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Systematic Review of Loss-Frame Messaging and Change in Health Behavior

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Walden University
2020

Abstract

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Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Recent analysis estimates Type II diabetes affects 23.4 million people in the US. Approximately 30% of these patients are not in optimal control of their diabetes, raising risks for blindness, amputation, and cardiac disease. A gap in diabetes education practice is that traditional positive-framed messaging has not persuaded many patients to modify their self-management behaviors. There is a need for alternative ways to communicate the risks of not managing the disease to patients who may have different health beliefs. The purpose of this systematic review was to examine the best available evidence regarding the efficacy of loss-frame messaging when used by healthcare educators in changing health behavior. The guiding practice-focused question identified evidence from the literature showing how loss-frame messaging can improve the Hemoglobin A1C level in patients with diabetes type II. The goal was to help providers determine the type of messages that will best assist their patients in achieving good glycemic control. A systematic review of the literature utilizing the Johns Hopkins nursing evidence-based practice model yielded less than 20 articles specifically comparing gain and loss frame messaging for patients with chronic disease. A majority reported higher rates of behavioral change with positive-framed messaging. Only one had higher rates with negative-framed messaging. The lack of evidence points to the need for further research to investigate use of loss-framed messages in patient education for the patient population with type II diabetes. Further study is needed to promote positive social change in patients with type II diabetes

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Dedication

I would like to dedicate this work to my incredibly supportive husband, Stan Simmons who has been my constant from the beginning to the end of this work. You have made me smile when it was hard, and I wanted to quit and encouraged me every step of the way. To my mother, Betsy Council who has always been there as a sounding board and a loving encourager and blessing. Thanks for your calm and sweet spirit that guides me and grounds me.

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Table of Contents

Section 1: Nature of the Project

Introduction

Diabetes mellitus is a chronic illness that affects the lives of many individuals. type II diabetes has increased so much that it is not considered only a medical problem, but a societal problem of international proportions (Herman, 2012). The potential health threat posed by poorly managed diseases pushes healthcare providers to seek creative ways to encourage patients to manage their illnesses and achieve better healthcare outcomes. Positive messaging positive has been shown to be an important means to promote desired health behaviors (Godinho, 2016). The purpose of this systematic review was to examine the best available evidence regarding loss-frame messaging to promote change in the health behaviors of patients with diabetes Type II in the Kimbrough Ambulatory Care Center. Healthcare providers need to be aware of the value of messaging as an instrument of change to help individuals with type II diabetes perceive the value of embracing new patterns of behavior.

When individuals make health decisions that are important to their future health and safety, they may have regrets if the decisions they make turn out to result in their suffering a loss. Previous information about loss-frame messaging related to substance abuse and smoking may provide insights into whether anticipating regret decreases risky behaviors and promotes precautionary behaviors. Koch (2010) said that anticipated regret generally predicts behavioral intentions which then influence health and safety behavior.

The goal of the project is to provide nurse practitioners and diabetes health educators evidence that loss-frame messaging may be appropriate for improving self-care behaviors in patients with diabetes. If loss messages about complications of diabetes can motivate individuals who have type II diabetes to intentionally make changes to improve glycemic control, there should be measurable improvements in HgbA1c levels and stability of the disease. This stability should result in improved outcomes for the Type II diabetic patient population at a large military primary care clinic in northeastern United States with diabetes type II, resulting in positive social change for patients, families, and communities. Improved self-management skills, and improvement in the HgbA1C levels of individuals with type II should improve use of health resources because of improved compliance.

Problem Statement

The projections over the next 40 years estimate the total diabetes (diagnosed and undiagnosed) will increase from the current 1 in 10 adults to 1in 5 and to 1 in 3 adults in 2050 (Boyle, 2010). The expenditures associated with poorly controlled diabetes costs the U.S. are approximately $174 billion annually (Boyle, 2010). Recent analysis estimates diabetes prevalence in 2017 in the United States to be 30.3 million people (9.4% of the population of the U.S.) with 23.1 million diagnosed cases and 7.2 million people undiagnosed (CDC, 2020) numbers are based on a representative sample of the noninstitutionalized population. The long-term effects of poorly controlled diabetes are taking a toll on individuals, families, and society economically. The costs associated with

caring for diabetes are both direct and indirect costs that are borne by affected individuals, their families, and healthcare authorities. Estimated costs of $174.4 billion in higher medical costs and lost productivity were reported in 2007 (Singh, 2013). Assisting those with this illness to understand how to achieve optimal glycemic control improves chances of patients avoiding long-term health complications.

Messaging is very important because it is a theoretically grounded health communication strategy designed to motivate action by emphasizing the benefits of engaging in a particular behavior (gain) or the cost of failing to engage in the behavior (losses) (Gerand, 2011) Framing the message to increase the likelihood of an individual with diabetes type II adopt a behavior promotes health efficacy. Health message framing is an important aspect of health communication. Researchers have sought to identify the contexts in which loss-framed and gain-framed messages are most likely to motivate healthy behavior (Updegraff, 2013). For example, the use of loss-frame messages proved effective to change behavior in heavy drinkers and underage drinkers by motivating the drinker to stop drinking (Quick, 2010).

