as well as the individual and societal burden of the disease on populations (ADA, 2014, World Health Organization, 2014). The issue of diabetes management in vulnerable populations that lack insurance or are underinsured is complex. This issue requires direction to facilitate appropriate curriculum development to provide education for diabetes self-management and ongoing support; advanced skills to assess clients' physical, emotional, and educational needs; the aptitude to develop an evidence-based intervention; and the desire to advocate for a vulnerable population which is often overlooked. The Doctor of Nursing Practice student is an appropriate individual to address this issue.

Chapter 2

Literature Review

The scope of the problem of diabetes, the complexity of diabetes self-management, and the vulnerability of the population of interest have been discussed. As noted, improving control of diabetes in patients in Ottawa County is one of the top healthcare priorities to address (Carl Frost Center for Social Science Research, 2011). Barriers to care are prevalent among patients with diabetes who utilize City on a Hill Health Clinic due to a lack of health insurance or inadequate health insurance. Diabetes self-management education and ongoing support are important components of managing this chronic disease, and can be instrumental in improving the self-efficacy of persons with the diagnosis of type 1 and type 2 diabetes. Patients with diabetes who seek care at City on a Hill Health Clinic have either type 1 or type 2 diabetes; the majority have type 2 diabetes.

Behaviors that focus on increasing knowledge and confidence in diabetes self-management can lead to improved self-efficacy. Improved self-efficacy is shown to be a key factor in disease self-management behaviors. This chapter includes a review of the literature to support implementation of a pilot support group to determine the feasibility and sustainability of a diabetes support group. The literature will also support the use of self-efficacy as a means to improve self-care behaviors, as well as methods used to build confidence for self-management of diabetes. Statistics showing the vulnerability of those without insurance and limited access to health care will be discussed, as well as the factors that affect diabetes self-management. Based on the supporting evidence, a pilot intervention to improve knowledge, skills, and confidence in diabetes self-management in the population of interest was implemented. The purpose of this pilot intervention was to help determine the feasibility and sustainability of a support group at

City on a Hill by assessing patient factors related to attending the support group. Other factors were also considered to help determine feasibility and sustainability, including staff and volunteer input, organizational support, and financial implications.

Review of Literature

Relevant literature reviewed for this project included a search of appropriate reasons and methods for assessing the feasibility and sustainability of an intervention, and research that addressed methods of improving self-confidence and self-efficacy in adults with diabetes, and the relationship of these concepts to the self-management of the disease. Databases searched included CINAHL, PubMed, and the Cochrane Library. Search terms entered included “feasibility,” “pilot study,” “sustainability,” “self-efficacy,” “empowerment,” “diabetes,” “self-management,” “uninsured,” “underinsured,” and “vulnerable populations” in various combinations. References were also gleaned from online professional organizations including the American Diabetes Association and the American Association of Diabetes Educators, along with reference lists from articles reviewed. This review concluded that more programs are needed in communities throughout the nation to reduce diabetes disparity.

The adults in this project have risk factors for low levels of self-efficacy, and poor diabetes management due to their vulnerability from lack of, or inadequate health insurance and an inability to pay for conventional health care services. Strategies to reduce diabetes disparities have been designed, implemented, and described in peer-reviewed literature. A review of literature related to diabetes and self-efficacy revealed that improvement in the self-efficacy of clients with diabetes resulted in improved self-management of their disease, improved metabolic outcomes evidenced by a reduction in HbA1c percentage, and reduced diabetes disparities (Anderson et al., 1995; Bentacourt, Duong, & Bondaryk, 2012; Davies et al., 2008; Dutton et al.,

2009; Funnell et al., 2005; Funnell & Anderson, 2003; Pena-Purcell, Boggess, & Jimenez, 2011; Schillinger et al., 2009). A recurring theme became apparent in this review that improved self-efficacy positively affected behavior change and led to decreased diabetes disparities. This is an important consideration for clinical practice. Attention to cultural differences and individualized needs helps facilitate appropriate recommendations for vulnerable populations. A review of literature related to conducting a pilot intervention to determine the feasibility and sustainability of that intervention revealed that this approach is helpful in providing feedback to recommend or not recommend the intervention, and to offer suggestions for successful implementation (Frosch et al., 2010; Wong et al., 2002; Fisher et al., 2007; and Stetson et al., 2006). Based on the literature reviewed, the strength of evidence for this intervention is strong.

Effective methods of determining the feasibility of an intervention have been described in the literature. Bowen et al. (2009) describe various ways of determining the feasibility of an intervention for the purpose of implementing evidence into practice. Bowen et al. (2009) define *intervention* as “any program, service, policy, or product that is intended to ultimately influence or change people’s social, environmental, and organizational conditions as well as their choices, attitudes, beliefs, and behaviors” (p. 452). The proposed project at City on a Hill has the potential to influence people’s choices, attitudes, beliefs about self-ability, and behaviors for diabetes self-management. Health education and health promotion, according to Bowen et al. (2009), should focus on behaviors that can be changed; be based on empirical evidence that links behavior to health; be relevant to the target populations; and have the potential to meet the intervention’s goals. Determining the feasibility of an intervention relies on findings that can help determine whether an intervention should be implemented. In this project, findings from a pilot diabetes support group helped to determine the feasibility of continuing the support group.

Determining feasibility is indicated, according to Bowen et al. (2009), when the following conditions exist: community partnerships need to be established, increased, or sustained; there is little existing data to support an intervention; previous interventions that used a similar method were not successful, but improved versions may be successful; or previous interventions had positive outcomes but in different settings than the setting of interest. In this project, the intervention of utilizing the methods described by Bandura (1977) has been shown to have positive outcomes in other settings. This project used Bandura's methods, and obtained feedback to determine the benefit, feasibility, and factors related to the potential for sustainability of a diabetes support group.

Appropriate areas of focus addressed by a feasibility assessment, according to Bowen et al. (2009), include acceptability, or how the target recipients and those involved in implementation of the intervention react to the intervention. Another area of focus is demand, or to what extent the new program will be used. Implementation, or to what extent a new program can be successfully delivered to the intended participants is another appropriate area of focus to assess feasibility. Other suitable areas of focus in a feasibility assessment include practicality, or to what extent a program is carried out with the intended participants using existing resources; adaptation, or how an existing program performs when changes are made for a new format or with a different population; integration, or to what extent the program can be integrated into the existing organization or system; expansion, or to what extent a previously tested program or approach can be expanded to provide a new program or service; and limited efficacy, or whether the new program shows promise of being successful with the intended population.

Diabetes in the Uninsured and Underinsured

Data from a survey conducted by the United States Census Bureau (2014) illustrated that an average of 13% of Americans and 35% of Hispanics in America did not have health insurance as of March, 2014. The group of people who were the focus of this project utilized a free health clinic for their diabetes management due to having no health insurance or inadequate health insurance, and an inability to pay for the medical appointments, monitoring supplies, lab work, medications, and education required for optimal diabetes control. A lack of material resources to meet one's needs is often associated with feelings of low self-esteem and low self-efficacy; these feelings are frequently associated with poor health and poor lifestyle management (Rose & Hatzenbuehler, 2009).

Higher rates of diabetes lead to higher morbidity, mortality, and poorer health outcomes of vulnerable populations, according to Betancourt et al. (2012). The authors describe vulnerable populations as those with lower education levels; lower socioeconomic status; those living in communities with limited access to healthy foods; and those with limited access to care, or who are uninsured. The authors examined a review of literature showing that vulnerable persons are less likely to have a regular source of care, more likely to delay seeking care, and more likely to report that they have not received needed care. This resulted in more emergency room visits, hospitalizations, and poorer outcomes. Three strategies that the authors described have shown to be successful in reducing disparities are community-based efforts, multifactorial approaches, and the deployment of health information technology. An important consideration made by the authors is the need for support, attention, resources, and continued evaluation of new methods as they are employed. This project evaluated the feasibility and sustainability of a diabetes support group based on feedback obtained after three weekly pilot group sessions.

Data supports that there is a lack of primary care providers in Ottawa County, and that this has the greatest impact on the underserved (Carl Frost Center for Social Science Research, 2011). A direct relationship exists between positive health outcomes and both education and income. Those with higher incomes and more education are likely to report better health, greater satisfaction with life, more emotional and social support, having health coverage, and having a personal health care provider. Although health care is accessible to many residents, specific subpopulations experience barriers to health care programs and services.

Underserved populations in Ottawa County are those with low income; the uninsured; the underinsured; and Hispanics (Carl Frost Center for Social Science Research, 2011). Barriers faced by these groups include the high costs of health care and the refusal of more and more physicians to accept Medicaid. This has created serious consequences for access to health care. Strategies reported by the Carl Frost Center for Social Science Research (2011) to improve the healthcare landscape in Ottawa County are increasing access to care, supporting and expanding resources to address community health needs, providing more opportunities to focus on wellness and prevention, and more educational opportunities to encourage knowledge of healthy lifestyles, self-care, and existing support services in the community.

Factors Affecting Diabetes Management

Optimal diabetes control requires effective knowledge about nutrition, monitoring, blood glucose targets, appropriate medication regimens, medication side effects, hypoglycemia management, sick day care, prevention of complications, exercise, and stress management. Well-controlled diabetes is described by the American Diabetes Association (2014) as having blood glucose values that will minimize the risk for diabetes complications. In the Diabetes Complications Control Trial (DCCT), Shamoan et al. (1993) found that maintaining the blood

glucose level in the range of 72 – 126 mg/dL, and the HbA1c below 7% led to a dramatic reduction in mortality for patients with type 1 diabetes. The United Kingdom Prospective Diabetes Study (UKPDS), according to Stearne et al. (1988), showed that microvascular and macrovascular complications can be prevented in type 2 diabetes by intensive metabolic control. According to Stearne et al. (1998), every 1.0% drop in HbA1c reduces the risk of macrovascular and microvascular complications by 40% and the risk of death by 21% in patients with type 2 diabetes.

Diabetes is considered well controlled when an HbA1c lab value is at or below 7% for most adults (ADA, 2015). More stringent HbA1c goals such as an HbA1c less than 6.5% may be suggested if this can be achieved without significant hypoglycemia (ADA, 2015; AACE, 2015). Candidates for stricter control may include “those with a short duration of diabetes, a long life expectancy, and no significant cardiovascular disease” (ADA, 2015, p. 35). For patients with “a history of severe hypoglycemia, limited life expectancy, or comorbid conditions such as advanced microvascular or macrovascular complications, less stringent blood glucose goals, such as an HbA1c less than 8%, may be appropriate” (ADA, 2015, p. 35). The complexity of day-to-day diabetes management requires routine access to health care providers, routine lab work, education, monitoring supplies, affordable medications, access to healthy foods, and ongoing support. Reinforcement in the form of ongoing support is essential. Studies, according to Wolpert and Anderson (2001), have shown that education on self-management of diabetes without interventions to reinforce behavioral change has failed to lead to sustained improvements in glucose control.

Access to Care

Diabetes is a growing health problem, with complications that disproportionately affect vulnerable populations. This problem is prevalent both locally and nationally. National initiatives are in place to address health equity issues, access to care, and health disparities. In the literature, many terms are used when addressing the topic of equity in health, such as "vulnerable populations," "health disparities," and "social determinants of health." The Agency for Healthcare Research and Quality (2014) defines vulnerable populations as those who are made vulnerable by their financial circumstances or place of residence, health, age, personal characteristics, functional or development status, ability to communicate effectively, and presence of chronic illness or disability. The National Partnership for Action to End Health Disparities (NPA, 2014), a program of the United States Department of Health and Human Services (DHHS), describes a healthcare disparity as a difference in health that is linked closely with social or economic disadvantage. Health disparity is experienced by vulnerable populations because of social and physical determinants of health, including personal, social, economic, and environmental factors that influence health status. Integral to creating health equity then, is the need to address the social and physical determinants of health. Health equity, as defined by the NPA (2014) is the realization of the highest level of health for all people. Achieving health equity requires valuing all individuals equally with focused and ongoing societal efforts to address avoidable inequities, historical and contemporary injustices, and the elimination of health and healthcare disparities.

No single solution exists to address the vulnerabilities faced by populations affected by health disparities. Instead, multiple approaches are necessary that are designed specifically for target population groups. Government efforts in the United States to improve access to care

include the Affordable Care Act (2010); a health care reform law to improve access to care by improving health care coverage and implementing new protection for people who already have health care coverage. A tool called the Affordable Care Act Resource Kit was developed by the NPA (2014) as a guide to help improve opportunities for health care access and coverage by outlining key changes made as a result of the Affordable Care Act. The kit aims to assist NPA stakeholders in efforts to educate and enroll eligible community members in health care coverage across the nation. Under the law, health insurance coverage is promised to be affordable and accessible to millions of people who currently do not have health insurance. This access is projected to help reduce health disparities by facilitating approximately 32 million individuals to obtain health insurance coverage (NPA, 2014).

Healthy People is a document released by the DHHS each decade that includes a set of goals and objectives with 10-year targets designed to guide national health promotion and disease prevention. *Healthy People 2020* (US DHHS, 2014), the current agenda for Americans, aims to achieve a society in which all people live long and healthy lives. Overarching goals aim to achieve health equity, eliminate health disparities, and improve health for all people in the United States. Locally, this project was implemented to impact health equity by reducing health disparities related to diabetes at the community level by offering a support system for vulnerable persons with diabetes at a free health clinic.

Barriers to Diabetes Management in Vulnerable Populations

The causes of health disparities and the barriers to accessing health care are multiple and overlapping. Many underlying risk factors that contribute to health disparities are the result of multiple interrelated factors that affect individuals across their lifespan. These factors, commonly called “determinants of health” influence the health of individuals and communities

(NPA, 2014). The determinants of health can be categorized under the four broad categories of social, behavioral, environmental, and biologic. Social determinants of health include gender; socioeconomic status; employment status; education; food security; availability of housing and transportation; racism; and health system access and quality. Examples of behavioral determinants of health include patterns of weight and obesity; exercise norms; and use of illicit drugs or other addictive substances. Environmental determinants of health include lead exposure; asthma triggers; workplace safety; sanitation; and living conditions. Biologic determinants of health include genetics, family history, and inherited conditions. Efforts to eliminate health disparities need to address determinants of health, and policies and programs need to tackle the fundamental causes of health inequity (NPA, 2014).

Barriers to diabetes management noted by King, Fleck, Estrella, and Reitz (2013) were discovered by the Centers for Medicare and Medicaid (CMS) while attempting to implement intervention programs to bring diabetes self-management education to vulnerable populations. This Federal initiative aimed to close the health disparities gap by bringing diabetes self-management programs to communities using community health workers and certified diabetes educators (CDEs), and by developing partnerships with local organizations. Barriers encountered included inadequacies in the provision of care to individuals with diabetes, such as problems getting an eye exam; a lack of resources; a severe shortage of CDEs; and a lack of community health worker certification programs. Other barriers included cost containment, recruitment of physicians, and time limitations.

Barriers to compliance in diabetes self-management can be a result of interrelated factors. The social, behavioral, environmental, and biologic determinants of health are influences in how people think and act in relation to their health. A systematic review by Nam, Chesla, Stotts,

Kroon, and Janson (2011) analyzed 80 studies to determine personal barriers to diabetes self-care. Of these barriers, personal beliefs and attitudes affected the perceived importance of, and need for self-management activities. Findings revealed an association in people with diabetes between positive attitudes and adherence outcomes. Also, patients with higher knowledge scores related to diabetes care perceived fewer barriers and were more likely to perform self-management activities. Cultural influences included dietary preferences, lifestyles, traditional religious beliefs, and beliefs about general health. Examination of beliefs among Mexican-Americans revealed that emotional barriers and cultural beliefs were more important than financial barriers among low-income residents. Also, because family needs have a high value, adherence to a treatment regimen that differs from traditional Latino foods was often viewed as self-indulgent. A lack of proficiency in English was a primary barrier for many ethnic minorities in the United States in navigating health services. A lack of financial resources, depression, and a lack of social support were other barriers that contributed to poor compliance for diabetes self-care (Nam et al., 2011).

Self-efficacy in Diabetes Management

An empowerment approach argues that in managing diabetes, patients make choices each day that affect, and are affected by their emotions, thoughts, values, goals, and other psychosocial aspects of living with this chronic disease. The empowerment philosophy is based on the assumption that to be healthy, people need to have the psychosocial skills to bring about changes in their personal behaviors (Anderson et al., 1995). A study by Pellino, Tluczek, Collins, and Trimborn (1998) showed the empowerment approach to be an effective method of increasing self-efficacy for health-related self-care tasks. An empowerment approach, according to Hage and Lorensen (2005), occurs through dialog between a patient and educator to discern

the patient's own meaning of functional status, coping, and self-care solutions. These strategies may differ from the preferences of the educator, yet through conversation, the patient and educator mutually discern the meanings of the disease so the patient can make his or her own conscious choices for a plan of care. This dialog provides the patient an opportunity to identify barriers and capabilities, explore personal resources, and make adjustments to prioritize tasks and gradually introduce change.

Funnell and Anderson (2003) refer to studies documenting the empowerment approach as effective in facilitating desired patient outcomes. Outcomes in this case are patient-driven, with changes that are meaningful and desired by the patient. The authors point out that despite new technology and new therapies, 99% of disease management is still carried out by the patient. The concept of empowerment as a facilitator in behavior change is noted by Funnell, Nwankwo, Gillard, Anderson, and Tang (2005), and encouraged by current recommendations for practice (ADA, 2014). The study discussed by Funnell et al. (2005) described the benefits of an ongoing program for patients with diabetes, where content was driven by the needs of those attending, instead of a traditional program where content is presented with participant questions following. The authors maintain that because content was driven by the needs of participants, that discussions were energized, and patients were engaged in the discussions. Records were kept to assure that all content areas noted in the national standards were covered. Positive outcomes of this observational study were evidenced by reduced HbA1c levels in participants at one year after the intervention, with a positive correlation between lower HbA1c levels and the number of follow-ups.

By inspiring, informing, supporting, and facilitating patients to identify and attain their own goals instead of provider-selected goals, patients are more motivated and in control of their

own outcomes. In clinical practice involving diabetes self-management, it is vital to assess the individual learning needs and readiness for change in clients. The concept of empowerment reaches the core of what is necessary for clients to self-manage a complex disease (Yin Kwan Ho, Berggren, & Dahlborg-Lyckhage, 2010). Since 1991 there has been a shift in thinking from a provider-centered compliance-based philosophy to one of a patient-centered, patient-directed, and collaborative philosophy. The professional role and mission of healthcare providers is shifting, and becoming redefined to encompass an empowerment philosophy.

Research suggests that an empowerment-focused diabetes self-management education program offers many benefits including better communication with providers, greater satisfaction with self-care, improved self-efficacy, improved metabolic outcomes, and better psychosocial well-being (Pena-Purcell, Boggess, and Jimenez, 2011). Improved metabolic outcomes have important effects on the prevention of complications according to findings from the well-known Diabetes Control and Complications Trial (DCCT, 1993), showing that a 0.5% reduction in HbA1c level resulted in a significant decrease in diabetes-related complications for patients with type 1 diabetes. Similarly, the United Kingdom Prospective Diabetes Prevention Study (UKPDS) showed that intensive metabolic control in type 2 diabetes prevented microvascular and macrovascular complications. These factors imply an important long-term benefit of positive outcomes.

