Shared Visits for Diabetes: Describing Methods to Control Hemoglobin

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Abstract

Type II diabetes is a serious condition that continues to affect the lives of millions of individuals each year. By the year 2040, an estimated 600 million people worldwide will have type II diabetes. This disease is first diagnosed on millions of patients in their mid-30s through their early 40s. Finding ways to control diabetes early is essential in maintaining health for the diabetic patient (Kahn, Cooper & Del Prado, 2014). The purpose of this study was to describe the medical visits that could provide a patient with options to lower his or her hemoglobin A1C score the most. Some consequences type II diabetics with hemoglobin A1C scores greater than seven percent face are: higher incidences of retinopathy, nephropathy, neuropathy, and even cardiac complications (Shi, Ye, Lu, Wu, Sharma, Thomason & Fonseca, 2013). This study implemented a chart review of hemoglobin A1C scores for patients participating in different medical visit types throughout six months. The most pertinent finding during the literature review expanded on the effect of shared medical visits on type II diabetes patient compliance. Shared medical visits included a primary provider and a supplemental medical team member helping the patient; this practice has been around since 1996 (Ridge, 2012). In this study, a t-test was conducted utilizing the mean scores and differences of the two types of medical visits. The findings described that patients that participated in shared medical visits that included a primary provider with the supplement of a diabetic educator nurse had lower hemoglobin A1C scores after six months.
Introduction

Type II diabetes is a condition that impacts and affects patients all throughout their lives; this disease becomes the catalyst for the decline and deterioration of the body's organs through a number of complications; this disease also becomes an affliction as many patients experience symptoms of type II diabetes in their early to mid-30s and early 40s for the first time (Mynarski, Cholewa, Rozpara, Borek, Strojek & Nawrocka, 2015). The incidences and prevalence of type II diabetes cases have increased at alarming rates within the past few decades. Statistics illustrate that more than 400 million individuals suffer from type II diabetes worldwide; by the year 2040, the number of type II diabetes cases will increase to more than 600 million (Unikrishnan, Pradeepa, Joshi & Mohan, 2017). Diabetes has become the seventh major cause of death as it affects almost 30 million people in the United States (Healthy People 2020, 2018). After understanding the tremendous influence type II diabetes has on an individual, it is vital to recognize that different approaches are required in order to assist in the control of this pandemic.

Both men and women that are in their early to mid-30s and early to mid-40s years old are still in an active stage of life. Many times, individuals in this stage of life are raising a young family and focusing on a career. During this stage of life, many undiagnosed diabetics notice their different initial symptoms of type II diabetes (Kahn, Cooper & Del Prado, 2014). According to Unikrishnan et al. (2017), studies demonstrate that diabetics with concurrent comorbidities place an enormously heavy strain on our healthcare system, therefore, it is vital for our healthcare system and diabetic patients to have a clear understanding on how to battle this pandemic. The point of this proposal was to initiate research on the contrast between shared medical appointments and provider only medical appointments; this research described how the
differing medical appointments could affect patient A1C scores. A shared medical appointment is an expression or term that is used interchangeably with: team-based medical visit. Within this proposal, the terms team-based medical visit and shared medical appointments have been used reciprocally.

**Background**

Team-based visits strategies have been used effectively ever since 1996 to enhance and expand the quality of care to many patients; team-based visits also educate the patient on adjusting different behaviors with positive reinforcement, and rewarding coping mechanisms (Ridge, 2012). Team-based visits have developed into a very successful and efficient way of helping the patient understand the complications of type II diabetes; better patient understanding of diabetic complications is coupled with the rewards of lower hemoglobin A1C scores during many of these visits.

Another consistent dilemma has been the drop and decline in reimbursement of services within the medical field. This inaccuracy of reimbursement has led many primary care providers to spend less time with patients because of high patient demands; studies have extrapolated that a 15-minute visit with a primary care provider is just not enough time to cover many of the gaps in the healthcare for type II diabetics (Stults, Hung, Tai-Seale, McCuistion, Frosch & Cheng, 2016). There are two main issues that continue to be in need of addressing: the crisis of less reimbursement, and the greater, more pressing problem of soaring patient hemoglobin A1C scores. The goal of this study was to describe the patients with type II diabetes and the use of different medical visit models.
Purpose