To achieve long-term behavioral health changes, messages must be framed in an understandable and acceptable format. Patients with diabetes type II who read loss-framed messages sustained long-term behavioral benefits. Testing blood sugar levels and embracing the education information of self-management improved the overall knowledge of managing their illness.

This study takes place in a large military primary care clinic in the northeastern United States has a patient population of approximately 900 patients with type II diabetes. All the patients have received traditional diabetes education as part of their care after diagnosis, and this is reinforced during ongoing treatment. Despite this education, 30% of these patients are not in optimal control of their diabetes and have hemoglobin A1C levels that are greater than the optimal control 4-5.6 mg/dl. Many patients are between the ages of 45 and 75 and are active duty, retirees, or family members of military service members. Patients in military treatment facilities have relatively stable incomes and access to free medical care, as active military are covered by military healthcare insurance, as are individuals who are retirees or family members of a retired military. Military retirees and their family members pay a minimal annual premium for healthcare received. Traditional diabetic education is received during the initial diagnosis of diabetes through an individual session with a diabetes educator. Most education occurs immediately after diagnosis, either on the same day or within a week of diagnosis. The patient is shown the defining characteristics of diabetes, medication teaching, blood glucose monitoring, dietary teaching, information on exercise and its effect on blood glucose, foot care, and potential complications.

This clinic has a significant number of patients who have been educated repeatedly with materials that focus on the use of positive messaging or positive aspects of changing health behaviors which assist in managing diabetes. Despite this, many

patients choose not to change their eating and exercise habits, often citing family members who have diabetes who do not have dire health issues

When the illness is not managed properly, individuals are at risk for diabetes complications such as diabetic neuropathy, retinopathy, nephropathy, heart disease, amputations, and an array of other health-related comorbidities. Diseases the individual with diabetes have higher risk of developing include tuberculosis, severe gram-positive infections, hospital acquired postoperative infections, urinary tract infections and tropical diseases compared with individuals without diabetes (Harding, 2019). Increases in diabetes prevalence contribute to macrovascular complications of diabetes that include peripheral vascular disease, coronary artery disease, stroke, and microvascular complications such as end-stage renal disease, retinopathy, and neuropathy, as well as lower extremity amputations (Harding, 2019). Overcoming the complications of microvascular and microvascular diseases like renal failure, blindness, or amputation puts an added burden on the physical, psychological, and emotional health of individuals who have diabetes.

Nurses practicing in diabetes care could benefit from additional information regarding the structure of messaging and its importance in communicating with diabetic patients. The focus of nurses in terms of helping patients achieve diabetic control through self-care must include empowering patients to make choices and gain self-confidence. The goal of empowerment in terms of care of diabetes is to facilitate self-directed

behavior changes among patients so they gain mastery of their disease (Hornsten, Lundman, Almberg, 2008).

This DNP project addresses the needs of patients with diabetes and how messaging can affect the self-care behaviors of this population. The ability of patients to effectively manage their care has a significant impact on glycemic control. Education about how to care for oneself relies heavily on individuals having a working knowledge of self-care behaviors. Loss-frame messaging may be another way to assist patients to address improving self-care. Improving gaps in patient knowledge and self-care behaviors for patients with this chronic illness can reduce complications associated with the illness.

Purpose Statement

A gap in practice in diabetes education is that positive-framed messaging does not persuade many patients to modify their self-management behaviors. Nurses have a need for alternative ways to communicate the risks of not managing diabetes to patients who may have different health beliefs. The purpose of the systematic review is to examine the best available evidence on loss-frame messaging and its efficacy when used by healthcare educators in changing health behaviors. The goal is to help providers determine the type of messages that will best assist their patients to achieve good glycemic control. When providers are aware of the types of messaging that promotes behaviors, they can be successful in replicating the same behaviors and adjust teaching methods to include messages that help to achieve optimal healthcare goals.

The guiding practice-focused question is: What is the evidence from literature regarding how loss-frame messaging improves the Hemoglobin A1C of individuals with diabetes type II?

The ability to self-manage is the cornerstone of care for all individuals with diabetes. Shrivastava noted the ADA reviewed the standards of diabetes self-care and found that complications from diabetes were increased fourfold when individuals diagnosed with diabetes did not receive formal education about their disease management (Shrivastava, 2013). Regardless of the teaching program, many individuals do not comply with the instructions given for their diabetes management. It is challenging to do daily testing, manage food choices, take medications, and exercise. Traditional diabetes education in this site is paper-based, with visuals using a gain-framed message. Gain-framed messaging accentuates what the patient with diabetes will gain by being compliant to instructions for self-care. Examples would be better glycemic levels, better weight management or improved knowledge of self-care.