Self-efficacy, a component of the social learning theory developed by Bandura (1986), offers a basis for improving the effectiveness of diabetes education because of its emphasis on behavior change. A meta-analysis by Padgett, Mumford, Hynes, and Carter (1988) concluded that studies utilizing the concepts of the social learning theory had the strongest effects for physical outcomes, knowledge gained, psychological status, and compliance in diabetes

management compared to didactic education, exercise instruction, counseling, and relaxation techniques. Hurley and Shea (1992) found that people with high levels of self-efficacy were more successful at diabetes self-care activities, and that self-efficacy predicted 64% of diabetes self-care behaviors. Visser, Spijker, Smelt, and Van der Kar (1994) noted a positive association between levels of self-care in diabetes and levels of self-efficacy. Gao et al. (2013) showed significant associations between self-efficacy ($p < .001$), social support ($p < .009$) and diabetes self-care behaviors. Self-care behaviors assessed in this study included eating a healthy diet that included fruits and was low in fat; performing foot care; monitoring blood glucose; exercising; and taking medication. Enhancing self-efficacy is an important part of the design of all educational and support programs for people with diabetes (Rosenstock, 1985; Johnson, 1996).

Improving Self-efficacy in Vulnerable Populations

Schillinger, Handley, Wang, and Hammer (2009) concluded that tailoring self-management support using patient-generated behavioral change goals resulted in improvements in patients experiences with chronic illness care, self-efficacy, and self-management behaviors. Also, their study has benefit in clinical practice by showing an effective means to reach vulnerable populations with a chronic disease. Traditional health care approaches often do not reach those who are uninsured or have communication barriers. Methods involving frequent engagement were more effective in improving self-efficacy and self-management behaviors than traditional approaches. Anderson-Loftin and Moneyham (2000) report that experiential learning is more meaningful and culturally relevant than traditional lecture-based teaching. Engagement in discussions about diabetes self-care, along with knowledge attained from peer experiences can be obtained in a group setting utilizing interactive dialogue.

Pena-Purcell, Boggess, and Jimenez (2011) discussed similar findings in vulnerable populations with diabetes. The authors examined the association of improved self-efficacy and a significant reduction in HbA1c levels using an empowerment-focused group program among Hispanic study participants with diabetes in a medically underserved region disproportionately affected by higher rates of diabetes and lower income. Specifically, significant HbA1c level improvements (average decrease of HbA1c by 1.0%) were noted for intervention group participants with baseline HbA1c levels greater than 8.0%. Greater HbA1c reductions were noted as baseline HbA1c levels increased. Pena-Purcell et al. (2011) also noted an increase in self-efficacy associated with changes in diabetes care behaviors. Group facilitators were bilingual, and methods of improving self-efficacy incorporated skills mastery, modeling, and social persuasion. Sessions were culturally appropriate including videos produced locally, with discussion following. Menu planning and food discussions utilized culturally relevant foods. Participants in the intervention group noted higher confidence to control diabetes, increased motivation to take action to improve blood glucose levels, and higher incidence of self-monitoring of blood glucose.

Approaches outlined by Bandura, Adams, and Beyer (1977) to improve self-efficacy include the four key methods of performance accomplishment, verbal persuasion, vicarious experience (role modeling), and physiological/ affective states. Performance accomplishment, according to Bandura et al. (1977), is the most influential source of efficacy enhancement, as it is based on experiences of personal mastery. Expectations of mastery are increased with success, while expectations are lowered with failure. The impact of performance success or failure on self-efficacy depends on the cognitive appraisal of other factors, including the difficulty of the

task, the amount of effort expended, the number of situational supports, and the pattern and rate of successes.

Vicarious experience relies on inferences from social comparison. Seeing someone accomplish a task successfully, achieve a goal, or cope with threats and eventually succeed are sources of enhancing self-efficacy. Verbal persuasion is another source of efficacy enhancement that is often readily available. Persuasive suggestions can lead people to believe they can cope successfully with what has overwhelmed them in the past. Bandura et al. (1977) caution that verbal persuasion presented in the face of a long history of failures, can extinguish any mastery expectations created when experiences disconfirm the ability to succeed afterwards. It is for this reason that the authors maintain personal mastery experiences as the strongest source of self-efficacy enhancement (Bandura et al., 1977).

Physiologic states affect perceived self-efficacy, as people rely on their state of physiologic arousal in judging their vulnerability to anxiety and stress. Feelings of anxiety related to performing a specific task can diminish one's perceived ability to succeed, while lower levels of anxiety tend to facilitate perceptions of succeeding. Having success experiences related to a specific task lowers the anxiety about performing the task, and leads to improved perceptions of self-efficacy (Bandura et al., 1977).

The studies utilizing one or more of Bandura et al.'s approaches to improving self-efficacy have shown these methods to be successful. Lorig et al. (2001) utilized mastery, reinterpretation of symptoms, modeling, and social persuasion to enhance a sense of self-efficacy in small group interventions of 2.5 hours weekly for seven weeks. The sessions emphasized problem solving, decision-making, and confidence building for chronic disease management. Skills mastery was accomplished by action planning by participants with feedback on progress.

Modeling was accomplished by participants discussing self-management behaviors and problem-solving strategies in the group. Social persuasion was accomplished through group support and guidance by peers and by the facilitator for individual self-management efforts. Statistically significant improvements in health behaviors (aerobic exercise, $p < .01$; range of motion exercise, $p < .001$; cognitive symptom management, $p < .001$; communication with physician, $p < .001$); and self-efficacy ($p < .001$) were sustained at one year.

Similarly, in an educational intervention, Ha, Hu, Petrini, and Thomas (2014) utilized the four sources of self-efficacy enhancement outlined by Bandura et al. (1977) in one hour weekly sessions for six weeks to improve diabetes self care activities ($p < 0.001$), diabetes self-efficacy ($p < 0.001$), and glycemic control ($p < .010$) evidenced by improvement in HbA1c levels in a group of Chinese adults. Participants' sense of personal accomplishment was fostered by encouraging individual successes in the mastery of progressive goals. Verbal persuasion was used by demonstrating healthy meal planning using culturally appropriate food, and leading brainstorming sessions on the topic of healthy eating and exercise in group discussions. Role modeling was used to strengthen participants' vicarious experiences, and reinforced physiological and affective states through safeguards related to physical activity, individualized plans and goals, and social supports (Ha, Hu, Petrini, & Thomas, 2014). Results were sustained at a three-month follow-up.

In a randomized controlled trial by Wu et al. (2011) pre- and post-intervention testing were used to evaluate the effects of a self-efficacy enhancing intervention program in a group of Taiwanese patients with type 2 diabetes. The intervention and control groups both received standard diabetes education and nutrition counseling, and the intervention group also received the self-efficacy enhancing intervention based on Bandura's (1977) social cognitive theory. For

the self-efficacy enhancing intervention, groups of 10-15 participants had four weekly sessions that lasted 60 minutes each and were facilitated by a registered nurse. The sessions utilized skill building practice, modeling, goal-setting, and peer support. Participants who were using self-care activities successfully acted as role models and shared their experiences of dealing with difficult times and successful times in their diabetes management. This modeling of behavior was a form of peer support for group participants. The Chinese version of the Diabetes Self-efficacy Scale was used for testing. The intervention group had significantly ($p < 0.01$) higher self-efficacy scores than the control group.

Lorig and Gonzales (2000) showed improved self-efficacy and diabetes self-management behaviors in Spanish-speaking Americans with limited or no insurance. Improved self-efficacy and self-management behaviors were sustained after three months. This occurred after six weekly, two-hour sessions utilizing skills mastery, modeling, reinterpretation of symptoms, and social persuasion. The program provided skills broken down into small steps, with discussion and practice of skills at each session. For example, healthy eating guidelines were discussed, with practice in applying them at each session using culturally appropriate food choices, exercise and stress management occurred over two sessions, and problem solving was incorporated into every session. These activities were structured to incorporate Bandura's strategies to enhance self-efficacy with the intent of helping participants gain confidence in their ability to deal with diabetes.

Skills mastery was accomplished by asking participants to make a specific action plan at each session. The action plan was determined by the participants, and incorporated any skill or behavior they wished to work on (Lorig and Gonzales, 2000). At subsequent sessions, participants reported on their action plan. If problems occurred, then all participants are asked to

offer suggestions to help solve the problems. In this manner, the group became a support for participants where they could share successes and problem-solve together. Modeling was accomplished by asking participants to introduce a symptom they had experienced related to diabetes, and discuss the possible causes of the symptom. Fatigue, for example, could be caused by hyperglycemia, hypoglycemia, lack of physical activity, stress, poor nutrition, or depression. Fatigue may be managed by trying different things such as a change in diet, exercise, relaxation techniques, or finding ways to avoid frequent hyper or hypoglycemia. People, according to Lorig and Gonzalez (2000), act based on their understanding or beliefs about their disease or symptoms. In working to change these beliefs, it is important not to contradict existing beliefs, but rather, to build on them (Lorig and Gonzalez, 2000).

Social persuasion was used to enhance self-efficacy by asking participants to report on their successes and problems in the group (Lorig and Gonzales, 2000). This allowed participants to give and receive support from their peers and the group facilitator, and provided encouragement to continue working on their action plans. Other activities such as meal planning or blood glucose monitoring helped participants to practice certain skills and gain confidence in these activities. At three months, significant improvements were seen in the behaviors of aerobic exercise ($p < .0001$), relaxation practice ($p < .0002$), communication with health care provider ($p < .0001$), eating protein at breakfast ($p < .01$), eating vegetables daily ($p < .01$), self-monitoring blood glucose ($p < .05$), and reports of self-efficacy ($p < .0001$) (Lorig and Gonzalez, 2000).

Lorig, Ritter, Villa, and Armas (2009) also showed sustained results at six and twelve months for significantly improved self-efficacy ($p < .001$ at six months, and $p < .002$ at twelve months) and diabetes self-management behaviors after six weekly, two-hour sessions utilizing skills mastery, modeling, and social persuasion for English speaking adults. Diabetes self-

management behaviors included communication with physicians ($p < .016$ at six months, and $p < .001$ at twelve months); glucose monitoring ($p < .001$ at six months); healthy eating ($p < .001$ at six months and $p < .003$ at twelve months); and reading food labels ($p < .005$ at six months). Results that were not significant included exercise ($p < .049$ at six months, and $p < .621$ at twelve months); glucose monitoring at twelve months ($p < .673$); and reading food labels at twelve months ($p < .673$). Skills mastery was accomplished by participants setting action plans, learning and incorporating healthy eating, participating in problem-solving situations with feedback, and practicing relaxation and stress management techniques. Modeling was done by participants learning from observation, listening, and interacting with others in the group during discussion of problem-solving techniques and successes and failures. Social persuasion was accomplished in this group by encouragement from group facilitators and peers within the group.

Lorig, Ritter, and Jacquez (2005) discuss the specific methods used to improve self-efficacy in a Hispanic population with diabetes. Trained lay leaders facilitated 2.5-hour sessions that met weekly for six weeks and were based on a chronic disease self-management program. The program was modified for the Hispanic culture by including a more extensive section on healthy eating, and by modifying the language used for making an action plan to be called a “self-promise.” Discussions regarding developing problem solving skills, learning stress management techniques, implementing healthy eating and celebrating successes occurred in groups, providing role modeling from peers. Experience mastery was used as participants attempted these activities, and reported back with their successes or struggles. Social support was utilized as group members encouraged and learned from one another. Sessions were held at churches, neighborhood centers, and clinics. Outcomes of this study showed improved self-efficacy (scale of 1-10) from a baseline of a mean self-efficacy score of 6.05 (standard deviation

2.77), to an increase in mean self-efficacy score by 1.78 at four months ($p < .0001$), and an increase in mean self-efficacy score by 1.3 at one year ($p < .001$) (Lorig, Ritter, & Jacquez, 2005). The authors state that self-efficacy was the only mechanism identified in this study that was able to consistently predict long-term outcomes for the health behaviors of healthy eating, exercise, and managing stress. This concurs with Bandura (1986), who theorizes that self-efficacy is the most important predictor of change in behavior. The authors also conclude that this study adds to the growing evidence of the importance of self-efficacy as a mechanism for achieving outcomes, and that enhancing self-efficacy should be considered for incorporation in all diabetes education and support programs (Lorig, Ritter, & Jacquez, 2005).

In a randomized clinical trial by Naik et al. (2011), researchers utilized a group approach in the clinical setting that did not focus on Bandura et al.'s sources of enhancing self-efficacy except for the inclusion of modeling proactive behavior for effective physician-patient communication, and educating patients on how to develop and obtain feedback on goals and action plans during clinical encounters. The intervention included four (one hour) group sessions that were three weeks apart, each focusing on a different theme relayed didactically, with time for group interaction. This approach showed improved self-efficacy immediately following the intervention, but a return to baseline self-efficacy levels at one year. Activities in a randomized controlled trial by Bandura, Adams, and Beyer (1977) showed the value of including mastery experiences as a method to achieve improved confidence and sustained improvement in self-efficacy as opposed to vicarious experiences alone.

Approach patterns used in multiple studies included small group interactive discussion; patient-centered approaches; demonstrations using culturally appropriate examples; problem solving; goal setting; and educational sessions. The studies based these interventions on one or

more of the four self-efficacy building approaches outlined by Bandura et al. (1977). These are vicarious experience (role modeling), mastery experience, verbal persuasion, and physiological/affective states. Using these approaches resulted in increased self-efficacy in various chronic disease, behavioral, or phobia states. Most sessions were weekly for 6 weeks, and lasted from 1-2 hours. Group facilitators were a mix of professional and trained lay facilitators.

The approaches described by Bandura et al. (1977) were used in a free health clinic for vulnerable persons with diabetes for the purpose of enhancing confidence in self-management behaviors for a potential increase in self-efficacy. Frequency of ongoing sessions at City on a Hill in the future will need to be adapted based on volunteer availability to facilitate the sessions. The pilot sessions occurred weekly, as suggested in the literature, to enhance confidence in self-management behavior and skills.

Determining Feasibility and Sustainability

The purpose of this project was to determine the feasibility and sustainability of a diabetes support group at a free health clinic in Ottawa County by implementing a pilot support group. The following literature review provides evidence to support the use of a pilot program to determine feasibility and sustainability. The literature review also supports the methods of determining feasibility and sustainability that were used in this setting.

A quasi-experimental study by Frosch, Rincon, Ochoa, and Mangione (2010) was completed to evaluate the effect of a pilot intervention in community senior centers to improve health outcomes in older adults with chronic diseases. In this study, moderated group discussions reinforcing active patient participation in chronic disease management were conducted over 12 weeks. The duration of each session or frequency of the intervention sessions were not disclosed by the authors. Attendance was captured using a sign-in sheet. Follow up at

six months showed that participants who attended three or more group sessions reported significantly greater activation ($p < .001$), more minutes walking ($p < .001$), and better health-related quality of life ($p < .001$). Activation in this study was defined as “being able to self-manage symptoms and problems, engaging in activities that maintain functioning and reduce health decline, and being involved in clinical decision-making to significantly improve health outcomes in chronic disease” (p. 1496). This study provided important pilot data in support of further investigations of interventions in community settings to activate seniors with chronic disease burden. The pilot did not determine clinical outcomes, but the authors did suggest a potentially promising intervention to activate seniors that warrants further investigation.

This study provided an example of a pilot intervention aimed at improving health outcomes in a specific population. This pilot intervention was applicable to the pilot support group because it showed an example of a promising intervention with at least three sessions. Also, the pilot did not measure clinical outcomes, but did result in a promising intervention with the potential for on-going measures of clinical outcomes in future sessions.

Wong, Wong, Makrides, and Weerasinghe (2002) conducted a pilot study in Nova Scotia where no primary or secondary diabetes prevention programs exist, and the rates of diabetes are higher than in other areas of Nova Scotia. The pilot was done to determine the programming needs of members of the black community in Nova Scotia with diabetes. Interviews and surveys were conducted in four black communities, with results narrowing focus topics for an intervention, and the cultural beliefs, practices, and concerns of community members identified. Results of the pilot provided guidance for developing a diabetes prevention program that was culturally relevant and responsive to the black communities. Based on the pilot results, interventions were developed in coordination with community members, and incorporated the

framework of Bandura (1986) to promote personal and collective efficacy (Wong et al., 2002). The pilot study by Wong et al. (2002) was applicable to this project because it showed an example of how a pilot can help determine the cultural, educational, and health needs of a specific community.

A diabetes initiative conducted by the Robert Wood Foundation, and reported by Fisher et al. (2007), attempted to determine the feasibility and sustainability of approaches to promoting diabetes self-management in primary care and in community settings. Six primary care and eight community project sites were chosen to participate in the initiative. The sites were in various places throughout the United States that served patient populations who were predominantly medically underserved. This initiative identified key resources and supports for people with diabetes including individualized assessment; collaborative goal setting; enhancing skills; follow-up and support; community resources; and continuity of quality clinical care. The authors discussed the importance of organizational factors that are key to sustaining a program, and therefore key to maintaining self-management. LaPelle et al. (2006) define sustainability as “the capacity to maintain program services at a level that will provide ongoing support for a health problem after termination of the major financial, managerial, and technical assistance from an external donor” (p. 1). Findings, according to Fisher et al. (2007), indicated that sustainability requires organizational support for the program. Without backing for key resources and support for diabetes self-management at the organizational level, individual and group-level services, along with group and community level supports and resources, would dissolve (Fisher et al., 2007). Feasibility was determined in demonstrating that effective self-management programs and supports can be implemented in real world clinical and community settings, and that these programs provide models of worthwhile sustainable programs (Fisher et al., 2007).

LaPelle et al. (2006) reported four key approaches and two critical factors to sustainability of programs in the initiative. Key approaches included broadening the program scope and reach, systematic quality improvements, increasing expectations, and building new partnerships or expanding the role of existing partners. Broadening the program scope and reach involves applying the strategies used in diabetes self-management to other chronic diseases. If opportunities arise to incorporate successful strategies in collaboration with other programs such as those focused on cardiovascular disease, women's health, depression, or worksite wellness, the program models should be replicated as appropriate. Systematic quality improvement involves improvements that can permanently change the capacity of providers and service delivery systems. Making improvements can be programmatic such as integrating teams, or improvements can be in tracking and monitoring systems. Increasing expectations involves satisfied patients and providers that create a demand for continuation of high-quality programs and services. In the diabetes initiative, patients' expectations were changed by providing interactive opportunities that engaged them in learning about self-management and developing skills to take responsibility for managing their disease. Provider buy-in was increased when systems worked efficiently and patients did well. Both formal communication about successes and word-of-mouth communication were reported to increase expectations and promote sustainability. Building new partnerships or expanding the role of existing partners involved working closely with partners to provide opportunities to sustain, and even expand programs and services. In the diabetes initiative projects, partnerships resulted at times in new financial support for program sustainability. Usually, according to LaPelle et al. (2006), working together created synergy among partners and opportunities to strengthen and expand program services. City on a Hill Health Clinic is supported by donations from local organizations and by grants.

Sustaining a support group at this site may require grant funds or donations, depending on the extent of measures the clinic wishes to track, and the scope of activities planned at future support group sessions.

Critical factors in sustainability discovered in the initiative are having data to support the work and having the passion to carry it out (LaPelle et al., 2006). Data to support the work can come in many forms that are useful in promoting sustainability. Examples are data related to clinical outcomes, patient expectations for services, self-management behavior changes, quality improvement process data, or patient and provider satisfaction data. Passion for carrying out a program was also noted as critical for sustainability. Passion involves dedication and enthusiasm for the work regardless of compensation. Leaders, providers, and staff who were committed to achieving excellence in providing self-management supports helped make connections with participants, which in turn created more successful results (LaPelle et al., 2006).