This study focused on the description of patients’ medical visits for type II diabetics. The purpose of this proposal centered on a sample of 35 to 45-year-old type II diabetic population with a hemoglobin A1C score greater than or equal to seven percent. This study’s main intention was to describe the A1C scores of patients receiving primary visits supplemented with registered nurse educator visits and those patients receiving primary provider visits alone over six months. Results of this study potentially could educate type II diabetic patients on their options in medical visits. Different studies propose that patients participating in shared medical appointments, versus patients participating in an individual medical appointment with no team-based component, could have lower hemoglobin A1C scores due to the vicariously reinforcing and encouraging nature of shared medical visits (Everest, Akhtar, Sumego, Zeizoun, Worley, Tang & Schweiger, 2016). This study could also serve as another medium to further examine the effects of a team-based medical visit on the patient and his or her learning habits.

Literature Review

The organization and retrieval of the literature review included searching the following databases: MEDLINE, DynaMed, and CINAHL. The search terms were "type II diabetes in the middle aged patient," "shared medical visits for diabetics," "diabetes education for type II diabetics," "living with chronic diseases," “living with type II diabetes,” “behavioral theoretical framework,” “theoretical frameworks in nursing care,” and “hemoglobin A1C control for type II diabetics.” There was also an inquiry completed within the websites of various health organizations and associations like: Institute of Medicine, Healthy People 2020, and Quality Safety and Education for Nurses.
For all of the databases, the search was filtered with specifications that included: articles from 2012 to 2018, the filters were also set to show articles in the English language, articles that were fully available online for view, and peer reviewed articles. The query within the websites from a number of health organizations and associations encompassed literature that focused on the significance of the problem of type II diabetes and a hemoglobin A1C score greater than or equal to seven percent.

Articles were summarized by reading the numerous abstracts and electing the most applicable articles for this study. The articles and literature materials were examined for evidence-based research, essential details, recent frameworks that relate to this study, and for other research concerns. This study initiated the continuation of these aforementioned studies in order to more precisely describe outcomes of medical visit choices and options for type II diabetic patients.

**Gaps of Knowledge**

One of the various knowledge gaps presented in this research involved the measured results from the same primary care provider implementing one form of intervention in comparison to the other. Not many clinical trials involve the same primary care provider performing primary care visits alone and also primary care visits supplemented with a diabetic educator as a litmus test for comparison (McCuistion, Stults, Dohan, Frosch, Hung & Tai-Seale, 2014). This was, and still remains, a challenge because different providers reproduce different health outcomes and health strategies for type II diabetics.

Other knowledge gap factors involved the number of studies that described the relationship between team based medical visits and success in lowering A1C scores; another
knowledge gap involved the focus on why shared medical visits work, be it because of the education to the patient or support from the nurse. There were, and still are, few studies that break down the components of the team-based visit that elicits more success in lowering hemoglobin A1C scores; also, there are few studies that could decipher whether these visits are successful because of the external support from the nurse or the education of self-management from the nurse and medical team (Edelman, Geirisch, McDuffie, Oddone, Williams & Williamse, 2015). The studies completed in the past revealed evidence that could relate and generally have supported the proposed study about team-based visits and the impact on the type II diabetics’ hemoglobin A1C scores.

**Consequences of the Problem**

There are numerous detrimental consequences that 35 to 45-year-old patients with type II diabetes and hemoglobin A1C scores greater than or equal to seven percent experience. One of the many consequences is a much higher propensity and incidence of complications due to type II diabetes; some of these complications include: neuropathy, retinopathy, nephropathy, cardiac issues and myocardial infarction (Shi et al., 2013). It is crucial for the patient to acknowledge the many unhealthy and debilitating consequences related to type II diabetes; for this reason, it is also crucial for the patient to adopt healthy lifestyle practices.

Many patients with hemoglobin A1C scores above seven percent encounter more hospital stays due to the many complications associated with type II diabetes (Siu, 2015). Diabetic patients that did not follow-up with a provider, due to minimal support and direction ended up costing the healthcare system sums larger than five times the average healthcare cost per person
(Shi et-al., 2013). The intention of this study was to describe the medical visits that could provide a patient with possible options in lowering his or her hemoglobin A1C score the most.