Nature of the Doctoral Project

This scholarly project is a systematic review of literature on loss-frame messaging and health behavior. Formal systematic reviews of literature can provide evidence, and synthesis of this evidence may provide health educators insights into the use of loss-frame messaging for health behavior change. The review will include those articles with loss-frame results, as these can assist in a deeper understanding of the population with diabetes type II, approach, and potential bias. The loss-frame message refers to the

convincing strategy to underscore cost or the punishment associated with noncompliance with the message provided (Shen, 2012). The review will include or randomized controlled trials, nonrandomized controlled studies, prospective and retrospective cohort studies, case-controlled studies, and analytical and cross-sectional studies for inclusion. The literature review will include scholarly peer-reviewed articles from CINAHL, Medline and PubMed, PsycInfo (Ebsco), ProQuest Public Health, Health Management, and Google Scholar. Key words include *diabetes*, *education, frame-messaging*, *self-care,* and *complications, and hemoglobin A1C*. The literature review will focus on full text articles published since 2014 in English. Gul (2010) noted that education is the cornerstone of diabetes care. He noted the lack of awareness of self-management caused patients with diabetes to suffer from the complications of diabetes. In his descriptive study of 100 patients between the ages of 50 and 69, a convenience sample of patients with diabetes at the Department of Medicine, Khyber Teaching Hospital Peshawar, Pakistan were interviewed using a structured questionnaire. The questionnaire was designed which was pilot tested on 10 diabetic patients in the same hospital to assess suitability of content. The questionnaire revealed that patient knowledge of diabetes was low. The mean of correct answers for glycemic control, risk factors and complications were 33.5%, 69%, and 39% respectively. Only one-sixth of all the patients could correctly answer questions regarding nutrition and only 61% of the patients regularly checked their blood sugar. Only 11% thought annual visit to the ophthalmologist was important. Ninety-two percent recognized blood pressure as a risk factor while the

correct answers for hyperlipidemia, cigarette smoking, sedentary lifestyle and body weight were 42%, 70%, 76% and 66% respectively. He concluded the knowledge by the subjects in his study of their diabetes, attitude, and practice scores were low, emphasizing the need for patients with diabetes for more or different educational efforts (Gul, 2010).

Wansink & Pope (2014) said achieving normal blood sugar levels prevents patients from developing blindness, heart disease, amputations, renal disease requiring dialysis, stroke, and a myriad of chronic disease complications. Education intervention and follow-up initiatives are constructed to further educate and support individuals' efforts to maintain improved glycemic control. Patients who had extensive teaching about diabetes management and are very skilled in terms of self-management of their disease show signs of difficulty over long periods of time maintaining optimal glycemic control.

Maberry and Osborn (2012) said that most diabetes intervention trials focus on supporting individual learning and do not promote educating and engaging families as part of process outcomes. Teaching self-management without stressing the need for behavioral change does not result in sustaining optimal glycemic control. Interventions should inform family members about diabetes to prevent sabotage efforts from non-supportive family members (Mayberry 2012). Cyrino (2009) said that despite a positive relationship between improved glucose control and decreased risk for complications, many studies including some with more clinical orientation have reported enormous difficulty in attaining rigorous blood glucose control with day-to-day self-management (Frewer, Salter, Lambert, 2001; Wolpert, Anderson, 2001).

Approach

Inclusion criteria for this systematic review include studies with adult patients with diabetes mellitus, use loss frame messaging, and include outcomes of diabetes mellitus control as related to HgbA1c results. Studies were excluded that involved juvenile diabetes. Studies that did not address messaging and outcomes based on messaging, or that had limited validity and reliability were also excluded. The literature search for the systematic review involved primary sources and peer-reviewed studies as well as systematic reviews of patients with diabetes mellitus who are taught self-care.

Evaluation of the literature included answering key questions regarding outcomes of the study as related to diabetes self-control. With the review I was able to gain information about sample sizes, any methodology limitations. A systematic review was organized using tables to identify levels of evidence. The Johns Hopkins nursing evidence-based practice model was used to identify evidence and the quality of the studies of this research project. The Johns Hopkins evidence-based practice model was used because it guides the evidence-based practice appraisal of evidence by structuring evidence at varying levels and quality. The rating hierarchy for level of research evidence are level I, II, and III. The underlying assumption is that recommendations from higher levels of evidence of high quality would be more likely to represent best practices (Dang, 2018). A summary of the strengths and weaknesses of the existing literature was a part of the literature analysis.

Significance

Stakeholders for the project included executive staff leaders, providers, patients, and patient family members. Providers include physicians, nurse practitioners and nursing staff, dieticians, physical therapists, pharmacists, and podiatrists. Potential contributions of the project are evidence-based improvements in messaging that can improve glycemic control for patients with diabetes. Improvements in glycemic control among those with this chronic disease can prevent costly complications that debilitate and cause more morbidity and mortality in this patient population.

The project addresses a gap in diabetes education regarding motivation of patients to prevent complications and achieve and maintain optimal health as it relates to glycemic control and diabetes mellitus. There is a need for patient educators to look at the effects of the use of loss-frame messaging and the results that specific messages have in terms of changing patient self-care behaviors. If loss messages regarding complications of diabetes can motivate individuals to intentionally make changes to improve glycemic control, there should be measurable improvements in terms of HgbA1c levels and stability of the disease. This should result in improved outcomes for the diabetic patient population, resulting in positive social change of improved glycemic control resulting in less economic and health challenges for patients, families, and communities.