Threats to sustainability in the diabetes initiative were the time and effort necessary to maintain effective partnerships, staff turnover, the need for continual grant writing, and thinking about sustainability too late in the initiative (LaPelle et al., 2006). Considering key strategies early in the process of program planning and development increases the likelihood of program sustainability (LaPelle et al., 2006). The authors emphasize that the processes of building a program for sustainability are at least as important as having effective programs and services to sustain.

The initiative described by Fisher et al. (2007) and LaPelle et al. (2006) was applicable to this project because of the multiple factors discovered that can impact the sustainability and feasibility of a pilot intervention. Key factors to sustainability included the organizational backing of the support group, quality improvements proposed based on participant and

organizational feedback, consideration of sustainability factors early in the process, creating a demand for the support group as a result of participant satisfaction ratings, and formal communication to the director and stakeholders, along with word-of-mouth communication to participants to increase expectations and promote sustainability. Data communicated was related to participant confidence levels, participant satisfaction ratings, and the number of participants who attended the pilot support group. Critical factors described by LaPelle et al. (2006) were data to support the intervention and having the passion to carry it out. Data to support the pilot support group has been described in this chapter. LaPelle et al. (2006) described passion as being dedicated and enthusiastic about performing the intervention regardless of compensation. Volunteers at City on a Hill exemplify this by their dedication to patients who attend the clinics and DSME classes. Volunteers provide health care and education to patients with no compensation.

Factors related to feasibility are described by Fisher et al. (2007) as the ability to demonstrate an effective support program that can be implemented in a real world clinical or community setting that can act as a model of a worthwhile sustainable program. In this project, feasibility was determined by feedback from support group participants in relation to their satisfaction with the setting, day, time, and group activities. Feasibility was also determined by barriers, financial implications, attendance, and organizational support.

An intervention study using a pretest-posttest quasi-experimental design was developed to assess the feasibility and efficacy of a short-term cognitive-behavioral intervention aimed at optimizing self-care behaviors in adults with diabetes types 1 and 2. According to Stetson, Carrico, Beacham, Ziegler, and Mokshagundam (2006), adults who completed outpatient diabetes education of six weekly, 90-minute sessions that addressed the role of behavior in

diabetes including self-care barriers, cognitions, and self-regulation, completed self-report questionnaires at the baseline session and after the final session. The sessions were lead by a behaviorist, and addressed barriers to self-care, identification and reduction of dichotomous thinking regarding self-care and diabetes goals, and enhanced self-regulation. The approach used in this intervention emphasized setting realistic goals to promote specific behavior change (Stetson et al., 2006). Pre- and post-intervention measures assessed relevant health behaviors including physical activity, eating patterns, stress management, confidence ratings, and goal setting. Confidence was measured using a 0-100% scale for self-efficacy consistent with Bandura's recommendations for measuring the concept (Bandura, 1986). The specific scale used for this measure was not disclosed in this study. Barriers to reaching goals for participants were time demands (21.7%), dislike for changing their lifestyles (21.7%), emotional distress (21.7%), talking themselves out of the behavior (17.4%), and illness or injury (17.4%) (Stetson et al., 2006).

Program evaluation was assessed using participants' subjective evaluation at post-intervention using a Likert rating survey developed for the program. Evaluation items included ratings of satisfaction with the program, degree of awareness and behavior change related to self-care behaviors and suggestions regarding program improvement. Participants reported high levels of satisfaction with the program ($M = 1.75$, $SD = .93$, using a range of 1 "very satisfied" to 5 "very dissatisfied"). Suggestions from participants for program improvement included 19% stating they would have liked more exposure to stress management training, and 19% stating they would like ongoing support group meetings beyond the pilot program. Findings, according to Stetson et al. (2006), suggest that a brief intervention addressing realistic goal-setting contributes to feasibility of the program, and can promote meaningful health behavior changes in

patients with diabetes.

The literature supports the use of a pilot intervention to determine feasibility and sustainability. Pilot interventions can provide feedback to support further interventions in a community setting, and can help determine the cultural, educational, and health needs of community members. Other methods of determining feasibility and sustainability that are supported by the literature include assessing barriers, financial implications, attendance, and organizational support.

Interventions Applicable to this Project

Successful diabetes management, according to Weinger et al. (2011), requires active participant involvement in multiple self-care behaviors and treatment modalities necessary for achieving glycemic control. Findings from a study by Weinger et al. (2011) demonstrate that diabetes self-management support interventions are an important component of treatment for patients with diabetes who have not achieved therapeutic glycemic targets. Support interventions in this study utilized goal setting, modeling, and mastery experiences in problem-solving skills to overcome barriers to self-management behaviors, resulting in increased self-efficacy.

Patients who are struggling with self-management issues and glycemic control need more coordinated programs to help them develop and maintain new lifestyle behaviors that will last long term (Beverly, 2013). Patients with diabetes face varying stressors at different times throughout the course of their disease. These stressors can impact how they manage and cope with their diabetes. Stress in managing diabetes relates to the physiologic states discussed by Bandura (1977). Feelings of anxiety related to performing a specific task can diminish one's perceived ability to succeed, while lower levels of anxiety tend to facilitate perceptions of

success. Having successful experiences related to a specific task lowers the anxiety about performing the task, improves confidence in performing the task, and leads to improved perceptions of self-efficacy. Ongoing and repeated support that focuses on potential stressors, prevention of complications, success in personal self-care regimens, and prevention and coping strategies is needed (Beverly, 2013). This can be achieved using Bandura's methods for enhancing self-efficacy.

The National Diabetes Education Program (NDEP, 2014), in partnership with the National Institutes of Health and the Centers for Disease Control and Prevention, state that self-efficacy refers to the extent of an individual's belief in his or her abilities to perform certain health related behaviors. Also, because self-efficacy is based on feelings of self-confidence and control, it is a good predictor of motivation and behavior. Research, according to the NDEP (2014), has shown that health care professionals can have an impact on confidence levels, leading to improved self-efficacy in individuals with diabetes, and that changes of this nature are associated with changes in behavior. Ways to enhance a patient's self-efficacy include skills mastery, modeling, and social persuasion (NDEP, 2014). This concept is based on Bandura's model of self-efficacy, which states that people's beliefs about their personal capabilities to perform specific behaviors influence their actions and well-being (Bandura, 1994). The literature described supports the use of the methods outlined by Bandura et al. (1977) to improve self-efficacy, including interventions that utilize promotion of skills mastery through action planning, progressive goal setting followed by group interaction, problem solving, feedback, and modeling through shared experiences of success and overcoming barriers. Verbal/ social persuasion can be implemented through the use of education related to diabetes self-management and the benefits of glycemic control, peer interactions, and peer support, and the source of

psychological/ affective states can be implemented through discussion of positive physiologic and psychological responses to glycemic control, stress management, and encouragement of support from family members and significant others through inclusion in the sessions.

A feasibility study by Stetson et al. (2006) provided an example of an intervention that used similar methods to measure feasibility as the methods utilized in the pilot support group at City on a Hill. The intervention described by Stetson et al. (2006) aimed to determine the feasibility and sustainability of a support group through a pilot intervention that promoted optimizing self-care behaviors in adults with diabetes type 1 and type 2. Confidence ratings using a Likert scale, along with barriers, participant satisfaction, and suggestions for improvement were obtained from support group participants. The intervention at City on a Hill also utilized realistic goal setting, a factor, according to Stetson et al. (2006), that contributed to feasibility of their program and promoted meaningful health behavior changes in patients with diabetes.

Feedback obtained from group participants in the project at City on a Hill helped to guide recommendations regarding the feasibility and sustainability of the support group by determining whether the content delivered in the sessions, and location, day, and time of the sessions were feasible for participants. This pilot project also acted as a guide to determine if brief group interventions in a support group setting affected participant confidence and knowledge levels for diabetes self-management.

Conclusion

A review of literature related to diabetes and self-efficacy revealed that diabetes complications disproportionately affect vulnerable populations, and that improved levels of confidence and perceived self-efficacy of clients with diabetes resulted in improved self-

management of their disease and improved metabolic outcomes. The literature also substantiated the potential of an interactive group setting as a means to improve confidence in self-management behaviors that could lead to improved self-efficacy in vulnerable adults with diabetes.

The pilot support group for patients with diabetes was implemented at City on a Hill Health Clinic. Feedback from group participants, the clinic director, staff, volunteers, and other stakeholders helped to determine the feasibility and factors contributing to the potential for sustainability of the support group in this setting. This group met for 90 minutes weekly for three weeks, and was facilitated by a certified diabetes educator. In this group setting, the methods outlined by Bandura were implemented, along with the concept of empowerment for provision of education reinforcement and individualized goal setting. The methods described in the literature suggested weekly sessions for six or more weeks to affect self-efficacy. It was not expected that self-efficacy would be improved during this pilot project because of the short duration of three weekly sessions. Confidence levels related to specific diabetes self-management behaviors were impacted during the three weekly sessions.

At a national level, initiatives to increase community-based efforts are encouraged to provide more educational opportunities for knowledge, prevention, and support services. At a local level, vulnerable persons with diabetes may benefit from participation in an interactive and educational group setting with the potential to improve confidence in self-management and improve health outcomes in diabetes. City on a Hill Health Clinic is a setting suitable to offer this support group because of the vulnerable persons with diabetes who utilize the clinic, and the buy-in of the organizations leaders and key stakeholders.

Chapter 3

Conceptual Framework

The literature review reveals that supporting theories used in diabetes education and empowerment interventions for self-efficacy are based upon the Self-efficacy Model (Bandura, 1994) and the Health Promotion Model (Pender, 1996). The model providing structure to the development and implementation of this project is Stetler's Model of Evidence Based Practice (Stetler, 1994, Stetler & Marram, 1976). Stetler (2001) outlines the steps of preparation, validation, comparative evaluation, translation/application, and evaluation, as the basic steps of incorporating existing evidence into practice. The models listed will be described for support of the current project.

Self-Efficacy Model

The theory of self-efficacy, written by Albert Bandura, originates from Social Cognitive theory. Self-efficacy is defined as the belief one has in one's abilities to perform certain activities that influence the events that affect their lives (Bandura, 1994). Self-efficacy beliefs regulate one's feelings, thoughts, motivation, and behavior. These beliefs yield varied effects through cognitive, motivational, affective, and selection processes (Bandura, 1994).

Bandura (1994) postulates that a strong sense of efficacy enhances human accomplishment and personal well-being through assurance, or confidence in one's capabilities, while a weak sense of self-efficacy is associated with self-doubt, low aspirations, and a feeble commitment to goals. People with high levels of self-confidence approach a difficult situation with the assurance that they have control over the situation. Having this confidence improves personal accomplishments, and diminishes stress and susceptibility to depression (Bandura,

1994). A stronger sense of self-efficacy influences personal goal setting, and the commitment to reach those goals.

In contrast, people who doubt their capabilities withdraw from difficult situations because they feel they do not have control over the situation. Low levels of efficacy are associated with low aspirations and weak commitment to goals. Previous failures cause a sense of loss in the personal capability to accomplish goals, and increase vulnerability to stress and depression (Bandura, 1994). People's beliefs about their efficacy can be influenced by mastering skills, aspiring to modeled behavior, and social persuasion (Bandura, 1994).

Cognitive Processes

Human behavior is often regulated by forethought and embodied by values (Bandura, 1994). Most behavior then, originates in thought. People's beliefs about their abilities to accomplish a task can be shaped by anticipatory scenarios they construct. Those with a high sense of efficacy envision success scenarios enabling a positive outlook for accomplishment. Those who doubt their efficacy have difficulty perceiving themselves as successful. Personal goal setting, according to Bandura (1994), is influenced by one's perception of his or her abilities. A stronger sense of self-efficacy is associated with a higher level of challenge with a firmer commitment to that challenge. Setbacks and failures can have a significant impact on the ability to stay the course to achieve a goal. Those with a strong sense of efficacy are resilient and can accomplish their goals, while those with a weak sense of efficacy become overcome by self-doubt, lower their aspirations, and wane in performance. Those who feel that their health outcomes are beyond their personal control may benefit from interactive support programs that incorporate goal setting and problem solving skills. Bandura (1994) states that those who

maintain a resilient sense of self-efficacy are able to set challenging goals and achieve performance improvements.

Motivational Processes

Behaviors are a result of beliefs about what one can do and the likely outcomes of one's performance (Bandura, 1994). The motivating influence of expected outcomes is, in part, governed by belief in one's self-efficacy. Those who consider themselves to be efficacious associate their failures with the need to try harder, while those who consider themselves as not efficacious associate their failures to their inability to succeed and stop trying (Bandura, 1994). These beliefs of self-efficacy influence motivation and behaviors. Beliefs about self-efficacy are a determining factor, according to Bandura (1994), in the goals people set for themselves, how much effort they expend, how long they persevere in the face of difficulty, and their resilience to failures.

Self-efficacy is most strongly influenced by personal mastery experiences, but can also be influenced by observing modeled successful behavior change (Bandura, 1994). It is important to note that motivating people to change by increasing self-efficacy is valuable only if they are also given the resources, knowledge, and support to make the changes a reality in their lives. Support can come from significant others, healthcare professionals, community groups of people with similar health problems, or knowledge about managing their disease. Bandura (2004) notes that a sense of community efficacy is required for health promotion. In community efficacy, citizens act collectively to improve outcomes through political, economic, social, and environmental systems. A support group offered in a community-based free health clinic can provide a sense of community for participants with a common disease. An ongoing support group at City on a Hill Health Clinic can provide community members a system of support in a

group setting that has the potential, if sustained, to improve self-efficacy for diabetes self-management.

Skills Mastery

Skills mastery refers to the technique of learning new skills in steps to enable completing the task successfully (Bandura, 1994). People, according to Bandura (1994), are more likely to adopt a new health behavior if they believe they will be successful in doing it. Interventions that increase confidence by providing opportunities for small successes will lead to behavior change. An ongoing support group for diabetes can build confidence to facilitate skills mastery by providing the venue for practicing specific skills, problem-solving behaviors to achieve certain skills, peer feedback, and ongoing follow up (Anderson-Loftin & Moneyham, 2000; Schillinger, Handley, Wang, & Hammer, 2009). Performance accomplishment, according to Bandura et al. (1977), is the most influential source of efficacy enhancement, as it is based on experiences of personal mastery. Expectations of mastery are increased with success, while expectations are lowered with failure.

Modeling

Modeling, according to Bandura (1994), is a technique used in building self-efficacy by which a patient sees and learns from someone else dealing with a similar problem, and replicates the adaptive behaviors. Support groups such as the Arthritis Foundation's self-help course and the American Cancer Society's Reach to Recovery Program, along with the randomized controlled trial by Wu et al. (2011) evaluating patients with type 2 diabetes, are examples of successful use of modeling in a support group setting (NDEP, 2014). Groups comprised of similar age, ethnicity, and socioeconomic status are a comfortable setting for patients, and portray success in a realistic manner. Although having an overachiever in the group can be

inspiring, it is not always the best model if patients perceive the achievements as unrealistic because they cannot relate to the person (NDEP, 2014).

Social Persuasion

Social persuasion refers to influencing behavior in a manner that encourages an individual to do slightly more than he or she is currently doing (NDEP, 2014). This strategy should utilize teaching goals that are short-term and realistic, and not too far beyond what the patient believes he or she can accomplish realistically (NDEP, 2014). The manner in which healthcare professionals teach content can have an impact on increasing self-efficacy. If the patient feels overwhelmed by the amount of material to be learned, or the complexity of the task, he or she will be less likely and less willing to try the new skills (NDEP, 2014).

Application of the Self-Efficacy Model

In a support group setting at a free health clinic, participants with diabetes have the opportunity to benefit from skills mastery, modeling, and social persuasion. Although they have varied ethnic backgrounds, participants who utilize the free clinic have similar socioeconomic backgrounds, and can share the experience of learning new skills while learning from and supporting each other. Reinforcement in the form of feedback after initiating a new skill can promote confidence by affirming an individual's attempt at the new skill (NDEP, 2014). Examples of repetitious behaviors that build self-confidence are practicing insulin injections, demonstrating use of a glucose meter, or showing the ability to read a nutrition food label. Recognizing and rewarding patients for accomplishing tasks are important aspects of building confidence and improving self-efficacy. Recognition, according to the NDEP (2014), is important for patients with lower education levels, as these individuals tend to have lower levels of self-confidence.

Bandura's self-efficacy model was applied in this pilot intervention for a group of vulnerable adults with diabetes who may have experienced low levels of confidence and low self-efficacy due to a lack of resources and education. Self-efficacy has been shown to be an important predictor of health behaviors and health outcomes in adults with diabetes (Anderson et al., 1995; Hurley & Shea, 1992; Pena-Purcell, Boggess, & Jimenez, 2011; Schillinger, Handley, Wang, & Hammer, 2009; Yin Kwan Ho, Berggren, & Dahlborg-Lyckhage, 2010). The current project incorporates the concepts of Bandura's Self-Efficacy Model (1994). Implementation of an ongoing support group for adults with diabetes in a free health clinic is suggested as a means to improve confidence in self-management behaviors through enhancing participants' knowledge of self-care; influencing their thoughts about health related behaviors; shaping their beliefs about self-motivation; and providing opportunities for skill building activities, modeling of successful behavior, and community efficacy.

Health Promotion Model

The Health Promotion Model, proposed by Nola Pender (1996), is an explanatory model of health behavior that emphasizes the role or expectations in the shaping of behavior (Pender, 1996; Pender et al., 2006). The model was designed to complement models of health protection and prevention by conceptualizing that health is a positive dynamic state that is not merely the absence of disease. The Health Promotion Model describes the multi-dimensional nature of people as they interact within their environments to pursue health. The model notes that people have unique characteristics and experiences that affect their actions, and that knowledge and affect have important motivational significance influencing behavior (Pender, 2011).

An important component of managing diabetes is the self-perception of ability and personal responsibility for self-management of the disease (Davies et al., 2008). The Health

Promotion Model suggests that the greater a person's perceived self-confidence to execute a given behavior, the greater likelihood of committing to action and performance of the behavior (Pender, 2011). The Health Promotion Model also states that nurses can impact a client's perceived ability to perform a behavior by focusing on the benefits of the behavior, teaching how to overcome barriers to attaining the behavior, and providing positive feedback (Pender et al., 2006).

In the Health Promotion Model, Pender (2011, p. 5) theorizes that "previous behavior, along with inherited and acquired characteristics influence beliefs, affect, and the enactment of health-promoting behavior. People commit to behaviors from which they anticipate gaining personal valued benefits." Perceived self-confidence to accomplish a specific behavior increases the likelihood of commitment to action toward performing the behavior, and decreases the perceived barriers to achieving the desired behavior (Pender, 2011). According to Peterson and Bredow (2008), the greater a person's self-efficacy, or perceived ability for certain behaviors, the greater the chance that person will commit to carrying out this behavior. Also, when positive affect is associated with a behavior, the chances of commitment and action are increased. Pender (2011) suggests that persons are more likely to commit to and engage in a health promoting behavior when significant others model the behavior, expect the behavior to occur, and offer support and assistance to enable the behavior.

Important sources of interpersonal influence include families, peers, and health care providers. These influences can influence commitment to and involvement in health promoting behavior. Situational influences in the external environment can also promote or inhibit commitment to a health promoting behavior; the level of commitment to a specific plan of action influences the likelihood of maintaining the action over time (Pender, 2011). Likewise,

competing demands can interfere with adherence to a plan. Pender notes that people have the ability to modify cognitions, affect, interpersonal influences, and situational influences to create an environment more conducive to health promotion.