**Proposed Solutions**

There have been different proposed solutions for the type II diabetes patient populations’ rising A1C scores and medical visits. A proposed solution involves further research dedicated to the investigation of medical visits and any benefits for the type II diabetic patient population when it comes to lowering A1C scores (Hughes, Yang, Ramanathan & Benjamin, 2016). Another proposed solution is to provide education and support that motivates primary care providers to learn more about shared medical appointments for the type II diabetes patient population. Still, another proposed solution is to provide education for the patient and provider describing any benefits of medical visits and compliance. A possible outcome that could arise from studies like this one is providing the primary care providers positive outcomes to reimbursement that medical appointments can provide.

**Theoretical Framework**

This investigation was a study that focused on promoting health for the diabetic patient, helping the patient modify his or her behavior, and changing the patients’ health outcomes. The theoretical framework of this study was most influenced by Nola Pender and her health promotion model. This model was first introduced and proposed in 1982 and later revised in 1996; this model is centered on the different ways a patient's experiences can influence his or her behaviors in respect to promoting health and healthy lifestyle practices; this model introduces four assumptions: individuals want to constantly improve and manage their very own behavior,
individuals change their environments and are influenced by changes in their environments, health professionals influence the interpersonal environment of patients and in essence influence them throughout their lives, appreciating the dynamics of the coexistence between the person and his or her surrounding environment is essential to modifying his or her behaviors (Pender, 1990).

The Health Promotion Model framework introduced by Nola Pender was essential to this study because the education of the type II diabetic patient focuses on health professionals as educators, motivators, influencers and facilitators. The health promotion model also emphasized on the on the environments influence on the patient’s behavior. Finally, this model delineated the importance of the health professional’s role in helping the patient adjust and modify his or her behaviors in order to promote health.

**Methodology**

A proper corresponding data collection method was chosen in order to fully capture the essence of this study. This investigation involved a chart review and the comparison of hemoglobin A1C scores throughout six months. Within the data collection plan there was an implementation of different forms of data that included a retrospective systemic chart review to describe A1C scores from the first and final visit. Different approaches of retrieving information are essential in gauging the proper measures taken in research (Salmon, 2015). The study was supplemented by a data collection form which collected data including hemoglobin A1C scores from first and final visit.
Setting

This study was conducted near North Miami, Florida. The location was a community health systems partner clinic that has served the community for more than 50 years. This clinic is part of a community clinic health system that serves the inner-city population of cities in Palm Beach County, Broward County and Miami-Dade County.

Sample/Sampling Plan

The population sample in this study was comprised of type II diabetic patients from the chosen community health clinic. The patients from this sample of had ages that ranged from ages 35 to 45. These patients had a seven percent or greater hemoglobin A1C score during their last diabetic follow-up visit. The type of sampling implemented in this investigation was a non-probability convenience sampling method. Within the convenience sampling method patients are chosen based on the fact that they are available and have a similarity to the inclusionary or exclusionary criteria (Salmon, 2015). There were 114 out of 235 clinic type II diabetes patients that qualified for this study based on age range and hemoglobin A1C scores. The convenience sampling method was pertinent to this study because it entailed available participants from the clinic that met the inclusion and exclusion criteria. The co-investigator reviewed patient medical records information that included: age and hemoglobin A1C scores to acknowledge if the patient met the criteria for this particular study.

Inclusion-

1. Hemoglobin A1C scores of seven percent or greater since patient’s last diabetic follow-up visit.

2. Patients with ages ranging from 35 to 45 years old and either male or female.
3. Patient had at least one previous follow-up with provider for type II diabetes visit.

**Exclusion**-

1. Hemoglobin A1C scores that are equal to or less than 6.9%.
2. Male or female patients with pre-diabetes, type I or no type II diabetes disease.
3. Male or female patients with ages ranging 1 to 34 years old or 46 years old and older.

**Data Collection Procedures**

The steps for data collection within this study included: determining if the patient met the inclusionary criteria for either type of medical visit, recording hemoglobin A1C score on first visit, and then recording the hemoglobin A1C scores six months after the initial visit. This process was the same for all patients in the study that met inclusionary criteria. All patients within the sample were involved in either the visits that were medical appointments with the provider alone or visits that were medical appointments supplemented with a diabetic educator registered nurse.