The costs associated with diabetes complications are approximately $100 billion annually in the United States (Flemming, 2009). Those costs impose an increasing economic burden on national health care in the United States. The total number of people

with diabetes mellitus in 2015 was estimated to be 415 million worldwide and is projected to rise to 642 million people by the year 2040 (Mayo, 2016). There are an estimated additional 318 million people with impaired glucose tolerance that places them at risk for developing diabetes (Mayo, 2016). The most important demographic change to diabetes pervasiveness is the anticipated increase in persons aged 65 and older who will be affected by diabetes mellitus. (Wild, 2004). More than 25% of the U.S. population aged ≥ 65 years has diabetes, and the aging of the overall population is significant driver of the diabetes epidemic (Kirkman, 2012). Type II diabetes overwhelmingly the most common incident and prevalent type in older age group. Older adults also have a high-risk developing diabetes type II because of the effects of increasing insulin resistance and impaired pancreatic islet function with aging (Kirkman, 2012).

A positive social change outcome is that alternative educational messaging can help improve the physical, psychological, and emotional health of those who have diabetes. The aim is to avoid the complications of microvascular and microvascular diseases like renal failure, blindness, or amputation. Financial burdens on the patient, family, and society from the complications of the disease must be addressed for individuals with diabetes to prevent long-term disabling outcomes. There is an urgency to translate diabetes education into a format that motivates better patient self-care management through an understanding of the gravity of complications that result from poorly managed diabetes.

Summary

Diabetes education contributes to patient self-care management of the disease. Poor self-management can result in complications such as renal disease, vascular insufficiency, and vision loss. As noted by Formosa (2012) research indicates that 50-80% of people with diabetes worldwide have significant knowledge deficits in relation to the management of their diabetes. This project sought to systematically evaluate literature regarding the use of loss-frame messaging as a tool for changing health behavior. This information can assist nurses and diabetic educators in developing individualized approaches to education. Section 2 will provide information on the concepts, theories, and models underpinning this study, its relevance to nursing practice, local context, and roles of the DNP student and project team.

Section 2: Background and Context

Introduction

Diabetes mellitus is a chronic illness that affects the lives of many individuals. The potential health threat posed by poorly managed diseases pushes healthcare providers to seek new creative ways to encourage patients to manage their illnesses and achieve better healthcare outcomes. Type of messaging has been shown to be an important means to promote desired health behaviors. The purpose of this systematic review was to examine the best available evidence on loss-frame messaging and its efficacy when used by healthcare educators in terms of changing health behavior to maintain glycemic control among diabetic patients. The guiding practice-focused question is: What is the evidence from literature regarding how loss-frame messaging improves the HgbA1c level of individuals with type II diabetes?

Understanding how messaging relates to changing health behaviors can provide additional insights and tools regarding educational messaging for patients with diabetes and other chronic illnesses requiring self-management. This section will provide information on the concepts, models, and theories behind this project, the relevance to nursing practice, local background and context, and the role of the DNP student and the project team.

Concepts, Models, and Theories

The signs and symptoms of end stage complications of diabetes often are not apparent until the situation meets grave consequences such as blindness, renal failure, or

amputation (Papatheodoro, 2015). Hyperglycemia, a common characteristic of both type 1 and type 2 diabetes mellitus, has a potential to cause serious complications due to its insidious and chronic nature (Papatheodoro, 2015). In the absence of symptoms, patients do not always understand the gravity of health issues related to diabetes mellitus and complications. Patients with diabetes often only act once the disease has caused significant damage to microvascular and macrovascular systems. Delays in effectively managing diabetes can leave the individual with diabetes at risk for developing the long-term complications of blindness, renal failure, amputations that occur with prolonged hyperglycemia.

Conceptual Models and Theoretical Frameworks

The prospect theory was selected as the theoretic framework for this study. Prospect theory proposes that people reading or receiving messages are sensitive to how messages are framed, and message framing can offer a new approach for increasing a desired behavior (Tversky & Kahneman, 1981). Prospect theory has three tenets: people making choices evaluate the choices relative to a reference point, e.g., the status quo; people are risk adverse about seeking gains but risk seeking about information on losses. Loss-aversion: losing x hurts more than gaining x helps. In prospect theory people tend to avoid risks when considering gains and prefer risks when considering losses (Marsh, Malik, Shapiro, Omer, & Frew, 2014). This means if you think you will be rewarded you are more willing to take a risk. You are less willing to take risks if you might lose something. The work of (Rothman, 1997) and colleagues on message framing tested

prospect theory predictions of how the description of test outcomes as gains or losses can affect test rates. The work of Rothman & Salovey (1999) addressed the conceptualization of the purpose of the test as preventative vs. diagnostic and the perception of whether the test was safe or risky. Rothman, Bartels, Wlaschin (2006) theorized that message framing predicts when a procedure is perceived as risky (i.e., cancer screening tests may cause a patient to discover he has cancer). Loss-framed messaging will promote testing more strongly than gain-framed messages because people favor risky prospects over sure prospects in the domain of losses. Alternatively, when a procedure is perceived as safe (e.g. sunscreen prevents sunburn and skin cancer), gain-framed messages are predicted to be more effective because people prefer sure prospects to risky prospects in the domain of gains.