Application of the Health Promotion Model

This pilot project was implemented to determine the feasibility and sustainability of a support group for vulnerable adults with diabetes in a free health clinic. Pender (2011, p. 5) conceptualizes that “peers and health care providers are important sources of interpersonal influence in engaging in and committing to health promoting behaviors.” The support group encompasses this philosophy by providing an environment that encourages this influence. Feasibility of the support group was determined in part, by the level of engagement in discussion, skill building activities, and goal setting by participants in the group to health promoting behaviors in diabetes management. The potential for sustainability was determined in part, by the competing demands that interfere with participant attendance, and participant feedback related to session content, value, time, frequency, and location. The level of participant engagement and feedback related to the value and logistics of the support group was influential in the organizational support for sustainability.

A study by Yin Kwan Ho, Berggren, and Dahlborg-Lyckhage (2010) explored empowerment in diabetes as it relates to Pender’s Health Promotion Model. This analysis synthesized nine qualitative studies to determine what clients perceive as being important in an effective empowerment approach for diabetes self-management. Four key factors that influence empowerment were identified: trust in nurses’ competence and awareness; striving for control; a desire to share experiences; and nurses’ attitudes and ability to personalize (Yin Kwan Ho et al., 2010). Using Pender’s Health Promotion Model as a basis, Yin Kwan Ho et al. (2010) stress

that health care professionals should recognize and address behaviors that are modifiable. The authors also suggest that an effective empowerment approach enhances confidence by using activity-related tasks, along with interpersonal and situational influences. This approach, according to Yin Kwan Ho et al. (2010), enhances health-promoting behaviors in clients. They suggest that nurses can impact a client's self-efficacy by focusing on the benefits of behavior, teaching how to overcome barriers to attaining the behavior, and providing positive feedback. Nurses, according to Pender et al., (2006), play a central role in helping clients to "shape a positive behavioral history for the future by focusing on the benefits of a behavior, teaching clients how to overcome hurdles to carrying out the behavior, and engendering high levels of efficacy and positive affect through successful performance experience and positive feedback" (p. 52). Utilization of the empowerment approach, as discussed by Yin Kwan Ho et al. (2010), referred to nurses' interactions with clients. In the project at City on a Hill, the empowerment approach can be utilized by any professional or non-professional group facilitator.

Application of Models

The Health Promotion Model and the Self-Efficacy Model suggest that environmental influences, knowledge, and affect have important motivational significance influencing behavior. Both models propose that increased self-efficacy is an important component of positive health behaviors and attainment of behavioral goals (Bandura, 1994; Pender et al., 2006). As noted by these authors, modeled behavior can be an influential motivator for individuals to perceive their abilities to achieve a desired goal. Interpersonal and environmental influences that support a desired behavior change or improved perception of self-efficacy are also conducive to health promotion.

The advised implementation of an ongoing support group for vulnerable adults with diabetes could provide positive interpersonal and environmental influences, knowledge of disease management, skill building opportunities, and motivation through modeled behavior of participants who have been successful in certain areas of disease management. Through these activities, it is suggested that participants will develop enhanced confidence in self-management behaviors, contributing towards improved self-efficacy. Improved self-efficacy will increase the likelihood of commitment to a specific plan of action (Bandura, 1994; Pender, 2011). Success in mastering a behavior change or attaining a valued goal will further enhance self-confidence in performing the new behavior. Potential barriers to attending an ongoing support group for diabetes are social or cultural barriers, lack of transportation, perceived lack of value for attending the group, lack of awareness of the group, or other personal factors that may be barriers to attending. Participant feedback related to perceived value of the group and barriers were factors that affected the feasibility and potential for sustainability of the support group. Using the models proposed by Bandura (1994) and Pender (2011), the activities to improve self-confidence for diabetes self-management may have impacted participants' perception of value. Perception of value, along with potential barriers to attendance will be influential factors in the organizational support for sustaining the support group.

Pender (2011) addresses the influences of culture and ethnicity on health behaviors stating that previous behavior and inherited or acquired characteristics impose influence on the beliefs, affect, and enactment of health-promoting behavior. Pender (2011) also suggests that other personal factors, including biological, psychological, and sociocultural characteristics influence health behavior. These factors include age, personality, and socioeconomic status (Pender, 2011). In this project, consideration of cultural and personal factors is important

because for the population involved in this intervention, these factors play a role in the self-confidence for personal ability to achieve change, motivation for change, and perception of self-efficacy. Pender (2011) suggests that knowledge has important motivational significance that influences behavior. The pilot support group provided a setting that allowed for provision of education related to diabetes self-management, but also incorporated diabetes education that, according to the ADA (2015), is an essential part of disease self-management. Learning from peers is one of the benefits of a support group setting, along with having the ability to learn and practice new skills, or refine familiar skills during the group sessions. Families, peers, and health care providers can encourage, and assist with learning and reinforcement of new knowledge or behaviors related to diabetes self-management. Pender (2011, p. 5) proposes that “families, peers, and health care providers are important sources of interpersonal influence, along with environmental influences that can increase or decrease commitment to, and engagement in health promoting behavior.” These concepts can be utilized in a support group for people with diabetes by incorporating cultural preferences for food and activities, employing family support, discussing ways to overcome barriers due to economic or other limitations, practicing skills related to diabetes self-management, and developing individualized goals to facilitate success in new skills. These activities provide ways to enact performance accomplishments, modeling, affective state, and social/verbal persuasion, as outlined by Bandura (1994), to improve confidence in self-management of diabetes.

Stetler’s Model of Evidence Based Practice

Increasing recognition has been devoted to the utilization of conceptual models to guide changes in practice (Graham, Tetroe, & KT Theories Research Group, 2007). The Stetler Model of Evidence Based Practice was used in this project as a guide for the implementation of a pilot

support group, and evaluation of feasibility and potential sustainability of the group. The model was originally published in 1976, and has since undergone multiple revisions to provide a conceptual framework with strong underpinnings that integrate current concepts related to implementing evidence into practice (Melnik & Fineout-Overholt, 2011). The Stetler Model defines the term *evidence* in the context of healthcare as “information or facts that are systematically obtained and that can come from different external and internal sources” (Stetler, 2002, p. 247). External evidence primarily comes from research. Internal evidence is derived from consensus opinion and the experience of local groups along with experiential information from individual professionals that has been affirmed. The experiential observations that have been considered and verified from various sources and thus affirmed, are considered valid evidence in this model. Another form of internal evidence recognized in this model is patient wishes. The individualization of patient circumstances and preferences are included as components of “evidence” for each individual (Stetler, 2002).

Underlying assumptions are inherent in the Stetler Model for the individual competence of the professional in terms of research utilization and implementation of evidence. Competence includes the use of both formal and informal research findings, along with other supplemental evidence in the practice setting. Clinical expertise, professional judgment, and critical thinking are also assumed in the context of individualized integration for each patient. (Melnik and Fineout-Overholt, 2011). As noted, the Stetler Model (2001) incorporates the five phases of preparation, validation, comparative evaluation/decision making, translation/application, and evaluation into the steps for implementation of evidence into practice. The systematic phases of implementation are progressive and fluid, with steps in the process that may overlap.

Implementation Phases

Preparation. The preparation phase is the initial step of defining and affirming a priority need for change. In this phase, a review of the context in which the change would occur is done. Also, the organization of work for the individual or group implementing the change is outlined. In this phase, a decision to form a team, involve formal stakeholders, and/or assign a project facilitator occurs. Also in this phase, a search for literature and evidence for implementing the change is conducted, and desired measurable outcomes are defined (Stetler, 2001). In this project, an introduction to, and explanation of the problem and the context in which the change occurred, are outlined in Chapter 1.

Validation. The validation phase is when the collected evidence is reviewed. A systematic review, or critique of each article, study, or other relevant evidence is conducted, keeping in mind the intent for utilization. Review of the evidence determines the strength of the evidence, synthesizes essential components, and differentiates statistical and clinical significance. The evidence chosen for relevance is then summarized as it relates to the identified need (Stetler, 2001). In the current project, evidence for this stage is outlined in Chapter 2, with emphasis on assessing the feasibility and sustainability of a support group for diabetes. Additionally, the methods used to improve the knowledge, skills, and self-confidence for diabetes self-management, and the impact of these activities on diabetes self-care behaviors and outcomes were discussed.

Comparative evaluation/decision-making. Comparative evaluation and decision making is the phase closely related to validation. In this phase, decisions are made regarding use of the synthesized data based on the utilization criteria. Literature can be categorized according to the strength of the evidence, applicability to the identified need, or consistency related to other

findings (Stetler, 2001). In this project, the steps of validation and evaluation are outlined in Chapter 2.

Translation/application. The translation and application phase involves converting findings into the designated change to be made. A plan for application, implementation, and enhancement is made, and the plan is put into action. The implementation is enhanced, as needed, using the evidence-based change plan (Stetler, 2001). In this project, translation of the evidence showing successful methods of increasing the skills, knowledge, and confidence for diabetes self-management was accomplished by applying these methods in a support group for patients with diabetes at City on a Hill Health Clinic. To impact self-efficacy over time, these methods, as outlined by Bandura, Adams, and Beyer (1977), include performance accomplishment, verbal persuasion, vicarious experience (role modeling), and physiological/affective states. These activities are outlined in Chapter 2 of this document. In the current project, although an instrument developed to measure self-efficacy was used, it was considered to be capturing confidence in abilities rather than fully developed self-efficacy because of the time-frame noted in research as needed to effect changes in self-efficacy. Ratings of self-confidence for specific skills and behaviors for diabetes self-management were considered to be assessing progress toward greater self-efficacy. Findings from implementation were based on participant feedback related to perceived value and logistics of the support group, as well as organizational feedback after the pilot intervention to determine feasibility and the potential for sustainability.

Evaluation. Evaluation of the plan is done to determine whether the desired change was made and the degree to which it was implemented. Continued evaluation is suggested in Stetler's Model (2001) as a part of routine practice. Types of evaluation can include direct

evidence, such as individual behavior changes; cognitive, such as evaluating a change in an individual's way of thinking; or symbolic, such as the completion of a position paper or policy (Melnyk and Fineout-Overholt, 2011). In this project, a cognitive evaluation of perceived self-confidence of participants was conducted prior to and after attending individual sessions of the support group for diabetes. Also, after implementation, feasibility and potential sustainability of the support group for diabetes was evaluated based on the feedback from various stakeholders. The methods of this evaluation will be described in Chapter 4.

Summary

In summary, the conceptual framework for the project was based on an integration of theories. Bandura's Self-efficacy Model (1994), with its focus on self-efficacy as a construct of human accomplishment, combined with Pender's Health Promotion Model (1996) addressing the influences of ethnicity, culture, education, and interpersonal influences, provide sound theoretical foundations upon which to base an intervention. Stetler's Model of Evidence Based Practice (2001) was useful for guiding a practice change that included the use of systematically reviewed literature, as well as other accepted forms of evidence to support the pilot intervention.

Chapter 4

Methods and Measurement

The purpose of this scholarly project was to conduct a pilot support group at City on a Hill Health Clinic to determine the feasibility and potential for sustainability of continuing the service in this setting. The primary question for this project was whether a support group for diabetes self-management targeted to the educational and cultural needs of an adult population without adequate insurance would be beneficial, feasible, and sustainable at City on a Hill Health Clinic. In order to determine the answer to the primary question, secondary questions that further investigated this issue explored the benefits, barriers, and facilitators to the feasibility and sustainability of a diabetes support group from the perspectives of various stakeholders including patients, staff, and volunteers at City on a Hill. Also, this project assessed the operational and financial implications of sustainability of the diabetes support group for City on a Hill, and the benefits, skills, knowledge, and confidence in diabetes self-management that were gained by patients who attended the pilot group sessions.

This chapter will describe the procedures used to explore these questions and the project purpose. The project site, population, project design, and instrument of measurement will also be described. The intervention was planned and implemented in collaboration with City on a Hill Health Clinic.

Project Site

The site for this project was a free health clinic; one of over 40 mission-focused organizations operating under the umbrella of, and supported by City on a Hill Ministries (City on a Hill, 2015). The facility, formerly known as Zeeland Community Hospital, was purchased by a local church in 2005 with plans to expand ministry opportunities that would be available to

the entire community. The health clinic opened its doors to the community in 2006 and served over 600 community members in 2013. The clinic is a nonprofit organization that offers healthcare services at no charge to low-income individuals who lack health insurance or who are underinsured. The clinic utilizes volunteer healthcare providers who are physicians, nurse practitioners, physician assistants, registered nurses, social workers, and physical therapists. Other volunteers include interpreters, receptionists, and housekeepers. Paid staff of the clinic include a registered nurse as the director, a nurse practitioner who operates the continued care clinic, and a community health worker. A committee oversees operations of the clinic, and is comprised of the clinic director, the executive director of City on a Hill, several volunteers, an executive member from Spectrum Health Zeeland Community Hospital, and a physician medical director.

When the health clinic at City on a Hill first opened in 2006, the focus of the clinic was to provide urgent care to the uninsured adults of Ottawa and Allegan counties (City on a Hill, 2015). Due to the growing population of uninsured, the focus of the clinic has changed to include care for individuals with chronic health conditions who need continued follow-up by a healthcare provider. The continued care clinic for chronic disease management is open three times monthly on Tuesday afternoons. In 2014, a formal diabetes management class based on the standards of diabetes education by the American Association of Diabetes Educators (AADE, 2015) was offered. As this project began classes met once monthly for three months, and were taught by registered nurse volunteers. Content of the diabetes classes included education regarding the disease process of diabetes; management and awareness of acute and long-term complications; healthy eating; stress management; benefits of exercise; foot care; immunizations; sick-day care; and instructions for setting self-care goals. The diabetes classes were advertised

by word of mouth and by flyers distributed at local businesses. By November, 2015, after a period of one year, 25 participants had attended the diabetes education classes. This time period overlapped the dates when the pilot was completed.

A clinic for all healthcare needs was held once weekly on Tuesday evenings. Beginning in 2008, a clinic for women's health has been available once monthly, offering mammogram screenings and cervical screenings at no charge to patients or to the clinic through funding by a Susan G. Komen grant. Through a partnership with Spectrum Health Zeeland Community Hospital, basic labwork and X-rays were provided prior to 2015 (the year this pilot was conducted), at no charge for patients or the clinics. In 2015, Spectrum Health discontinued this free service, and now charges full price for all labwork, X-rays, and other diagnostic tests. Clients are now advised to go to whichever facility is most convenient for them to obtain labwork or X-rays. The clinic was financially supported by Blue Cross Blue Shield of Michigan, the Community Foundation of Holland/Zeeland Area, the Michigan Department of Community Health, Greater Ottawa County United Way, and many area businesses, churches, and individuals. Patients were not required to provide information regarding income or health insurance status to utilize the free clinic. For individuals desiring to apply for Medicaid or health insurance through the Marketplace of the Affordable Care Act, a designated volunteer was available to assist patients with this service. This volunteer also helped patients obtain assistance through pharmaceutical companies for various medications including insulin and other diabetes medications. When the project was completed, City on a Hill Health Clinic was the only free health clinic in Ottawa and Allegan County providing medical care to the entire county.

Barriers and Facilitators

Barriers. Barriers to the feasibility and sustainability of the support group at City on a Hill, included the limited time availability of certified diabetes educators and other healthcare professional volunteers for providing services in the diabetes education classes and support group. When the project was conducted, two CDEs and one registered nurse volunteer rotated their monthly schedules to teach the diabetes education classes. Other CDEs had offered to help with the education classes and support group sessions; however, their availability, as well as the availability of other volunteers, was unknown. A lack of resources for patients including transportation, family commitments, or time, along with patients' perceived need for a support group were also anticipated to be barriers to attendance at the support groups. These barriers were considered to be threats to the sustainability of the support group.

Facilitators. Facilitators of the feasibility and sustainability of the support group at City on a Hill included the organizational backing for provision of diabetes self-management education and the support group. Key stakeholders, including the clinic director, the nurse practitioner who oversees the continued care clinic, advisory members, and several volunteers from the clinic and diabetes education classes favored the implementation of a pilot support group for patients with diabetes at the clinic.

Other facilitators included verbal requests made by participants during diabetes education classes for a support group. Also, facilitators involved the critical factors noted by LaPelle et al. (2006), including the data reported by professional survey participants to support the intervention and the "passion" of volunteers to carry out the project. Facilitators of enhancing confidence of participants included the strength of evidence in support of the methods used to impact self-

confidence for disease self-management. Implementation of the project was facilitated by the use of conceptual models as theoretical foundations.

Project Questions

Primary Question

- Will a support group for diabetes self-management targeted to the educational and cultural needs of an adult population without adequate insurance be beneficial, feasible, and sustainable at City on a Hill Health Clinic?

Secondary Questions

- What are the benefits, barriers, and facilitators to the feasibility and sustainability of a diabetes support group from the perspective of various stakeholders, including patients, staff, and volunteers at City on a Hill?
- What are the operational and financial implications of sustainability of the support group at City on a Hill from the perspective of the clinic director and other stakeholders?
- What benefits, skills, knowledge, and confidence in diabetes self-management were gained by participants who attended the pilot group sessions?

Project Sample

The pilot group for the project was drawn from individuals with diabetes types 1 and 2 who attend the offered clinics at City on a Hill, or the diabetes education classes. Attendance at the clinics or the diabetes classes was not required to participate in the support group. The support group was also open to all community members with a diagnosis of diabetes, or support people to those with diabetes. The group was advertised using flyers at City on a Hill and local businesses, as well as by word of mouth during clinic hours and the diabetes education classes.

Support persons were welcomed, and encouraged to attend. A partnership was established with the clinic director, nurse practitioner, nurse volunteers, and receptionist, for promotion of attendance at the support group.

Diabetes class participants have expressed an interest in attending an ongoing support group. The individuals who attended the diabetes classes at City on a Hill were invited individually by phone to attend the support groups. The differences between the diabetes classes and support groups were explained to participants at the time of the phone invitation. These explanations included that while education can provide the necessary information and tools for successful diabetes management, it does not provide ongoing support to overcome barriers for ongoing management, nor does the education alone offer continued social and professional encouragement for successful behavioral change (Funnell et al., 2010). In the diabetes classes, specific topics to be covered are pre-set, and must be covered according to the national standards for quality diabetes education (AADE, 2015). In the support groups, there may be new information on topics of interest, but the agenda for each support group will be determined by attendees at the time of the support group.

Participants were informed of the benefits of attendance, including the potential to learn new information and attain new skills related to diabetes self-management; the ability to share information about their disease management with others who also have diabetes; the ability to learn tips for management from others; the opportunity to obtain nutrition information and share recipes; the opportunity to give and receive emotional support; receive and provide encouragement to set new goals; support in reaching the goals; and potentially, build new friendships and a sense of community in a relaxed and non-threatening environment. Participants were informed that the initial group sessions were pilot sessions, and that the

primary purpose of the initial sessions was to help determine the feasibility and sustainability of continuing the support group. Participants were informed in advance that feedback would be requested of them after the sessions to help determine feasibility and sustainability. No risks to participants were foreseen for participation in the support groups. Confidentiality was emphasized for attendees, with agreement by the group to keep personal information attendees shared among themselves. A determination review application was completed prior to implementation of the pilot intervention and reviewed by the Grand Valley State University Human Research Review Committee (HRRC) and the Internal Review Board (IRB). The IRB concluded that this project did not meet the definition of covered human subjects research according to current federal regulations. Nevertheless, standards for confidentiality and security of the data were utilized and maintained.