**Summary of Findings**

The statistical approach in use for this study was a descriptive analysis. One hundred-fourteen possible patient participants (type II diabetes clinic patients) were analyzed for use in this study and divided into groups: the group that participates in a shared medical appointment within six months, and the group that were followed up by a health care provider without the support of any supplemental diabetic educator registered nurse care for six months. The two values that were compared were the hemoglobin A1C scores after six months for the patients using shared medical appointments versus the patients using a primary provider alone.
The results described the mean scores of hemoglobin A1C scores of shared medical visits with the aid of diabetic educator registered nurse and those of provider-alone visits. For the group of 114 total patients, the average change in A1C scores was a decrease of 0.519. This described that every patient in the sample, which included patients with primary provider visits alone and the group, patients with a primary provider visits supplemented with a diabetic educator registered nurse, had an average decrease in hemoglobin A1C score of 0.5 or nearly half of the hemoglobin A1C percentage point after six months.

Out of the 114 total patients used in this investigation, 67 of the patients had a medical visit with the primary provider supplemented with a diabetic educator registered nurse and 47 of the patients had a medical visit with the primary provider alone. After six months, the data described that primary provider visits supplemented with a registered nurse diabetic educator were lower than the hemoglobin A1C scores for primary provider visits alone. The data reflected that after six months, patients with primary provider visits supplemented with a registered nurse diabetic educator had an average decrease in hemoglobin A1C score of 0.925 or 0.93. This described that for every patient that had primary provider visits supplemented with a registered nurse diabetic educator there was an average drop in hemoglobin A1C percentage of nearly 1.0 percent. The data also reflected that for the patients that had medical visits with the primary provider alone, there was an average increase in hemoglobin A1C score of 0.065.

Conclusions/Recommendations

Type II diabetes is a very delicate condition that requires proper follow-up care. It is essential for the health care provider to offer the patient as many healthcare strategies to the patient as necessary in order to control hemoglobin A1C diabetes. The implementation of
different methods to control hemoglobin A1C lowers the incidence of future diabetes related complications (Everest et al., 2016). This research focused on the description of two types of medical healthcare visits for patients with type II diabetes. This research also focused on the numbers that described the effects of two different types of medical visits: the medical visit with the primary care provider alone, the medical visit with the primary care provider supplemented by a diabetic educator registered nurse.

A t-test was conducted utilizing the mean scores and differences of the two types of medical visits. A statistically significant difference \( p - value = 0.00004 \) was described by this study and the hemoglobin A1C score percentage of the diabetic patients that received a medical appointment comprised of a health care provider supplemented with a diabetic educator nurse compared to diabetic patients that were attended by a healthcare provider alone. There were no other significant differences described within this study. The research findings of this evidence-based study provided further knowledge to the information currently available regarding shared medical visits that include a healthcare provider supplemented by a diabetic educator nurse in order to decrease hemoglobin A1C scores. Based on the findings of this study it was suggested that a primary health care provider attending a type II diabetic, should advocate and promote the implementation of shared medical visits that are supplemented with a diabetic educator nurse. It was also recommended that primary care providers educate the patient and promote the advantages of lowering hemoglobin A1C percentage scores by having the supplementation of a diabetic educator nurse in a shared medical visit.

This study was completed at a single site which included diabetics between the ages of 35 and 45 with a hemoglobin A1C score of seven percent or higher. The exclusions to this study included: a patient younger than 35 years old or older than 45 years old, a patient that did not
have type II diabetes and a patient with a hemoglobin A1C score of less than seven percent. There were no other exclusions to this study.

The findings to this study described the lowering of A1C scores of shared medical visits that included a primary health care provider supplemented by a diabetic educator nurse. Diabetic patients that were treated and seen by a provider with the supplementation of a diabetic educator nurse described a significantly lower hemoglobin A1C score after six months.

Future research that expands the inclusion criteria to patients that have hemoglobin A1C scores lower than seven percent can be beneficial for patients that have pre-diabetes and therefore could help lower the instances of pre-diabetics becoming diabetics by lowering their hemoglobin A1C scores even lower. This study described the research question: “In 35 to 45-year-old patients with type II diabetes mellitus and a hemoglobin A1C score equal to or greater than seven percent, what is the effect of primary provider visits supplemented with registered nurse diabetic educator visits in comparison to primary visits alone on the patients’ hemoglobin A1C scores over six months”. Data obtained by this study supported the implementation of primary providers’ visits supplemented with registered nurse diabetic educators.
References