Loss-message framing should show patients with diabetes who do not regularly perform self-care behaviors will have elevated HgbA1c levels and experience long term complications due to elevated glucose levels. Alternatively, those performing self-care behaviors to manage diabetes will reduce their HgbA1c levels and decrease incidence of complications related to elevated blood sugar levels. Educational efforts are focused on promoting self-care behaviors that improve the HgbA1c level to 7 or below.

Relevance to Nursing Practice

This systematic review can enhance nursing knowledge about messaging in patient education, particularly for those with type II diabetes and other chronic diseases that require patient self-management to effect desired results. Low levels of physical

activity and fitness and obesity are major, independent, and modifiable risk factors that affect the development of insulin resistance, metabolic syndrome, and type 2 diabetes (Baker, Simpson, Lloyd, Bauman, & Singh, 2011). Keeping individuals active and willing to achieve an ideal body weight through eating a healthy diet is the key to successful maintenance of a normal body mass index (BMI) and a hemoglobinA1c of less than seven.

Kandula and Wynia (2015) health communication experts looked at educators use of messaging to appeal toa patient for health behavior change. Fear appeals were noted to create an emotional reaction to a threat of the disease, disability, or death which motivated behavior change. Fear can be a powerful motivator and frightening facts, or images capture the attention of an audience (Simpson, 2017). The ethical concerns revealed over the last 50 years of fear appeals research (LaTour, Snipes, & Bliss, 1996) shows fear appeals are effective. However, fear appeals have been criticized as being unethical, manipulative, exploitative, eliciting negative and unhealthy responses from viewers and exposing viewers to offensive images against their will. However, despite the resistance from some researchers of use fear tactics, fear tactics have been used to motivate individuals to modify or adopt recommended behavior in cases such as anti-smoking, hypertension awareness, and anti-drunk driving campaigns (Simpson, 2017).

Examples of fear messages used in health education in 2002 on cigarette packages accompanied by commercials on television and radio. When polled nationally, the results showed a decrease in smoking because of the warnings (Ruiter, 2014). Fear may be

utilized with an adaptive way by the exhibition of a response that removes the fear in the case of a smoker, by quitting smoking. Brown and Richardson (2012) concluded that fear messaging can elicit the response desired to avoid risky behavior. In the case of the patient with diabetes, the desired response is to have the patient become confident in their abilities to perform behaviors that will help them control the disease and avoid complications associated with prolonged blood sugar elevation.

Tannenbaum, Hepler, and Zimmerman (2015) studied the use of fear appeals and noted that fear appeals are effective in prevention/detection behaviors. The Meyerowitz & Chaiken, study (1987) found that loss-framed messages should make an individual more receptive to fear appeals because it causes the patient to be more willing than usual to take on the risk of the detection behavior. Examples of loss-frame message studies include intentions of African American women to participate in health-related research (Balls-Berry, Hayes, Parker, Halyard, Enders, & Albertie, 2016), and anti-alcohol messages (Simpson, 2017) colorectal cancer screening (Lucas & Hayman, 2015).

Nursing Interventions

Examples of the use of a messaging may include breast self -exam and utilization of fear appeals. Fear appeals should be effective for both detection and prevention/promotion behaviors, they should be particularly effective for detection behaviors because the loss-framed nature of the message should make people more willing than usual to take on the risk of the detection behavior (Tannenbaum, 2015).

Individuals who reported the healthiest flossing behavior in the study were identified as avoidance-oriented individuals who were given a loss-framed message (O'Keefe, 2017).

Hwee et al. (2014) said that group self-management education was associated with fewer acute complications and showed improvements in the processes of care. The facilities felt that the group education process was less resource intensive and provided better prospects to improve patient care. Because self-care plays an important role in diabetes mellitus control education plays a significant part in achieving that control. The types of behaviors that are needed to ensure glycemic control is within healthy levels includes patients paying attention to the self-monitoring of blood glucose (SMBG). Self-monitoring of glucose has been identified as an essential factor of diabetes self-management and affords the individual with diabetes the chance to make needed decisions to effectively manage the disease. Controversy exists about the value of SMBG for type II diabetes who are not treated with insulin. Teaching all people with type II diabetes to perform SMBG provides them an opportunity to apply the skill to their needs and learn behaviors that are beneficial to control of their disease and make behavioral changes that are beneficial to disease management (Cypress & Tompky, 2013)

Local Background and Context

This systematic review was conducted in my home office and was motivated by my work in a large military primary care clinic in the northeastern United States. The patient population has approximately 900 patients with Type 2 diabetes. All the patients have received traditional diabetes education as part of their care after diagnosis and

ongoing treatment. Despite the education, 30% of the patients are not in optimal control of their diabetes and have hemoglobin A1C levels that are greater than 7.