Project Design

The project questions were answered by using questionnaires that obtained feedback from stakeholders including patients, professional staff, volunteers, and the clinic director. The *Participant Feedback* form (Appendix A) obtained data to answer the secondary question of benefits, facilitators, and barriers to the feasibility and sustainability of the support group from the perspectives of patients and support persons. This information contributed to the primary question regarding the benefit, feasibility, and sustainability of the support group. Perceived benefits of attending the support group, and feedback related to the location, day, time, duration, and frequency of the support group sessions were obtained with this form.

The *Professional Evaluation of Diabetes Support Group* form (Appendix D) also addressed the secondary question regarding facilitators and barriers to the feasibility and sustainability of the support group. The perspectives of professional stakeholders including the

clinic director, professional staff, and volunteers were collected with this survey. These data were obtained following the support group sessions, and after relaying information to stakeholders regarding participant feedback of confidence levels, self-evaluations, recommendations for improvement, and attendance. The form was emailed to six professionals, and responses were received from five professionals. All comments from professionals were included in the results. Data from this evaluation also contributed to the primary question of feasibility and potential sustainability of the support group at City on a Hill.

To answer the component of the secondary question related to participant skills, knowledge, and confidence for diabetes self-management, the Diabetes Self-efficacy Scale (Appendix B) was used. This scale obtained data from support group participants who had diabetes. Information regarding reliability and validity is described in the next section.

Project Evaluation

The project's success was evaluated using participant feedback, participant reports of self-confidence surrounding attendance of the support group, and professional evaluation surveys. Data from Participant Feedback Form and the Diabetes Self-Efficacy Scale (DSES) were aggregated and presented to professional staff and volunteers associated with the diabetes education program at City on a Hill Health Clinic. Feedback from professionals was obtained using the Professional Evaluation Form. Combined, these data contributed to discernment of the feasibility and sustainability of continuing a diabetes support group, and provided direction for the recommendations for frequency of sessions, topics of interest, and assessing volunteer availability.

Confidence was measured using the DSES (Appendix B) developed by the Stanford Patient Education Research Center (2015). The DSES is an eight item questionnaire, which

asks participants to indicate their level of confidence in performing diabetes self-management behaviors including diet, exercise, blood glucose monitoring, blood glucose management, provider visits, and self-discipline. Each item requires a response on a 10-point Likert scale, with “1” being “not at all confident”, and “10” being “totally confident.” The scores are summed and divided by the number of items completed for a total mean. A higher score signifies greater self-efficacy related to diabetes self-management. The English version of the DSES has an internal consistency reliability of 0.828, and test-retest information is stated as “*NA*” or “*not available*” according to Stanford Patient Education Research (2015).

The DSES has been used in studies assessing self-efficacy in relation to diabetes self-management activities. Beckerle and Lavin (2013) reported questions on the DSES to be significantly related to levels of HbA1c ($p < 0.009$). Those with better HbA1c levels scored higher on the DSES for confidence in selecting appropriate foods and in their ability to exercise for 15-30 minutes, four to five times weekly. A randomized controlled study by Atak, Gurkan, and Kose (2009) evaluated the effects of education and interactive questions and answers with peers who have diabetes in relation to self-efficacy for self-managing diabetes. The DSES was used to measure pre and post self-efficacy scores in participants, and researchers reported a significant improvement in self-efficacy scores ($p < 0.006$) for participants in the intervention group compared to the control group.

For this project, the DSES was used to gather baseline self-efficacy values of adults with diabetes in the free health clinic. The DSES was administered again to participants after they attended a support group session for diabetes. Because the timeframe for the pilot was too short for self-efficacy to increase, an increase in the average of DSES scores after the intervention was

interpreted as a trend towards improvement in self-confidence compared to baseline. Due to the short duration of the pilot, a sustained change in self-efficacy was not considered to be realistic.

This project evaluated the feasibility and sustainability of a diabetes support group based on feedback obtained after three weekly pilot group sessions. The pilot group sessions utilized Bandura's (1986) methods of mastery experiences through practicing skills related to diabetes self-management, modeling by observing and listening to group participants' successes or struggles with diabetes self-management, and social persuasion by encouragement from group participants and the group facilitator. The pilot group also utilized Pender's conceptual model by incorporating education related to disease management, the concepts of self-efficacy, consideration of barriers, and cultural sensitivity in discussions about food preferences, the interpersonal influences of family, environmental influences, and personal values. Empowerment approaches were utilized by allowing participants to voice their needs for skills training and education. Support group session topics were determined by the needs of the participants. Based on supporting literature related to feasibility and sustainability, emphasis was placed on early consideration of sustainability factors, maintaining organizational support, collaboration as appropriate, quality improvement recommendations based on pilot outcomes, and realistic goal setting by participants.

Methodology related to individual patient benefits, skills, and knowledge was intended to be key to improving confidence for diabetes self-management. These factors are components of the project question related to feasibility and sustainability. The pilot support group met at City on a Hill Health Clinic once weekly for three weeks, during the month of September, 2015. The support group sessions were 1.5 -2.0 hours, and took place on Wednesday evenings. A conference room that included tables and chairs was used for the group. The pilot support group

was facilitated by a CDE, and incorporated an open forum where participants were able to state specific concerns or topics they wished to discuss. The format of utilizing group-directed topics incorporated the concept of empowerment, where discussions, goals, and outcomes are patient-driven, with changes that are meaningful and desired by the patient. As noted in Chapter 2 of this document, Pellino, Tluczek, Collins, and Trimborn (1998), Funnell and Anderson (2003), and Funnell et al. (2005) showed the empowerment approach to be an effective method of increasing confidence and self-efficacy for health-related self-care tasks and patient outcomes.

Self-directed goals were encouraged, and attendees were provided with assistance in establishing goals as needed. Goals set by participants with diabetes were documented on a goal tracker sheet (Appendix C) they took home with them. Copies of the established goals were made and retained at the clinic to assess progress toward goals for participants who returned to subsequent support group sessions. Three participants attended more than one session, and identified work they did towards accomplishing their determined goal. If goals were met, participants were encouraged to set new goals. If goals were not met in the time specified by the participant, discussion ensued regarding barriers to attaining the goal, as well as ways to overcome the barriers. Participants also set realistic short and long-term goals that extended beyond the three-week pilot sessions. Goal topics and group discussions were related to healthy eating, portioning carbohydrates, blood glucose monitoring, and hypoglycemia with exercise. Group members with experience or success in the discussion topic shared suggestions and provided encouragement to group members struggling with the topic.

Meeting goals allows individuals to attain mastery experiences for the specified individual goals they set. Other potential mastery experiences include the practice of blood glucose monitoring and insulin injecting techniques, allowing participants to practice and

increase confidence in self-care behaviors. Practicing skills in small steps allows mastery of each step and success in performing the skill (Lorig and Gonzales, 2000). Interactive discussion was encouraged, as a means to allow participants to speak within the group and become comfortable in the group setting. Sharing successes and failures with the group provided the experience of modeling, an evidence-based method of improving self-efficacy (Bandura et al., 1977). Topics of discussion related to diabetes self-management would have been facilitated if no one had specific topics or concerns they brought to the discussion.

At the pilot sessions, participants inquired about multiple topics related to healthy eating, carbohydrate counting, meal planning, medications, hyperglycemia, hypoglycemia, exercise, lab value interpretation, preventing complications, and blood glucose monitoring. Future topics of discussion may include recipe sharing, coping mechanisms for dealing with diabetes; the role of support persons for people with diabetes; stress management; depression; complications of diabetes; foot care; sick day care and when to call the doctor or seek assistance; immunizations; eye health; and others. At future support group meetings, other volunteer facilitators will oversee the group, and different professional and lay speakers will be invited to present information about specific topics related to their specialty, with the opportunity for attendees to ask questions.

Implementation Plan

Using the steps outlined by Stetler (2001), the initial step of preparation involved an introduction to the problem, a review of literature for evidence related to implementation of the pilot support group, and a definition of measureable outcomes. In this project, an introduction to the problem and context in which the change occurred are outlined in Chapter 1. Literature

supporting implementation of this project is described in Chapter 2. Measureable outcomes for this project included results of the questionnaires as described in this chapter.

The second step of validation involves a review of the collected evidence. Evidence for this stage is outlined in Chapter 2, with a review of literature related to assessing the feasibility and sustainability of an intervention. The validation step also includes a review of literature related to the use of evidence-based methods used to improve the knowledge, skills, and self-confidence for diabetes self-management, and the impact of these activities on diabetes self-care behaviors and outcomes.

The third step of comparative evaluation or decision-making involves utilization of the data reviewed. In this project, the literature reviewed in Chapter 2 is applicable to the project purpose of determining the feasibility and sustainability of a diabetes support group. The literature is also relevant to provide evidence for the use of methods that can impact patient self-confidence to self-manage diabetes.

The fourth step outlined by Stetler (2001) is the translation and application phase. This phase involves converting findings into the designated change to be made and putting the plan for implementation into action. After project approval, implementation of the pilot support group ensued within the following two months. The pilot support group took place in September, 2015.

Prior to each support group session, a confidence rating was obtained from participants with diabetes using the DSES (Appendix B). Directions for completing the scale were explained to participants. At the end of each session, the confidence scale was distributed again to assess any changes in confidence related to perceived ability to self-manage diabetes. Participants who attended more than one session filled out the DSES only at the end of a subsequent session. A

questionnaire was also distributed to participants with diabetes and their support persons at the end of each session to assess facilitators and barriers to attending the support group. This questionnaire provided helpful information in determining the feasibility and potential for sustainability of the support group.

Each session began with a welcome and introduction by the facilitator and instructions regarding the maintenance of privacy among group members. Group members were asked to verbally agree to maintain the privacy of information shared within the group. The pilot support group purpose was explained by the facilitator, with an emphasis on determining the feasibility and sustainability of the support group at City on a Hill. Explanation also emphasized learning new skills, learning from each other, and the importance of having support in diabetes management. Attendees were encouraged to introduce themselves to the group, and to share how long they have had diabetes, as well as any other information they wished to make known about themselves with the group. Introductions of this nature acted as an ice-breaker, allowing group members to get to know each other, and encouraging each member to participate.

At each session, an overview of what it means to have well-controlled diabetes was reviewed. All the pilot group members attended previous diabetes education classes at City on a Hill. It was important for each attendee to have knowledge of the basics of what it means to have controlled diabetes, and to understand the reasons why this is important. To ensure this knowledge, a review of the potential chronic complications of diabetes was discussed by the facilitator, and group members were asked to share stories of anyone they have known to have diabetes complications. Discussion ensued regarding prevention of complications through diabetes self-management activities performed by each individual.

The facilitator encouraged discussion of the various activities necessary to manage diabetes. As group members named an activity, it was listed on a whiteboard. The facilitator noted that each individual had varying levels of confidence in performing specific diabetes self-care activities, and one of the goals of the support group was to help attendees gain confidence in performing diabetes self-care activities. Attendees rated their confidence in various self-care activities, and based on the groups' ratings and needs, specific skill building discussions ensued. Skills discussed included identifying and portioning carbohydrates, and meal planning when cooking for oneself or for a family. Group members who were confident in these skills shared their expertise with the rest of the group.

At each session participants set a goal for at least one diabetes self-care activity they wished to build on or acquire. Participants were assisted with goal setting, with an emphasis on making goals realistic, specific, measureable, and including a time frame. As noted by Stetson et al. (2006), addressing realistic goal setting contributed to the feasibility of a short-term intervention aimed at optimizing self-care behaviors in adults with diabetes. Participants who attended subsequent sessions reported their success towards reaching their goals back to the group, or barriers encountered in attempting to reach their goals. Group members were encouraged to help each other discover ways to overcome barriers, and successes achieved towards reaching goals were celebrated. Each session included a sign-in sheet, and light refreshments.

Food models and empty food packages that were ethnically diverse were used as examples of meal planning and carbohydrate identification. Glucose meters and strips, syringes and sterile saline, and demo insulin pens and pen needles were available for participants to practice hands-on skills. These supplies were provided free from pharmaceutical and medical

supply companies, and were not a cost to the clinic. Handouts related to diabetes care, both in English and Spanish, were provided at the support groups. There was not a need for interpreters at the pilot sessions because all participants were English-speaking. For future sessions, interpreters will be solicited, as needed, through the volunteer pool. No product solicitation by vendors was allowed at the support groups, and care was taken to avoid bias in discussing pharmaceutical or medical supply brands. For future sessions, the volunteers and speakers at the support groups will not be employed by agencies that could imply bias for particular product brands or companies. An anonymous evaluation of the agenda and value of the sessions was distributed to group participants at the end of each session, with opportunity to provide feedback and suggestions for improvement.

Potential barriers noted prior to the implementation of this project included weather-related or transportation issues; cultural or language barriers; lack of awareness of the support group being offered; a perceived lack of value in attending the group; or other personal factors. Strategies to minimize these barriers were used including a reminder phone call one day in advance, to participants who expressed interest in attending. Other strategies included the distribution of flyers to local healthcare and community organizations, as well as throughout City on a Hill; listing aspects of value in attending the support group on the flyers; advertising by word of mouth to potential attendees in the clinics and in a local diabetes center; and procuring the help of other stakeholders to promote and encourage patients with diabetes to attend.

Weather was not a barrier during this pilot project, and there were no comments expressing that transportation was an issue. It is unknown whether transportation was a barrier that prohibited attendance for some community members. There were no cultural or language barriers observed at the pilot sessions. Lack of awareness may have been a barrier, since flyers

were posted one week prior to the pilot implementation. Potential barriers in future support group sessions may be any of the above barriers listed.

Operational and Financial Implications

Operational and financial implications of the pilot support group at City on a Hill were factors to be considered. Operational factors included the buy-in of staff and management at City on a Hill regarding having a support group for patients with diabetes at the clinic. The chief executive officer of City on a Hill, along with the director of the health clinic, advisory committee, and staff at City on a Hill were in support of the organization offering a diabetes support group to members of the community. The desire to initiate a support group for patients with diabetes was initially verbalized by the clinic director. At the time of this project, several volunteers taught the diabetes education classes monthly.

It was undetermined whether sufficient volunteers would be available to facilitate weekly support group sessions. A potential barrier to sustaining weekly sessions is a lack of volunteers. Monthly sessions however, are considered to be a realistic expectation at this site. A discrepancy exists between the evidence and the realistic likelihood that weekly sessions could be maintained. This pilot was based on literature support for weekly support group sessions, and the potential to impact patient knowledge, skill enhancement, and confidence in diabetes management. Recommendations to hold monthly support group sessions rather than weekly were based on participant and professional feedback after the pilot sessions, and volunteer availability.

Financial implications of this pilot support group at City on a Hill included the cost of photocopying materials used as handouts and questionnaires for participants. It was anticipated that the number of copies needed for handouts at each session would vary. Copies of

questionnaires were made for 10 participants initially, with subsequent copies made based on attendance. The facilitator of the support group sessions was a volunteer and did not incur a cost to the organization. Snacks were provided at the pilot support group sessions by the facilitator. Future snacks may be available based on donations from local restaurants. When the project was completed restaurants were donating meals once weekly on Tuesday evenings for volunteers at the clinic. Supplies including glucose meters, meter strips, demonstration insulin pens, syringes, and educational pamphlets related to nutrition, monitoring, hypoglycemia, exercise, and stress management were supplied free from pharmaceutical companies. The use of a room and facilities at City on a Hill for the support group did not incur an extra cost. Use of this room was included in a rental fee to City on a Hill organization for use of space and facilities that included utilities. Additional hours utilizing this space did not incur an extra cost to the clinic.

Project Evaluation

The fifth, and final step outlined by Stetler (2001) is the evaluation phase. This phase determines whether the desired change was made, and the degree to which it was implemented. Outcomes of the pilot support group were evaluated by measuring pre- and post-session confidence levels of participants with diabetes related to specific diabetes self-management behaviors. As noted, self-efficacy is indicated by feelings of confidence and control, and is a good predictor of motivation and behavior (Bandura, 1994). By assessing participant confidence using the DSES (Stanford Patient Education Research Center, 2015) before the initial session and after each session for each participant, a quantitative measure of change in confidence was obtained. Improved confidence in the ability to perform diabetes self-care behaviors can lead to improved self-efficacy over time. Examples of diabetes specific behaviors may include the technique of using a glucose meter, understanding what the blood glucose results mean, using a

syringe or pen to self-inject insulin or other injectable medications for diabetes, understanding how medication works or potential side effects, and performing self foot exams. Other data obtained from pilot support group participants, including support persons, was obtained using a questionnaire inquiring about the barriers and facilitators of continued attendance at the support groups; skills learned; knowledge gained related to diabetes self-management; and recommendations for improvement. Cognitive evaluation that included reports of knowledge or skills gained; whether the time of day worked well; whether the setting was comfortable; whether participants would return to a subsequent setting; whether participants would recommend the support group to others; and recommendations for frequency of sessions and improvements were obtained using the “Participant Feedback” questionnaire (Appendix A). Positive responses from participants related to knowledge and skills gained; time of day; setting; whether participants would return to future support group sessions; or whether they would recommend the support group to others, were indicators of the feasibility of implementing support group sessions, and were factors supporting the potential for sustainability of continuing the support group at City on a Hill.

Further evaluation was conducted to assess the organizational support for sustaining the support group using the “Professional Evaluation of Diabetes Support Group” form (Appendix D). Feedback from support group participants including self-confidence scale results and the feedback related to participant facilitators and barriers were summarized and disseminated to organizational leaders for review (Appendix E). This information was helpful for organizational leaders to determine the feasibility and potential for sustainability of the support group.

The “Professional Evaluation of Diabetes Support Group” questionnaire provided data from the clinic director, staff, and volunteers. This evaluation contributed to the determination

of feasibility and sustainability of the support group by obtaining input related to support group participant feedback, stated or determined barriers, change in confidence ratings, attendance, financial implications, volunteer availability to facilitate ongoing support group sessions, and participant and professional recommendations for improvement.

Chapter 5

Results

The purpose of this pilot project was to determine the feasibility of implementing and likelihood of sustaining an ongoing support group for patients with diabetes and their support persons. This chapter describes the findings of a pilot support group conducted in a free health clinic in Ottawa County. The objectives of the pilot support group sessions were to determine feasibility and likelihood of sustainability by obtaining participant feedback related to the perceived value of the sessions, reports of confidence, whether the time of day and location were adequate, preferences for frequency of sessions, barriers to attendance, recommendations for program improvement, and the likelihood of attending future sessions. Feasibility and sustainability were also determined by feedback from professional staff and volunteers at the health clinic, and by consideration of financial implications. Data from participant feedback and self-efficacy scores were aggregated and presented to professional staff and volunteers associated with the diabetes education program at City on a Hill Health Clinic (Appendix E). Feedback from professionals was obtained using the Professional Evaluation Form (Appendix D). Combined, these data contributed to discernment of the feasibility and sustainability of continuing a diabetes support group, and provided direction for the frequency of sessions, topics of interest, and volunteer availability. This chapter reports participant characteristics and recruitment; pilot survey results; results of participant self-reports of confidence using the Diabetes Self-efficacy items; and results of professional evaluation of the pilot support group.

Participants

The target population of this pilot implementation project was vulnerable patients with diabetes types 1 or 2 and their support persons in Ottawa County. Vulnerability was defined in this project as having a lack of health insurance, or being underinsured, and lacking the resources to obtain health care services that are usually covered by health insurance. Recruitment of participants was completed by calling individuals who had previously attended diabetes education classes at City on a Hill, along with recruitment by word of mouth in the clinic, and flyers posted at various locations in the city. Flyers were posted at the clinic at City on a Hill; a low-income healthcare clinic in Holland; two local restaurants; a hardware store; and a “Dollar Store.” Permission was obtained at each location the flyers were posted.