Definitions of Terms

Diabetes Mellitus (DM): DM is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action or both. The chronic hyperglycemia of diabetes leads to long-term damage, dysfunction, and failure of various organs, especially eyes, kidneys, nerves, heart, and blood vessels (ADA, 2006, p. S43). *Loss-Frame Messaging:* Message framing refers to the convincing strategy either to underscore benefits or rewards from compliance with the message advocacy (i.e. the gain frame), or to emphasize the costs and punishments associated with noncompliance (i.e. loss frame; Shen, 2012).

Systematic Review: A systematic review is a methodology that finds existing studies, selects and evaluates contributions, analyses and synthesizes data, and reports the evidence in a way that allows reasonably clear conclusions to be reached about what is and is not known. A systematic review is not regarded as a literature review in the traditional sense, but as a self-contained research project that explores a clearly specified question, ordinarily derived from a practice problem, using existing studies (Denyer & Transfield, 2009).

Role of the DNP Student

My professional aim as the nurse completing the project was to ascertain what type of messages might be used to effect the change desired to achieve improved control

of the of diabetes mellitus. I sought to understand what the review of the evidence reveals about the use of loss frame messaging and its use to change the health care behaviors of patients diagnosed with diabetes mellitus. Evidence-based research can provide the information needed to design meaningful education interventions. That information can assist patients who must live with the chronic illness make health care decisions daily that will affect future health and wellness. The current issues at the facility where the project is needed are related to large numbers of the patient population having elevated HgA1C levels. This requires a change in practice that can yield better outcomes for beneficiaries who have a diagnosis of diabetes. The performance measure developed by the Center for Medicare and Medicaid (CMS), the National Committee on Quality Assurance (NCQA), and American Diabetes Association in 1995 produced evidence that controlling Hemoglobin A1C, blood pressure, and LDL, cholesterol reduced complications of diabetes (O'Connor, 2011).

Role of the Project Team

I will be presenting the results of the scholarly review along with recommendations to the diabetes education and management team, which consists of the diabetes educators, nurse practitioners, physicians, registered nurses, and licensed practical nurses. The executive team, which includes the hospital commander and three deputies, will be invited as well as the HEDIS Coordinator, Quality Improvement Coordinator, and dieticians for consideration of a pilot project. Changing the education process and utilizing the loss frame messaging format can be an option for achieving the

health care goals of the organization. The nurse colleagues in the facility are invited because many have expressed a desire to return to school for further education. This presentation will be an opportunity to show them the type of project that may be a catalyst for ideas they have for research projects.

Summary

Diabetic educators and others who facilitate diabetic care need additional options for patient motivation in self-care management. There are many models that look at educating individuals with diabetes. The current model for the type II diabetic population includes group visits that integrate both group education and a health provider office visit. This model has not resulted in consistent statistical improvement in the HgbA1c, lipids or blood pressure. The initial literature search revealed that the use of loss frame messaging may enhance patient willingness to participate in their own self-care management. Section 3 will detail sources of evidence, the method for evaluation of the literature, and analysis and synthesis. Section 4 will present the findings.

Section 3: Collection and Analysis of Evidence

Introduction

Diabetes Mellitus is a chronic illness that affects the lives of many individuals. The potential health threat posed by poorly managed disease pushes healthcare providers to seek new creative ways to encourage patients to manage this illness and achieve better healthcare outcomes. Type of messaging has been shown to be an important means to promote desired health behaviors. The purpose of this systematic review was to examine the best available evidence on loss-frame messaging and its efficacy when used by healthcare educators in changing health behavior. The guiding practice-focused question is: What is the evidence from the literature regarding how loss-frame messaging might improve the Hemoglobin A1C in the individual with type II diabetes? Understanding how messaging relates to changing health behaviors can provide additional insights and tools regarding educational messaging for patients with diabetes and other chronic illnesses requiring self-management. The information in the Walden University Systematic Review Manual was the guiding source for the capstone project.

Sources of Evidence

The literature review was accomplished with scholarly peer reviewed articles from CINAHL, Medline and PubMed, PSYInfo, ProQuest Public Health, Health Management, and Google Scholar. Key words included *diabetes, education, frame-messaging, health belief models, self-care,* and *complications*. The focus was on full text articles published since 2014 in English. The preferred reporting items of systematic

reviews and meta-analyses) PRISMA checklist provided checklist items to guide performance of the systematic review and was used to guide the project.

Analysis and Synthesis

This scholarly project was a systematic review of literature on loss-frame messaging and health behavior change. A systematic review is a type of methodology that involves finding existing studies, selecting and evaluating, analyzing and synthesizing data, and reporting the evidence in a way that allows reasonably clear conclusions to be reached about what is and is not known. A systematic review is not a literature review in the traditional sense, but a self-contained research project that explores a clearly specified question, ordinarily derived from a practice problem, using existing studies (Denyer & Transfield, 2009). Formal systematic reviews of the literature can provide insights into the educator's use of loss-frame messaging for health behavior change. Each article was reviewed initially by reading the abstract to determine if it was appropriate for inclusion. Inclusion criteria for the systematic review involved studies with adult patients with diabetes, use of loss-frame messaging, outcomes of diabetes control, and were English only full text. Studies that did not address messaging were excluded.

The final synthesis of the research articles was based upon key information regarding the authorship, funding, research design, validity and reliability of the design and conclusions, and limitations. The Johns Hopkins nursing evidence-based practice individual evidence summary was used as the model for my synthesis process (Dang &

Dearholt, 2018). The Johns Hopkins nursing evidence-based practice checklist uses a rating scale to assist the researcher to do a critical appraisal of the evidence in the research articles. The rating hierarchy for level of research evidence ranged from level I, II, and III. The underlying assumption is that recommendations from higher levels of evidence of high quality would be more likely to represent best practices (Dang, 2018). Research articles that had poor design and limited validity and reliability were excluded from the final review. The Grady study utilized for validity and reliability analyses of variance (ANOVA), with framing as a between-subject factor (two levels: gain-framed and loss-framed) and inventory items as levels of a within-subjects repeated-measures variables (items: demographics 12 items; attitudes, 10 items; knowledge, 17 items; behavior, 15 items). All four ANOVAs yielded a nonsignificant main effect of framing. It was therefore concluded that no preexisting differences existed between the two framing groups. Twelve variables were tested using regression analysis and the regression analysis model predicted behavior changes prior to message exposure ($p <$. 001) and 3 months ($p <$. 001) after message exposure. Face validity was supported by an endocrinologist, a medical surgical nursing professor, and a diabetes educator for the first instrument which obtained an item reliability of 0.87 and an item separation of 2.56 from Rasch analysis, which established its reliability. I evaluated the articles by examining how the instruments were designed and using the standards established in Grove's Practice of Nursing Research. The project question identifies a gap in knowledge regarding the education of patients with diabetes using loss-frame messaging. Because

there is very little research about the use of this methodology, loss-frame messaging, to educate the patients with diabetes, the Johns Hopkins evidence based practice model guidelines for evaluating research provided guidance to determine the level of evidence reviewed for the systematic review project. The Johns Hopkins evidence-based model provides the criteria to properly determine the level of evidence and the methodological quality of the evidence to draw conclusions about the findings. The process allows for the synthesis of the evidence and translation of the findings into practice (Dang & Dearholt, 2018).

The analysis of the systematic review articles included key findings, populations, description of the messaging approach, evaluation tools, and outcomes. Additionally, the aim of the systematic review was to determine how loss-frame messages changed outcomes for the problem of diabetes investigated. My hope that this review will lead to a suggested intervention that can be piloted with noncompliant diabetic populations at this KACC primary care center.

Summary

Current education of patients in diabetic self-management has been ineffective with over 30% of the population military primary care study site. Changing health beliefs involves complex processes. There is evidence that loss-frame messaging offers some positive benefits, but there is little in the literature that addresses the use of this approach in diabetes education. This systematic review is designed to provide insights for nurses

and diabetic educators regarding different approaches in messaging for diabetic education. Section 4 will provide the details of this systematic literature review.

Section 4: Findings and Recommendations

Introduction

Efforts are needed to decrease the physical and financial costs associated with treating type II diabetes self-care management is essential to controlling diabetes, requiring a new discipline regarding consumption of food and beverages, exercise, and attention to monitoring to prevent complications. A review of the various theoretical health belief models (Lewin, Atkinson, Rotter, Edwards,) suggests that different types of messaging may be more effective than what has comprised traditional diabetic teaching (Maiman, 2016). It is incumbent on healthcare professionals to seek innovative ways to educate patients to perform self-care. Nurses practice in a range of clinical settings and can initiate message-framed videos to enhance standardized education to patients with diabetes to encourage self-care.

The purpose of this systematic review was to examine the best available evidence on loss-frame messaging and its efficacy when used by healthcare educators. The goal was to help providers determine the types of messages that will best assist their patients to achieve good glycemic control. When providers are aware of the types of messaging that promote positive health behaviors, they can adjust teaching methods to include messages that achieve optimal healthcare goals for individual patients and families.

The guiding practice-focused question was: What is the evidence from the literature regarding how loss-frame messaging might improve the HgbA1c level of persons with type II diabetes? The prospect theory was used as the guiding focus for the

capstone project. According to the prospect theory, all health information can be interpreted in terms of either benefits or costs, and people can be responsive to whether a behavioral alternative is framed as emphasizing its potential benefits or advantages (gain-frame) or potential risks or disadvantages (loss-frame; Satia, 2010). Loss-framed messages state benefits that will not happen if you do not take part in certain health behaviors, whereas gain-framed messages identify the benefits associated with doing a health behavior (Satia, 2010).