Support group sessions took place at City on a Hill Health Clinic with the intended primary population targeted to individuals who utilize the clinic. Participation was not limited to those without adequate health insurance or to those who attend City on a Hill Health Clinic for health care services, but instead, was open to all members of the community with diabetes and their support people. Two participants attended the first support group session (Table 1). Neither of the two who attended the first session were able to attend future sessions due to a planned vacation. Five new participants attended the second support group session. Of the five participants who attended the second session, four attended the third session, and one new participant attended session three. Overall, four participants attended two successive support group sessions, and a total of eight non-repeating participants attended. Of the four participants who attended two sessions, one was a support person, and three were patients with diabetes. Of the eight participants, two were male, and six female (Table 1). All participants were previous

attendants at a diabetes class at City on a Hill, and one participant utilized City on a Hill Health Clinic for primary and acute health care services.

Table 1

Support Group Participant Characteristics and Session Attendance (N = 8)

Characteristic		<i>n</i>	(%)
Gender	Male	2	25
	Female	6	75
Patient Status	Patients with DM	7	88
	Support Person	1	12
Sessions Attended	Session 1	2	25
	Session 2	5	63
	Session 3	5	63
Attended 2 Sessions	Sessions 2 & 3	4	38

Each session began with the facilitator discussing the purpose of the group and a verbal agreement by those in attendance to maintain confidentiality by not sharing or discussing information they learned about others in the group with anyone outside the group. Participants attending the support group session for the first time were asked to fill out the Diabetes Self-Efficacy Scale (DSES) (Stanford Patient Education Research Center, 2015). Participants sat together at one table, and introductions were made around the table, with participants stating

their first names, how long they have had diabetes, and anything else they wished to share about themselves. Participants had a chance to state, if they wished, a primary question they had related to their diabetes management. Questions were written on a large board that all could see. Discussion followed, with participants providing their thoughts or suggestions related to the posed questions. The facilitator encouraged discussion by group members, and directed discussion when it began to detract from the primary question.

Data were collected from participants utilizing the DSES created by the Stanford Patient Education Research Center (2015) and a participant feedback form created by the investigator. During the last 15 minutes of each session, the facilitator requested that each participant fill out the DSES and a participant feedback survey. For those who had previously filled out the feedback survey, the option to fill out another survey was offered. Data on the DSES was identifiable by participant name to enable pre-post comparison of confidence scores, but was kept secure. Data on the participant feedback form was obtained anonymously. All forms were stored in a file in the director's locked office.

Diabetes Self Efficacy Scale

The DSES (Appendix B) is an eight-item Likert-type scale intended to capture perceived self-confidence ratings of the accomplishment of behaviors related to diabetes self-management. (Stanford Patient Education Research Center, 2015). The score of the DSES ranges from one to ten, with "1" representing a response of "not at all confident" and "10" signifying "totally confident." The results of the DSES pre-post response score ranges and averages for participants who attended at least one session are indicated in Table 2. Higher ratings were noted after attending one session for questions related to "*following a diabetes diet when sharing meals with others who do not have diabetes,*" and in "*choosing appropriate foods,*" compared to ratings for

other topics. This might have been because the primary questions posed by participants, and the main discussion topics at each session were related to diet. Item response ratings for participants who attended two sessions are indicated in Table 3. Changes in self-ranked ratings for participants attending two sessions tended to be higher in several areas, with the greatest changes noted in “*following diet when sharing meals with others who do not have diabetes,*” and in “*control diabetes so it does not interfere with what you want to do.*” These slightly higher rankings may signal an improvement in participant self-confidence in managing these areas of diabetes, but the small sample size limits the ability to form conclusions about the rankings as an indicator of a lasting change in confidence.

Table 2

Self-Reported DSES Scores Following One Session (N = 7)

DSES Question	Confidence Ranking (Pre-Session)	Pre-Session M (SD)	Confidence Ranking (Post-Session)	Post-1 Session M (SD)	Difference of M (SD) after 1 Session
1. Eat meals consistently, including breakfast daily	3-10	7.71 (2.56)	3-10	7.71 (2.56)	0 (0)
2. Follow diet when sharing meals with others who do not have diabetes	5-10	7.00 (2.31)	5-10	7.57 (1.90)	0.57 (0.41)
3. Choose appropriate foods	5-9	7.57 (1.81)	6-10	8.14 (1.46)	0.57 (0.35)
4. Exercise 15-30 minutes, 4-5 times a week.	3-10	6.29 (2.50)	3-8	6.29 (2.50)	0 (0)
5. Prevent low blood sugar when exercising	5-9	6.86 (1.57)	5-10	7.00 (1.53)	0.14 (.04)
6. Know what to do when blood sugar is too low or too high	6-10	8.57 (1.62)	7-10	8.71 (1.38)	0.14 (0.24)
7. Know when changes require visiting your doctor	7-10	8.14 (1.07)	7-10	8.29 (0.95)	0.15 (.12)
8. Control diabetes so it does not interfere with what you want to do.	5-10	7.14 (1.68)	5-10	7.14 (1.86)	0 (.18)
Cumulative Mean (SD)		7.41 (1.09)		7.61 (1.01)	0.20 (0.08)

Table 3.

Self-Reported DSES Scores: Repeated Attendance Participants (n = 3)

DSES Question	Confidence Ranking (Pre-Session)	Pre-Session M (SD)	Confidence Ranking (Post-Session)	Post-1 Session M (SD)	Post-2 Sessions M (SD)	Difference of M (SD) after 1 Session	Difference of M (SD) after 2 Sessions
1. Eat meals consistently, including breakfast daily	6-10	8.7 (1.89)	6-10	8.7 (1.89)	8.7 (3.09)	0 (0)	0 (1.2)
2. Follow diet when sharing meals with others who do not have diabetes	6-9	8.3 (1.7)	6-10	8.3 (1.7)	8.7 (1.25)	0 (0)	0.4 (0.45)
3. Choose appropriate foods	5-9	7.7 (1.89)	6-9	8.0 (1.41)	8.3 (1.7)	0.3 (0.48)	0.6 (0.19)
4. Exercise 15-30 minutes, 4-5 times a week.	6-8	7.3 (0.94)	6-8	7.3 (0.94)	7.3 (0.94)	0 (0)	0 (0)
5. Prevent low blood sugar when exercising	6-9	7.3 (1.25)	5-9	7.0 (1.63)	8.0 (1.63)	-0.3 (0.38)	0.7 (0.38)
6. Know what to do when blood sugar is too low or too high	7-10	9.0 (1.41)	7-10	9.0 (1.41)	9.3 (0.94)	0 (0)	0.3 (0.47)
7. Know when changes require visiting your doctor	7-10	8.0 (1.41)	7-10	8.3 (1.25)	8.7 (0.94)	0.3 (0.16)	0.7 (0.47)
8. Control diabetes so it does not interfere with what you want to do.	6-10	7.7 (1.7)	6-10	7.7 (1.7)	8.3 (1.25)	0 (0)	0.6 (0.45)
Cumulative Mean		8.00 (1.52)		8.04 (1.49)	8.42 (1.26)	0.04 (0.12)	0.42 (0.45)

Actual DSES score totals and averages are indicated in Table 4. Although there were too few participants who attended two sessions to test a significant difference, SE scores trended higher in participants after attending two sessions than the SE scores after attending one session.

Table 4

Participant DSES Scores (N= 7)

Participant Number	DSES Score (Initial)	DSES Score Post-1 session	DSES score Post-2 sessions (n = 3)	Difference After 1 Session	Difference After 2 Sessions (n = 3)
1	7.63	7.75		0.12	
2	7.13	7.25		0.12	
3	7.88	7.88	8.25	0	0.37
4	9.50	9.50	9.75	0	0.25
5	6.63	6.75	7.25	0.12	0.62
6	6.13	6.38		0.25	
7	7.00	8.00		1.00	
M	7.41	7.61	8.42	0.20	0.42

Note. The DSES score ranges from 1-10, and reflects a mean of all items. A score of 1 indicates a lower self-efficacy, and a score of 10 indicates higher self-efficacy.

Diabetes Self-efficacy Scale Analyses

Statistical analyses of DSES results were conducted on data collected at the beginning of each session for first time participants, and immediately following each session. Participants who attended two sessions did not fill out the DSES at the beginning of the second session. The sample size was too small to conduct a t-test, so a Wilcoxon signed-rank non-parametric paired analysis was conducted to test the difference between the mean pre- and post-session DSES scores of participants. A Bonferroni adjustment using $\alpha = 0.05$ for eight tests was done to

correct for the chance of a type one error, with a significance level of $p < 0.00625$. Results of the Wilcoxon signed-rank test did not reach statistical significance after the correction for any of the eight DSES items, as displayed in Table 5. The significance levels are one-tailed because the value of interest is for a positive change.

Table 5

Statistical Analysis – Change After 1 Session (N = 7)

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Wilcoxon p-value (1-tailed)	0.500	0.159	0.023	0.500	0.282	0.158	0.158	0.500

Note: Q = Question from DSES

After computing total DSES scores as indicated by the Stanford Patient Education Research Center (2015), the group's scores were compared after each session. Results of the Wilcoxon signed-rank test did not reach statistical significance. Mean DSES scores and significance values are noted in Table 6.

Table 6

Statistical Analysis – Change in DSES Scores

	Baseline DSES	Post- 1 Session	Post- 2 Sessions
<i>M</i> (N = 7)	7.41	7.61	
<i>p</i>		.101	
<i>Z</i>		16.5	
<i>M</i> (n = 3)	8.00	8.04	8.42
<i>p</i>		.297	.297
<i>Z</i>		4.00	4.00

Note. *p* is one-tailed.

Participant Feedback

Participant feedback was obtained from all attendees, including the support person. The percentage of participants stating they learned new information during the support group sessions to help manage their diabetes was 88%. The percentage stating they practiced a new skill related to diabetes management was 12%. The percentage of participants stating the support group was helpful was 88%; one participant added a category to state the session was “*enjoyable*”. None of the participants stated that the support group sessions were “*not helpful*”. All participants (100%) stated they felt at ease asking questions, the location and time of day worked well for them, the discussion was helpful, and the group facilitator was helpful. All participants (100%) also noted that they would plan to return for future support group sessions and would recommend the support group to others. One participant noted a preference for the frequency of sessions to be weekly, two participants noted twice monthly, and five participants indicated monthly sessions as their preference for frequency of sessions.

Barriers listed by participants that have prevented them from attending educational sessions in the past included “*schedule*”; “*newly diagnosed*”; and “*cost*”. Three participants stated they did not have any barriers, one stated having attended other groups in the past, implying he or she had not had barriers in the past, and one participant did not respond to this question. Participants listed ideas for program improvement, including “*wish there were more people here on insulin like me*”; and “*larger group*”. Two participants stated they did not have any suggestions stating “*it was fine for me*”, and “*it was run very well*”. Four participants did not respond to this question. Participants learned about the support group in a variety of ways including “*from my niece*”; “*clinic staff*”; “*flyer at work*”; and three responded “*phone call invitation*”. Two participants did not respond to this question.

Professional Evaluation of Diabetes Support Group

The Professional Evaluation survey was sent by email to six professionals (Appendix D). Feedback was obtained from five people including the clinic director, volunteers who are involved in the diabetes education classes, and the nurse practitioner who coordinates the chronic care clinic. Data from the three pilot sessions including the number of attendees, attendee feedback related to quality, and attendee suggestions for improvement were shared with clinic professionals before they were asked to provide feedback (Appendix E). Six questions were posed to professionals for the purpose of determining feasibility and reliability of sustaining a diabetes support group at City on a Hill. All responses from surveyed professionals were included as follows.

Question 1: What are your perceptions of the value of the support group?

In their feedback, surveyed professionals all noted various reasons they felt the support group was valuable. Reasons included the opportunity for clients to learn new information and skills to help manage their diabetes; to allow clients to spend time with others who were going through similar situations; to share successes and frustrations; and to discuss concerns with a health professional in a relaxed setting different from their primary care provider's office. One professional who observed a support group session stated "the support group participants I observed were engaged and enjoying it, and pleased about obtaining and sharing information".

Question 2: What resources are available, or may be needed for long-term sustainability of the support group?

According to surveyed professionals, the most important resource needed for long-term sustainability will be volunteers willing to run the support group; it was advised that more than a few volunteers be available to help facilitate the support groups to avoid over-burdening a few.

Professionals recommended having engaging topics of discussion in which the participants have interest. A suggested approach was to offer promotional materials to participants to encourage attendance.

Question 3: Do you feel the clinic should continue to track any data related to the support group?

All participants said “*yes, data should be tracked*”. **If so, what should be tracked?** It was suggested that collected data should include the number of participants at each group, whether participants are patients with diabetes or support people, whether participants seek regular health care for their diabetes, whether they find the support group helpful, and suggestions for improvement. One professional noted that it is not feasible to continue to track as much data as was collected for the pilot project. Depending on whether participants attend regularly, and over a period of time, it may be helpful to track HbA1C levels, vital signs, lipid levels, weight, and confidence levels. **How should it be tracked?** Some data such as lab values and confidence levels should be tracked intermittently (every three months). Other data such as attendance, helpfulness of the sessions, and suggestions for improvement can be tracked at each session. Respondents did not specify *how* data could be tracked.

Question 4: Do you feel there are sufficient volunteers to support the frequency of support group sessions suggested by participants?

Each professional suggested that it is feasible to obtain volunteers if the support group meets monthly. It was suggested that attempting sessions more frequently than every month would not be feasible or sustainable due to the need for volunteers. It was emphasized again that sustaining an ongoing support group would be more feasible with more than three volunteers.

Question 5: What are the financial implications of continuing a diabetes support group at City on a Hill?

Feedback noted that the room rental fee is covered by the clinic. Any materials or guest speakers would have to be funded by grant money or donations. Other costs may include periodic handouts, food, or incentives such as glucose meters and test strips. One professional added that instead of incurring additional costs, the support group might result in cost savings due to improved diabetes management; improved diabetes management would reduce the risk of long-term complications and result in fewer urgent care visits, and less use of clinic resources.

Question 6: What suggestions do you have related to the feasibility and sustainability of a diabetes support group at City on a Hill?

Professional feedback noted that as long as there is an interest in the community to hold the support group sessions, and there are volunteers willing to facilitate the group, it is feasible and sustainable. One professional suggested that a poll be taken of the volunteers to gauge interest in facilitating the support groups. It was suggested that the methods used in the pilot sessions be implemented throughout all future group sessions, and that training for this may be necessary for those willing to volunteer. A barrier noted to feasibility and sustainability was recruitment of participants, and the consideration of whether participants will continue to attend. It was suggested that the support group should be promoted in the community and in the clinic during individual appointments and at diabetes classes. It was also suggested to offer occasional group grocery shopping days and cooking demonstration days in addition to the traditional support group sessions. It was suggested that feasibility and the likelihood of sustainability would be enhanced by offering the support group sessions at a time that is most convenient for the largest number of people.

Indicators of Feasibility and Sustainability

The indicators of feasibility and factors supporting the potential for sustainability are positive responses from participants regarding the perceived value of the support group sessions and support of professional staff for the continuation of the support group. Perceived positive value by participants was determined through their statements that the support group sessions were helpful; that they felt at ease asking questions; that the day and time worked well for them; that the topics discussed were helpful to them in managing their diabetes; that the group facilitator was helpful; and that all participants plan to return for future support group sessions, and would recommend the sessions to others. A feasibility and sustainability factor emphasized by professional respondents was the availability of volunteers to facilitate the support group sessions. The desired frequency of support group sessions noted by participants should be compatible with volunteer availability at City on a Hill. Professional respondents suggested that more than three volunteers be available to rotate in facilitating the support group. At the time, it was undetermined how many volunteers would be available to facilitate the support group sessions.

Financial Implications

Financial implications of continuing a support group at City on a Hill will depend on future program costs. Table 6 shows the value of services and materials and the projected cost of these items to the organization. Non-essential costs could be covered by grant funding. In the past, grant monies have been obtained from organizations including Blue Cross Blue Shield of Michigan, the Holland and Zeeland Community Foundation, Perrigo Foundation, Ottawa County United Way, and CVS Pharmacy. Projected support group costs were presented to stakeholders in an executive summary (Appendix F).

Table 7

Projected Support Group Costs for One Year (12 Sessions)

Program Costs (Essential)	Value per session (yearly cost)	Cost to Organization
Copies/ Marketing	\$2.83 (\$34)	Copies: \$15 No cost to circulate/travel - volunteer time & travel donated.
Materials	\$4.16 (\$50)	No cost; materials donated
Building/Overhead	Cost included in rent	No cost
Professional volunteer (1) RN	\$57.25 (\$687)	No cost; volunteer time donated.
Non-professional volunteer	\$7.42 (\$89)	No cost; volunteer time donated.
Program Costs (Non-Essential)		
Refreshments	\$10 (\$120)	\$120
Guest Speaker (Once yearly)	\$300 (\$300)	No cost; speakers volunteer
Incentives	\$46.50 (\$558)	Meters donated. Strips \$200 (2000#)
Food/Cooking Demo (Twice yearly)	\$25 (\$50)	\$50
Grocery Tour	Value included in Professional volunteer	No cost
Evaluation Costs (Essential)		
Data collection/ Analysis	Value included in Professional & non-professional volunteer	No cost
Evaluation (Non-Essential)		
HbA1c lab tests (5 participants at four times yearly; 20#)	(\$10 each test) \$200	\$200
Weight, BP	Cost included in data collection	No cost
Totals	Essential: \$860 Essential + Non-Essential: \$2,088	Essential: \$15 Essential + Non-Essential: \$585

Note. Professional and non-professional wage/hr based on the Bureau of Labor Statistics (2015) mean hourly wages for registered nurses and healthcare support workers respectively. Mileage calculation based on IRS (2015) standard mileage rates for charitable organizations. Meter strip price charged to clinic: \$5 for 50 strips.

Conclusion

Providing a support group for the vulnerable population with diabetes at City on a Hill allows services to be offered to a group who may otherwise not have access to these services. As noted, the vision of City on a Hill Health Clinic is to provide health care services and improve the health of those who do not have the means to seek health care in the conventional health care system. A support group for community members with diabetes offered in a setting that is both familiar and comfortable for participants can be an effective way to improve self-confidence in managing diabetes in this population. Having an attendance of at least five participants in the pilot group, obtaining positive feedback from participants and the director, and finding improved self-confidence as a result of attending the support group are factors that contributed to the potential for sustainability of the project by showing the value of the intervention, and its alignment with the vision of the clinic. In the vulnerable population at City on a Hill, improvement in self-confidence along with positive feedback from participants, and the potential to improve diabetes outcomes addresses this vision, along with affecting one of the top health care priorities in Ottawa County.

This chapter provided the results of participant feedback after attending one or more pilot diabetes support group sessions, results of participant confidence levels both prior to and after attending the sessions, and professional feedback regarding the feasibility and potential for sustainability of continuing a diabetes support group at City on a Hill. The next chapter will explore the implications of these findings.

Chapter 6

Discussion

This pilot project was designed to determine the feasibility and sustainability of a diabetes support group in a community health clinic. Indicators of feasibility and factors supporting the potential for sustainability were positive survey responses from pilot group participants that indicated perceived value, an interest by community members to attend the support group, support of clinic stakeholders, and availability of volunteers for the desired frequency of sessions. Secondary questions asked what the benefits, barriers, and facilitators were to sustaining the support group at City on a Hill. Other factors contributing to feasibility and the potential for sustainability were the operational and financial implications of continuing the support group. This chapter will discuss the implications of the findings from the participant and professional surveys, and will consider the influence of benefits, barriers, and facilitators to the support group. Also, the operational and financial implications of a support group at City on a Hill will be considered. Limitations of this proposed change will be explored, and the various roles enacted by the doctoral student during this project will be described. Finally, this chapter will provide recommendations related to the implementation of a diabetes support group at City on a Hill for community members with diabetes and their support persons.

Implications

Value of the Support Group

The pilot support group for diabetes drew eight participants from the community; seven with diabetes, and one support person. The maximum number of participants at one session was five. Although this is a small number, it is not insignificant in terms of the group dynamics and the discussion that occurred at each of the sessions. Participants were engaged during the

sessions, each posing specific questions related to diabetes management, with input and discussion of each question by the group. A smaller group might have been a more comfortable setting for some, allowing them greater opportunity to voice their questions and thoughts. Survey ratings by participants were positive in terms of perceived value of the group. The percentage of participants stating the support group was “*helpful*” was 88%, with one participant adding “*enjoyable*” as an option. None of the participants indicated that the support group was “*not helpful*.” Other indicators of perceived value on the survey were related to whether participants felt at ease asking questions; whether the discussion during the session was helpful; whether the group facilitator was helpful; whether the location and time of day worked well for them; whether participants would return for future support group sessions; and whether they would recommend the support group to others. Survey responses showed that 100% of participants indicated a positive response of “*yes*” to each of these value indicators.

As noted in the literature review, activities focused on improving knowledge and confidence in self-managing diabetes can lead to improved self-efficacy. Improved self-efficacy is shown to be a key factor in disease self-management behaviors, improved metabolic outcomes, and reduced diabetes disparities (Anderson et al., 1995; Bentacourt, Duong, & Bondaryk, 2012; Davies et al., 2008; Dutton al., 2009; Funnell et al., 2005; Funnell & Anderson, 2003; Pena-Purcell, Boggess, & Jimenez, 2011; Schillinger et al., 2009). Also, Wolpert and Anderson (2001) showed that education on self-management of diabetes without interventions to reinforce behavioral change failed to lead to sustained improvements in glucose control. An ongoing support group at City on a Hill has the potential to achieve the benefit of improved knowledge and confidence for diabetes self-management, and over time, improved self-efficacy and improved metabolic outcomes. An ongoing diabetes support group at this site also offers

opportunities for community members to receive encouragement for healthy lifestyles and support in the prevention of diabetes complications. This value addresses the strategies described by the Carl Frost Center for Social Science Research (2011) to improve the healthcare landscape in Ottawa County, Michigan by increasing access to care, and by supporting and expanding resources to address community health needs.

Another value offered by a diabetes support group in this setting is the potential reduction in emergency department visits and hospital admissions. As noted, people without health insurance have 55% more emergency department visits than those who are insured (ADA, 2014). Also, the biggest expenditure for diabetes is a hospital admission to treat a complication such as heart disease, stroke, kidney failure, or foot problems (WHO, 2014). Complications of this nature are preventable with effective disease-management education and ongoing support.

Support of Stakeholders

Stakeholders surveyed include the director, staff, and volunteers of the clinic. Survey results indicated that stakeholders support the implementation of an ongoing diabetes support group at City on a Hill. Interest in the community and volunteer availability were two key factors noted by stakeholders as important in making the support group feasible and sustainable. A suggestion to poll the current volunteers to discern interest in facilitating a support group was made. It was the perception of stakeholders that having enough volunteers was feasible if the support group met monthly, and that having more than three volunteers to facilitate the support group would impact sustainability positively. It was indicated that meeting more frequently than monthly was not feasible. One stakeholder suggested that the methods used in the pilot support group be implemented in future groups. These methods include the use of group directed topics

for discussion and Bandura's (1994) techniques of modeling, skills mastery, and social influence to improve self-efficacy.

Benefits

Benefits noted by stakeholders of a diabetes support group at City on a Hill included the ability of participants to learn new information to help manage their diabetes, the ability to share successes and frustrations with others, and the ability to voice concerns with a health care professional in a relaxed environment outside of their health care provider's office. Pender (2011) conceptualizes that peers are an important source of interpersonal influence in engaging in and committing to health promoting behaviors. This conceptualization was evident through the interactions of participants during the support group sessions, and the survey responses indicating perceived value and the desire to return to future sessions. Benefits noted by participants included rating the discussions as helpful in managing their diabetes; 88% noting that they learned new information; 12% noting that they learned a new skill to help with managing their diabetes; and a slight increase in average self-confidence scores, specifically related to the topics discussed during the sessions. A potential benefit not noted by participants is the effect of being empowered by sharing information with others.

Barriers

Barriers noted by professionals included the need for recruitment of participants, with the possibility that there may not be enough participants interested in attending regularly to justify recruiting volunteers to facilitate the group. Another barrier was the potential of not having sufficient volunteers to facilitate ongoing support group sessions. Potential implications of not having enough volunteers could be volunteer burnout or cancelled support group sessions, which could hinder sustainability. It was recommended that more than three volunteers be available to

enhance ongoing sustainability. The suggestion to poll current volunteers to assess interest may provide input for sustainability in this area. Barriers listed by participants that have prevented them from attending educational sessions in the past include “*schedule;*” “*newly diagnosed;*” and “*cost.*” The suggestion by professionals to host the support group sessions at a day and time that worked well for most is an important consideration. Participants who attended the pilot sessions indicated that the day and time of Wednesday evenings worked well. Participants stating they were newly diagnosed with diabetes had not yet had the opportunity to attend an educational or support group. The barrier of cost will not be an obstacle for participants at City on a Hill, since there is no fee charged to attend the support group sessions. A potential barrier not noted by professionals or participants is the inability of participants to travel to the clinic due to transportation issues or bad weather. The barriers of transportation, day, and time could have been factors in the low attendance for the pilot.

Facilitators

Facilitators of feasibility and factors supporting the potential for sustainability of a diabetes support group at City on a Hill included the organizational and stakeholder support to continue the group. Organizational support is a key factor for sustainability of a program (Fisher et al., 2007). Other factors that contributed to feasibility and sustainability included the positive survey results from participants and professionals implying value of the support groups. Also, participants stated they would attend future support group sessions, and would recommend the support group to others.

Participants did not note any limitations for attending future support group sessions; the limitations noted by participants for not attending previous educational offerings for diabetes were due to cost or schedule. The implication of participants not attending due to cost is a lesser

issue in this setting with the support group being free. The cost of transportation or schedule conflicts may be an issue that prohibits attendance. The utilization of evidence-based methods was another facilitator of feasibility and the potential for sustainability. Using the methods described by Bandura (1977) to affect self-efficacy, the concept of interpersonal influence for engaging in health promoting behavior suggested by Pender (2011), and the concept of empowerment where the content of the sessions was driven by the needs of participants, enacted the principle of translating evidence into practice. Funnell et al. (2005) described the benefits of an ongoing program for patients with diabetes, where content was driven by participants, discussions were energized, and patients engaged.

Operational and Financial Implications

Operational implications of the feasibility and sustainability of a diabetes support group at City on a Hill include the buy-in of stakeholders, the need for volunteers to facilitate the support group sessions, and the need for space to hold the sessions. Based on results of the professional survey, stakeholders are in support of hosting a diabetes support group at City on a Hill. Volunteer availability will be an important factor to determine prior to initiating the support groups. The use of a large classroom with tables and chairs meets the need for space to hold the group sessions. Stakeholder support, volunteer availability, and having the physical space to hold group sessions are factors that will promote sustainability of an ongoing support group at this site.

Financial implications include the cost of using the classroom. This cost is covered by the rent already paid by the health clinic to City on a Hill that includes utilities. Donated or grant money could be utilized to cover potential guest speakers or materials. The implications of available funds to support these activities will strengthen the sustainability of an ongoing support

group. As noted by professional input, a long-term cost savings may be noted as a result of improved diabetes management with the reduced risk of long-term complications, fewer urgent care visits, and a reduction in the use of clinic resources. These factors have long-term benefits for the health of community members, and the use of health-care resources. Long-term outcomes could be assessed by tracking participant HbA1c levels, weight, blood pressure, cholesterol, and self-efficacy scores. Improved long-term outcomes are reportable by the clinic to the organizations that support the clinic through grants and donations. Improved outcomes also align with the clinic's mission of improving the health of community members by providing health care services to those who would otherwise not have access to these services.

Project Analysis

The revised version of Stetler's Model of Evidence Based Practice provides strong underpinnings for the integration of current concepts related to implementing evidence into practice (Melnyk & Fineout-Overholt, 2011). Stetler's model provided a framework for this feasibility and sustainability implementation project. Using the steps outlined by Stetler (2001), the initial step of preparation was accomplished by introducing the problem of limited resources for effective diabetes management in an underserved population, and proposing a change. The second step of validation was accomplished by a review of literature to support the intervention. Literature was also reviewed in support of the methods used to affect participant confidence levels for diabetes management during the support group sessions.

The third step of comparative evaluation involved utilization of the data to support the methods of determining feasibility and sustainability. Bowen et al. (2009) discuss factors to help determine feasibility, including acceptability by the target recipients; demand for the service; the extent to which the program can be successfully delivered to the intended participants;

practicality of delivering the program using existing resources; whether the program shows promise of being successful with the intended population; and the use of previous interventions that had positive outcomes, but in different settings than the setting of interest.

In this project, the factors discussed by Bowen et al. (2009) to determine feasibility were evident in the acceptance of a small group of participants from the community, the desire of stakeholders at the clinic to offer a support group, and the practical and operational factors that support delivery. Also, the use of methods described by Bandura (1977) for increasing self-efficacy have been shown to have positive outcomes in other settings. The slight increase in self-reported ratings of confidence levels of participants in this project suggests the possibility of future success in increasing self-efficacy for diabetes management in this population. Finding that changes in self-efficacy were not significant was not unexpected because self-efficacy is not a construct projected to change in a short period of time. Also, the number of participants was too small to achieve statistical power. As noted in the literature review, the usual time-frame of interventions that showed an improvement in self-efficacy was six or more weeks (Ha, Hu, Petrini, & Thomas, 2014; Lorig & Gonzalez, 2000; Lorig, Ritter, Villa, & Armas, 2009; Lorig, Ritter, & Jacquez, 2005; Lorig et al., 2001).

A key factor for the sustainability of a program, according to Fisher et al. (2007), is organizational support. Without backing for key resources and support for diabetes self-management at the organizational level, individual and group-level services, along with group and community level supports and resources, will dissolve (Fisher et al., 2007). For this project, organizational support is apparent. The director exhibits a desire to initiate a support group, and other stakeholders express the value of continuing a support group for patients with diabetes. Two other critical factors for sustainability of a program are reported by Lapelle et al. (2006).

These factors include having data to support the work, and having the passion to carry it out. As noted in steps two and three of Stetler's implementation phases, evidence was used to support this intervention project. LaPelle et al. (2006) state that having passion for a project involves dedication and enthusiasm for the work, regardless of compensation. In this project setting, the volunteers who serve at this clinic dedicate their time without compensation because they have a desire to help others, and enjoy volunteering their time to do this.

The fourth step as outlined by Stetler (2001) is the translation and application phase. This phase involves incorporating the evidence into the implementation of the pilot support group, and putting the plan for implementation into action. This phase was accomplished when findings from the literature were incorporated into the pilot support group. The use of surveys to evaluate feasibility and sustainability utilized outcomes measures and key factors suggested by Bowen et al. (2009) and Fisher et al. (2007). The survey of participants revealed acceptance and perceived value of the support group sessions. The survey of professionals revealed support for the implementation of a support group. Literature supporting the use of empowerment and the methods outlined by Bandura were used during the support group sessions with the intent of improving confidence for diabetes self-management. During each session, participants were encouraged to set a realistic goal that would help them better manage their diabetes. As noted by Stetson et al. (2006), addressing realistic goal setting contributed to the feasibility of a short-term intervention aimed at optimizing self-care behaviors in adults with diabetes.

The fifth and final step outlined by Stetler (2001) is the evaluation phase. This phase determines whether the desired change was made. In this project the primary purpose was to determine the feasibility and sustainability of a diabetes support group at City on a Hill. To do this, the factors that affect feasibility and sustainability were addressed. These factors included

the positive feedback from participants and stakeholders, and organizational and stakeholder support. Community interest is another factor affecting feasibility and sustainability. The small number of participants who attended the three pilot sessions suggests that there may not be a large number of community members interested in attending a diabetes support group. This may also have been due to inadequate advertising, the short period of time advertising occurred, unawareness, or inability to attend during the offered days and times. If City on a Hill offers an ongoing diabetes support group, word of mouth may be another factor that could elicit higher attendance. Volunteer availability will be another determinant of the feasibility and sustainability of a support group. At this time, there are four volunteer registered nurses stating an interest in facilitating the diabetes support group. A poll of all volunteers at City on a Hill may reveal more volunteers, strengthening the feasibility and sustainability of the support group. Secondary factors to be considered involved determining the benefits, barriers, and facilitators of an ongoing diabetes support group at this site, along with recommendations from participants and stakeholders for improvement. Benefits, barriers, and facilitators, as well as the operational and financial implications of the support group, were noted by professional survey respondents and pilot participants as described above.

Limitations

Limitations of this pilot project included the small number of participants who attended the support group sessions. In this project, participants attended one or two weeks of a pilot support group. The time noted by much of the research involving self-efficacy described six or more weekly sessions to affect self-efficacy (Ha, Hu, Petrini, & Thomas, 2014; Lorig & Gonzalez, 2000; Lorig, Ritter, Villa, & Armas, 2009, Lorig, Ritter, & Jacquez, 2005; Lorig et al., 2001). A potential limitation going forward will be the frequency of support group sessions. A

discrepancy exists between what the literature shows to impact self-efficacy, and what participants and professionals suggest as feasible in this setting. The literature specified weekly sessions, while the majority of participants noted a preference for monthly sessions (Ha, Hu, Petrini, & Thomas, 2014; Lorig & Gonzalez, 2000; Lorig, Ritter, Villa, & Armas, 2009, Lorig, Ritter, & Jacquez, 2005; Lorig et al., 2001). Professional survey respondents also noted that monthly support group sessions would be feasible and sustainable due to the need for volunteers to facilitate the sessions. Because participation in this pilot project was by choice, and not a random sample, participants may have had a higher motivation for learning new knowledge and improving their diabetes management; this makes the results difficult to generalize to the population of patients served at this clinic.

Another limitation of this project was not providing “*other*” as an option on the *Participant Feedback* form for the question asking whether the support group was “*helpful*,” or “*not helpful*.” Offering participants an open-ended response option may have procured more feedback related to the helpfulness of the sessions. Also, several questions on the *Participant Feedback* form requested a “*yes*” or “*no*” response. Offering space for participants to expand on these answers may have elicited more feedback related to participant perceptions of helpfulness of the sessions.

Not being able to reach some participants by phone to inform them of the pilot support group was another limitation of this project. Reaching more clinic and diabetes class participants may have increased attendance, strengthening the pilot outcomes by having more participants. Also, reasons for non-attendance by potential participants who were aware of the support group is unknown. Another limitation of this study was the training of the facilitator as a certified

diabetes educator (CDE), with experience in leading discussions related to diabetes management. If the facilitator was not a CDE, this could have resulted in different outcomes.

Role of the Doctor of Nursing Practice Student

This project required the enactment of several roles essential to the individual prepared as a Doctor of Nursing Practice (DNP), including those of scholar, leader, and innovator. The American Association of Colleges of Nursing (AACN, 2006) outlines eight essential competencies to be addressed in curricula for doctoral nursing practice education. This project included components of each of the essentials, with emphasis on three of them: Scientific underpinnings for practice; clinical scholarship and evidence-based practice; and clinical prevention and population health for improving the nation's health.

The AACN (2004) position statement on the practice doctorate in nursing defines the DNP degree as "practice focused," with nursing practice defined as "any form of nursing intervention that influences health care outcomes for individuals or populations, including the direct care of individual patients, management of care for individuals and populations, administration of nursing and health care organizations, and the development and implementation of health policy" (p. 3). Enactment of the practice-scholar role involved a review of the evidence to support the methods of implementation, application of the evidence-based methods at the clinical site, and utilization of theoretical frameworks to support this translation of knowledge into practice. The roles of leader and innovator were enacted by the introduction of a practice change. Scientific underpinnings for practice were incorporated into this practice change with the utilization of knowledge specific to the disease process of diabetes, as well as consideration of the environments that impact access to health care in a vulnerable population. "Innovative care for vulnerable populations is essential to improve not only

individual patient outcomes such as improved quality of life, but also to reduce costly crisis care” (Moran, Burson, & Conrad, 2014, p. 400). Nursing science, according to Stevenson and Woods (1986), is “the domain of knowledge concerned with the adaptation of individuals and groups to actual or potential health problems, the environments that influence health in humans, and the therapeutic interventions that promote health and affect the consequences of illness” (p. 6).

By enacting the roles of scholar, leader, and innovator, the DNP student influenced the health of vulnerable individuals in a free health clinic. This influence has the potential to positively impact health outcomes for the population of patients with diabetes at this site. This practice change aligns with the focus of the AACN (2004) statement regarding the implementation of an intervention that influences health care outcomes for individuals and populations, and embodies the essentials of the DNP that incorporate science, scholarship, and the implementation of evidence into clinical practice.

Recommendations

Final recommendations are based on the collective data and analysis of this project. The purpose of this project was to determine whether a diabetes support group would be feasible and sustainable in the setting of a free health clinic in Ottawa County. At the start of this project, the clinic had already implemented diabetes education classes. The director of the clinic had voiced a desire to offer an ongoing support group to encourage, and maintain contact with patients with diabetes. Current evidence supports the utilization of education and ongoing support to optimize diabetes management (American Diabetes Association, 2015; Betancourt, Duong, & Bondaryk, 2012; Beverly, 2013; Weinger et al., 2011; Wolpert & Anderson, 2001). Further, the use of evidence-based methods to affect self-confidence for disease management can have enduring benefits for individual self-efficacy and management behaviors, impacting the long-term health

outcomes of patients with diabetes. In this setting, there are indications of feasibility and factors supporting the potential for sustainability, as evidenced by positive responses from participants, organizational and stakeholder support, the low cost associated with implementing the support group, and the current availability of volunteers. The recommendations for implementing future support group sessions at City on a Hill are as follows:

- Based on participant feedback, professional feedback, and the current availability of volunteers, it is recommended that the clinic offer support group sessions monthly.
- Based on the importance of volunteer availability to the feasibility and sustainability of the support group, it is recommended that a poll be taken of current volunteers to determine the number of volunteers able to facilitate future support group sessions.
- Based on professional feedback, it is recommended that the volunteers who facilitate the support group sessions meet prior to initiation of the support group to discuss implementation methods, consistency of the sessions, and plan for scheduling.
- One volunteer or staff person should champion the education classes and support group to insure that quality standards continue, that education materials are updated as needed, and that the evidence-based methods used in the pilot are continued. Ongoing meetings with volunteers involved in the diabetes classes and support group should be scheduled (perhaps quarterly) to evaluate these measures.
- Professional volunteers and staff suggested that the methods utilized in the pilot support group be implemented in future support groups. Therefore, it is

recommended that the investigator of this project meet with volunteers prior to the implementation of the support group for education related to the evidence-based methods used in the pilot sessions.

- To enhance participation, it is recommended that advertising in the community and word of mouth in the clinic be done.
- It is recommended that incentives to attend the support group sessions not be offered initially. If attendance wanes, or is inadequate for the purposes of the support group, then incentives could be considered.

Recommendations for evaluation of the support group are as follows:

- Professional recommendations suggested that tracking of quantitative data including HbA1c levels, blood pressure, weight, and self-efficacy should be done at future support group sessions. These quality indicators would strengthen the argument for sustaining the support group; however the cost of HbA1c levels should be considered.
- Tracking HbA1c levels can be done for participants who regularly utilize the health clinic for their diabetes management, but should not be a routine part of all participants at the support group. Tracking HbA1c levels would require follow-up for levels outside the target range. These levels can be tracked using the HbA1c machine owned by the clinic. Any other labwork could be obtained using outside laboratory services as appropriate.
- Self-efficacy should be tracked using the Stanford Diabetes Self-efficacy Scale (Stanford Patient Education Research Center, 2015) at the beginning of initial sessions for each participant, and again after the participant has attended six

sessions. Blood pressure and weight can be obtained at each monthly session, and recorded on each individual's record.

- It is recommended to poll future diabetes clinic patients and support group participants to determine that the day and time of the sessions offered are feasible for most to attend.
- It is recommended to request participants to fill out a survey after each session to assess the quality measures of content of discussion, methods used to facilitate group discussions, and helpfulness of the facilitator. This survey can be the Participant Feedback Survey used in this pilot, or a participant survey designed to track desired data.
- It is recommended that the possibility of a lay facilitator be considered. As future sessions ensue, this potential can be considered by observing participants' involvement over time. The possibility of student nurses or medical students with an interest in working with patients with diabetes could also be considered. These facilitators should be accompanied by a health care professional who has received training in the methods used in this pilot. The professional will be able to answer participant questions that are outside the scope of knowledge of the lay facilitator.
- Future grant funding is suggested to continue to sustain the support group. Potential grant funds could be from organizations who have given grants in the past, or from national organizations that support diabetes-related activities such as Sanofi-Aventis, Eli Lilly, or Novo-Nordisk.
- Future studies are needed to evaluate the effect of monthly sessions on changes in participant confidence and self-efficacy for diabetes self-management. A full

pilot study that evaluates changes in self-efficacy after monthly support group sessions could provide data related to the impact of this frequency of sessions on self-efficacy that is not currently available in the literature. Data showing an impact of this nature could help obtain future grant funds for the clinic by showing the value of the support group using evidence-based methods.

Conclusion

This evidence-based implementation project provided City on a Hill Health Clinic objective data related to the feasibility and sustainability of a desired support group for vulnerable patients with diabetes in Ottawa County. This clinic has experienced the successful implementation of diabetes education classes due to the commitment of volunteers, and the desire of the organization to offer services to vulnerable individuals that would otherwise not be available due to cost. The organizational assessment revealed a readiness for change, and Stetler's Model of Evidence-based Practice (Stetler, 2001) provided a framework for implementation. The three-week pilot implementation provided feedback related to quality factors, and professional feedback provided valuable input related to feasibility and sustainability. It is the recommendation of the project leader that a support group for patients with diabetes be implemented with the aforementioned considerations.

Appendix A

Participant Feedback

We would like to know how the support group session has been helpful to you.

The support group helped me to (Check all that apply):

_____ learn new information to help me manage my diabetes

_____ practice a skill that improved my confidence to perform the skill

_____ Other. Explain _____

I found the support group:

_____ Helpful for me in taking care of my diabetes

_____ Not helpful

Circle “yes” or “no” for the following statements:

I felt at ease going to the support group at City on a Hill. Yes No

I felt at ease asking questions. Yes No

The time of day worked well for me. Yes No
If not, what would a better day or time be for you?

The topic discussed in this session was helpful. Yes No

The group leader was helpful with the topic discussed. Yes No

I plan to return for further support group sessions. Yes No

I would suggest this support group to others. Yes No

I would like to attend the support group sessions: (Check one)

_____ Weekly

_____ Twice monthly

_____ Once monthly

Appendix B



Self-Efficacy for Diabetes

We would like to know how confident you are in doing certain activities. For each of the following questions, please choose the number that corresponds to your confidence that you can do the tasks regularly at the present time.

- 1. How confident do you feel that you can eat your meals every 4 to 5 hours every day, including breakfast every day?
not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | totally confident

- 2. How confident do you feel that you can follow your diet when you have to prepare or share food with other people who do not have diabetes?
not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | totally confident

- 3. How confident do you feel that you can choose the appropriate foods to eat when you are hungry (for example, snacks)?
not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | totally confident

- 4. How confident do you feel that you can exercise 15 to 30 minutes, 4 to 5 times a week?
not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | totally confident

- 5. How confident do you feel that you can do something to prevent your blood sugar level from dropping when you exercise?
not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | totally confident

- 6. How confident do you feel that you know what to do when your blood sugar level goes higher or lower than it should be?
not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | totally confident

- 7. How confident do you feel that you can judge when the changes in your illness mean you should visit the doctor?
not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | totally confident

- 8. How confident do you feel that you can control your diabetes so that it does not interfere with the things you want to do?
not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | totally confident

Scoring

The score for each item is the number circled. If two consecutive numbers are circled, code the lower number (less self-efficacy). If the numbers are not consecutive, do not score the item. The score for the scale is the mean of the six items. If more than two items are missing, do not score the scale. Higher number indicates higher self-efficacy.

Characteristics

Tested on 186 subjects with diabetes.

No. of items	Observed Range	Mean	Standard Deviation	Internal Consistency Reliability	Test-Retest Reliability
8	1-10	6.87	1.76	.828	NA

Source of Psychometric Data

Stanford English Diabetes Self-Management study. Study reported in Lorig K, Ritter PL, Villa FJ, Armas J. Community-Based Peer-Led Diabetes Self-Management: A Randomized Trial. The Diabetes Educator 2009; Jul-Aug;35(4):641-51.

Comments

This 8-item scale was originally developed and tested in Spanish for the Diabetes Self-Management study. For internet studies, we add radio buttons below each number. There is another way that we use to format these items, which takes up less space on a questionnaire, shown also in the PDF document. This scale is available in Spanish.

References

Unpublished

This scale is free to use without permission

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Funded by the National Institute of Nursing Research (NINR)

Appendix C
Goal Tracker

Name _____

Date of birth _____

Date goal was set _____

Personal Goal:

Steps I will take to reach my goal:

What has prevented you from reaching this goal in the past?

How will you address these barriers?

Follow up sessions:

Date _____

Things I did to help reach my goal:

Problems that hindered my from reaching my goal:

New goal:

Date _____

Things I did to help reach my goal:

Problems that hindered my from reaching my goal:

New goal:

Appendix D

Professional Evaluation of Diabetes Support Group

Based on the post-pilot aggregate data related to confidence levels of participants, facilitators of attending, and barriers to attending, and your perception of clients who utilize City on a Hill Health Clinic:

1. What are your perceptions of the value of the support group?
2. What resources are available, or may be needed for long-term sustainability of the support group?
3. Do you feel the clinic should continue to track any data related to the support group?
If so, what should be tracked?
How should it be tracked?
4. Do you feel there are sufficient volunteers to support the frequency of support group sessions suggested by participants?

Appendix E

Aggregate data from the pilot support group:

Number attended session 1: 2 session 2: 5 session 3: 5

In sessions 2 & 3, one of the five attendees was a support person

Total attendees (not repeated): 8 (7 patients with DM, and 1 support person)

Confidence scores (Diabetes Self Efficacy Score, based on a 10 point Likert, where 1 = ‘not at all confident’, and 10 = ‘totally confident’; N = 7):

Pre-session (range): 6.13-9.5 Average: 7.41

Post session (range): 6.38-9.5 Average: 7.64

Average % of change from pre to post session:

Attended 1 session: 0.23 score increase, or 4% average increase

Attended 2 sessions: 0.41 score increase, or 12% average increase

*In a non-parametric paired analysis, there was no statistically significant change from pre to post (1) session. An analysis was not run to compare differences after attending 2 sessions due to the low number of participants who attended 2 sessions and filled out the DSES.

Number stating they learned new information to help manage their diabetes (not repeated):

Session 1: 2/2 Session 2: 4/5 Session 3: 1/1 Avg. (%): 88%

Number stating they practiced a skill related to diabetes management that improved their confidence to perform the skill (not repeated):

Session 1: 0/2 Session 2: 1/5 Session 3 : 0/1 Avg. (%): 12%

Number stating the support group session/s were

Helpful: 7/8 **Not helpful:** 0/8 in taking care of their diabetes.

(1 participant added a category stating “enjoyable”).

Percent who felt at ease attending the support group: 100%

Percent who felt at ease asking questions 100%

Number who stated the location & time of day worked well for them to attend (not repeated):

Session 1: 2/2 Session 2: 5/5 Session 3: 1/1 Avg. (%): 100%

Number stating the topic of discussion was helpful (not repeated):

Session 1: 2/2 Session 2: 5/5 Session 3: 1/1 Avg. (%): 100%

Number stating the group facilitator was helpful with the topics discussed (not repeated):

Session 1: 2/2 Session 2: 5/5 Session 3: 1/1 Avg. (%): 100%

Number who plan to return for future support group sessions: 8/8

Number who would recommend the support group to others: 8/8

Number stating their preference for frequency of support group sessions:

Weekly: 1 Twice monthly: 2 Once monthly: 5

Barriers participants listed that have prevented them from attending educational sessions in the past:

- “Schedule”
- “Newly diagnosed”
- “Cost”
- “Nothing” (3 responses)
- “Have attended other groups in the past”

(No response from 1)

Ideas from participants for program improvement:

- “No suggestions –it was fine for me”
- “Wish there were more people here on insulin like me.”
- “Larger group”
- None-it was run very well”

(No response from 4)

Ways participants learned about the support group:

- “From my niece”
- “Phone call” (3 responses)
- “Clinic staff”
- “Flyer at work”

(No response from 2)

Appendix F

Executive Summary for the Implementation of a Diabetes Support Group At City on a Hill Health Clinic

By Shawn Hillman MSN, RN, CDE

November 30, 2015

A pilot diabetes support group was implemented at City on a Hill Health Clinic in October, 2015 for the purpose of determining whether an ongoing support group would be feasible and sustainable in this setting. The patients with diabetes who receive care at City on a Hill utilize the clinic because they do not have the resources or health insurance coverage to utilize conventional health care. The clinic, recognizing the need for diabetes education and ongoing support, implemented a diabetes education program in 2014 and wishes to offer ongoing support in the form of a diabetes support group. The director of City on a Hill Clinic stated that the need for ongoing support is based on what she has observed in patients with diabetes as the ability to self-manage their diabetes if they are given the appropriate education, resources, and can achieve the realization of their own abilities to be successful in managing their disease (C. Plummer, personal communication, September 9, 2014). The director has envisioned that an ongoing support group for patients with diabetes could facilitate patients in developing confidence in their ability to self-manage their diabetes. Although clinic patients are not asked to verify insurance or income, the director has noted that many patients who utilize the clinic claim to have limited resources (C. Plummer, personal communication, September 9, 2014). Individuals of low socioeconomic status are not only at higher risk of developing diabetes, but are also more likely to suffer higher rates of negative outcomes (Madden et al., 2011). Negative outcomes include higher rates of complications such as heart disease, stroke, blindness, kidney

disease, and amputation (American Diabetes Association, 2015).

Purpose and Project Question

The primary question for this project was whether a support group for diabetes self-management targeted to the educational and cultural needs of an adult population without adequate insurance would be beneficial, feasible, and sustainable at City on a Hill Health Clinic. Consideration of the benefits, barriers, and facilitators of the support group from the perspectives of stakeholders including patients, staff, and volunteers helped to answer this question. Also, this project assessed what the operational and financial implications of sustainability of the diabetes support group were from the perspective of the clinic director, staff, and volunteers, and what benefits, skills, knowledge, and confidence in diabetes self-management were gained by patients who attended the pilot group sessions.

Participants were asked for their input regarding the helpfulness of attending the support group in managing their diabetes, the setting, day, and time of day of the support group, and frequency of sessions. The results of this inquiry were shared with professional stakeholders who provided input related to benefits, barriers, facilitators, and the operational and financial implications of continuing a diabetes support group at this site. The expected benefit of sustaining the support group at City on a Hill Health Clinic is to provide a vulnerable group of adults with diabetes an ongoing support system for self-management of diabetes.

Participants

Eight community members participated in this three-week pilot project. Seven participants had diabetes, and one participant was a support person. Also, five professionals including the director, staff, and volunteers provided input in relation to feasibility and sustainability of the support group.

Methods and Materials

This evidence-based project used a one-group pretest-posttest design. The Diabetes Self-Efficacy Scale (DSES) (Stanford Patient Education Research Center, 2015) along with participant and professional surveys designed by the investigator were administered to participants. Bandura's methods (Bandura, 1994) were used to impact self-confidence for diabetes self-management in the short term, and self-efficacy in the long-term. Evidence-based methods were also used for determining feasibility and sustainability; these methods included an early consideration of sustainability factors, organizational support, collaboration with clinic volunteers to promote attendance at the pilot sessions, quality improvement recommendations based on pilot outcomes, and realistic goal setting by participants.

Results

Each of the seven participants with diabetes provided pre-post DSES reports, and all eight participants, along with five professional survey respondents, provided feedback by surveys, contributing to the determination of feasibility and sustainability. No significant change in DSES scores was found. This was not unexpected because the literature implies a minimum of six weeks for an intervention to impact self-efficacy. However, three participants who attended more than one session rated confidence in several skills slightly higher after attending multiple sessions. Support group participants relayed that the sessions were helpful and

enjoyable, and that they learned new information to help manage their diabetes. Participants also noted that the setting, day, and time worked well, and the majority suggested the frequency of monthly sessions. All participants stated they would return to future support group sessions and would recommend the support group to others. Professionals made recommendations for future sessions as well, which are indicated below in the recommendations. They indicated that a support group is feasible and sustainable in this setting, provided there is enough volunteer availability to facilitate the sessions.

Impact

These findings suggest that a support group for vulnerable persons with diabetes in a free health clinic can impact self-confidence for diabetes management, which could lead to improved self-efficacy over time. Findings also indicate that a diabetes support group is feasible and sustainable in this setting. Providing education and support to a vulnerable population with diabetes can positively affect health outcomes for individuals with this chronic disease. This is important because improved health outcomes provide a higher quality of life for those afflicted with the disease, a reduced risk of chronic complications, and reduced healthcare costs. This clinic has experienced the successful implementation of diabetes education classes due to the commitment of volunteers, and the desire of the organization to offer services to vulnerable individuals that would otherwise not be available due to cost. Implementation of a diabetes support group aligns with this mission.

Recommendations

- It is recommended that the clinic offer support group sessions monthly because of the limited number of volunteers to facilitate the sessions, and the preferred frequency noted by participants.

- Based on the importance of volunteer availability to the feasibility and sustainability of the support group, a poll should be taken of current volunteers available and interested in facilitating future support group sessions.
- Volunteers who facilitate the support group should meet prior to initiation of the support group to discuss implementation methods, consistency of the sessions, plan for scheduling, and discuss desired outcome measures to track.
- Professional volunteers and staff suggested that the methods utilized in the pilot support group be implemented in future support groups. Therefore, it is recommended that the investigator of this project meet with volunteers prior to the implementation of the support group for education related to the evidence-based methods used in the pilot sessions.
- One volunteer or staff person should champion the education classes and support group to insure that quality standards continue, that education materials are updated as needed, and that the methods initially used are continued. Ongoing meetings with volunteers involved in the diabetes classes and support group should be scheduled (perhaps quarterly) to evaluate these measures.
- To enhance participation, sessions should be advertised in the community by posting flyers, and by word of mouth in the clinic.
- Incentives to attend the support group sessions do not need to be offered initially. If attendance wanes, or is inadequate for the purposes of the support group, then incentives such as free glucometers and test strips could be considered.

Recommendations for Evaluation

Professional recommendations suggested that tracking of quantitative data including HbA1c levels, blood pressure, weight, and self-efficacy should be considered at future support group sessions. These quality indicators would strengthen the argument for sustaining the support group; however the cost of HbA1c levels and extra volunteer time should be considered.

- Tracking HbA1c levels can be done for participants who regularly utilize the health clinic for their diabetes management, but should not be a routine part of all participants at the support group. Tracking HbA1c levels would require follow-up for levels outside the target range. These levels can be tracked using the HbA1c machine owned by the clinic. Any other labwork could be obtained using outside laboratory services as appropriate.
- Self-efficacy should be tracked using the Stanford Diabetes Self-efficacy Scale (DSES) (Stanford Patient Education Research Center, 2015) at the beginning of initial sessions for each participant, and again after the participant has attended six sessions. Attending fewer than six sessions will not require the DSES to be given.
- Blood pressure and weight can be obtained at each monthly session, and recorded on each individual's record.
- Polling future diabetes clinic patients and support group participants can help to determine that the day and time of the sessions offered are feasible for most to attend.
- Participant surveys after each session could assess quality measures for the content of discussions and methods used to facilitate group discussions.

- The possibility of a lay facilitator should be considered. As future sessions ensue, this potential could be considered by observing participants' involvement over time. The possibility of student nurses or medical students with an interest in working with patients with diabetes could also be considered. These facilitators should be accompanied by a health care professional who has received training in the methods used in this pilot. The professional will be able to answer participant questions that are outside the scope of knowledge of the lay facilitator.
- Future grant funding is suggested to sustain the support group. Potential grant funds could be obtained from organizations who have given grants in the past, or from national organizations that support diabetes-related activities such as Sanofi-Aventis, Eli Lilly, or Novo-Nordisk.
- Future studies are needed to evaluate the effect of monthly sessions on changes in participant confidence and self-efficacy for diabetes self-management. A full pilot study that evaluates changes in self-efficacy after monthly support group sessions could provide data related to the impact of this frequency of sessions on self-efficacy that is not currently available in the literature. Data showing an impact of this nature could help obtain future grant funds for the clinic by showing the value of the support group using evidence-based methods.

Cost Analysis

The cost analysis table shows the value of services and materials and the cost of these items to the organization for one year.

Projected Support Group Costs for One Year (12 sessions)

Program Costs (Essential)	Value per session (yearly cost)	Cost to Organization
Copies/ Marketing	\$2.83 (\$34)	Copies: \$15 No cost to circulate/travel - volunteer time & travel donated.
Materials	\$4.16 (\$50)	No cost; materials donated
Building/Overhead	Cost included in rent	No cost
Professional volunteer (1) RN	\$57.25 (\$687)	No cost; volunteer time donated.
Non-professional volunteer	\$7.42 (\$89)	No cost; volunteer time donated.
Program Costs (Non-Essential)		
Refreshments	\$10 (\$120)	\$120
Guest Speaker (Once yearly)	\$300 (\$300)	No cost; speakers volunteer
Incentives	\$46.50 (\$558)	Meters donated. Strips \$200 (2000#)
Food/Cooking Demo (Twice yearly)	\$25 (\$50)	\$50
Grocery Tour	Value included in Professional volunteer	No cost
Evaluation Costs (Essential)		
Data collection/ Analysis	Value included in Professional & non-professional volunteer	No cost
Evaluation (Non-Essential)		
HbA1c lab tests (5 participants at four times yearly; 20#)	(\$10 each test) \$200	\$200
Weight, BP	Cost included in data collection	No cost
Totals	Essential: \$860 Essential + Non-Essential: \$2,088	Essential: \$15 Essential + Non-Essential: \$585

Note. Professional and non-professional wage/hr based on the Bureau of Labor Statistics (2015) mean hourly wages for registered nurses and healthcare support workers respectively. Mileage calculation based on IRS (2015) standard mileage rates for charitable organizations. Meter strip price charged to clinic: \$5 for 50 strips.

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