Findings and Implications

The literature search was conducted at the Walden Library using CINAHL, Medline, PubMed, PSYCInfo, ProQuest Public Health, Health Management, and Google Scholar. I conducted a search that did not reveal any articles related to loss-frame messaging and diabetes. I used the assistance of the Walden Library. Various other combinations of terms were used that yielded no results. The search for the literature was conducted using peer-reviewed primary sources (see Appendix A).

Johns Hopkins nursing evidence-based practice model and guidelines was the resource used to determine the level of the research and the quality of research evidence. Using rating scales assists the critical appraisal of evidence. The use of rating scales presents an organized way to distinguish levels and the quality of the evidence (Dang, 2018). The studies included in this systematic review are included in Appendix A and B

The current healthcare literature reviewed for this systematic review does not specifically address the study question posed by this capstone project. The articles I

found did address increasing knowledge among patients with diabetes but did not mention any results of patient HgbA1c levels. None of the studies presented information specifically about the effect of improved knowledge on diabetes management regarding lowering the HgbA1c levels of the patients in the studies.

Grady (2011) said although both loss-frame and gain-frame messaging resulted in improved health behavior, those with gain-framed messages continued to improve over 3-6 months. Those who had loss-framed messages reported behavior that leveled off in a shorter time frame (Grady, 2011). The behavior cited was taking better care of the feet. The participants continued to take better care of their feet 3 to 6 months out from the message $F(2,304) = 108.69$, $p < .01$. The behavioral scores for both framing groups increased at about the same rate between the initial measurement and the 3-moth time period. From 3 to 6 months, the behavioral scores for the gain framing group continued to increase, whereas the loss framing group's behavior scores leveled out. The gain framed message seemed to sustain long-term positive behavioral change.

Paragas (2019) found that gain-framed information is more persuasive than loss-framed information in promoting disease prevention behaviors (Paragas, 2019). Paragas conducted a study utilizing a quasi-experimental pretest posttest design with two experimental and one standard comparison groups to examine the effects of message-framed videos about diabetes care.

Use of Loss-Frame Messaging

Perceived susceptibility to breast cancer influenced health-seeking for screening for females in Gallagher's research (Gallagher, 2011). Women with average and higher levels of perceived threat of breast cancer were found to be significantly more prone to seek the screening exam after viewing a loss-framed message compared to a gain-framed message as measured by the Rakowski scale (1997)of the cons of mammography (Gallager, 2011). Based on the findings in the study by Gallagher, perceived susceptibility influences screening seeking behaviors.

Message framing was also used in an online experiment with 209 women who were randomly selected to view a pamphlet promoting pap testing (Balbo, 2010). The pamphlet was either presented as a gain- or loss-framed document and highlighted either prevention or detection function of the pap. Balbo hypothesized that the fit between framing and function (i.e. gain-prevention and loss-detection) would result in those individuals who sensed higher vulnerability having higher intention to follow the recommendation to obtain a pap test. Loss-framed messages should be used only for detection behaviors (i.e. screening; Balbo, 2010).

Riet (2010) investigated whether health promoting messages framed in a loss- or gain-framed method would promote increased physical activity (PA). They initially noted that the gain-framed message was more effective in promoting PA, but empirical findings were not consistent. The results showed that gain-framed messages resulted in stronger

intentions to be physically active than loss-framed messages. However, there was not a significant increase in the actual PA (Riet, 2010).

An additional study examined the use of loss- and gain-framed messages on smokers emphasizing the benefits of smoking cessation or the costs of smoking (Cornacchione, 2012). The results showed gain-framed messages were more powerful in getting individuals to from contemplation about quitting smoking to the preparation stage. There were implications for further study to advance progress toward smoking cessation, which included issues concerning the sample in this study. The study only used college students which did not make findings generalizable to the general population. The study used only text-based persuasive materials, limiting the generalization of the messages to other contexts. Future research should also aim to better understand micro-stage movements as they relate to the participants readiness to change and move towards smoking cessation (Cornacchione, 2012).

Immunization decisions-making is a matter of personal choice. When reviewing Frew's study that examined the use of message framing in pregnant women and their intentions to obtain the seasonal influenza vaccine, there were several things to consider. Prior immunization history, perceived flu susceptibility, and perceived vaccine effectiveness were variables that promoted immunization intent among this population of pregnant minority women in metropolitan Atlanta who were enrolled in the longitudinal study were randomized to receive intervention or control messages (Frew, 2014). Frew demonstrated that women who had received the flu vaccine in the past were more likely

to accept the recommendation to receive the vaccine. The recipients of the messages in the study needed more than a single message exposure to motivate immunization behavior, Frew determined that repeated messaging would most likely result int greater immunization uptake among pregnant minority women (Frew, 2014).

Continuous positive airway pressure (CPAP), is currently viewed as the best available treatment for obstructive sleep apnea (OSA) and requires long-term compliance to be effective (Pengo, 2017). The study by Pengo (2017) looked at whether loss- or gain-framed messages impacted long-term use of the CPAP machine in the 112 randomized patients. Pengo concluded that positively framed messages improved CPAP use in patients with OSA in the short-term. Pengo also concluded that strategies were needed to improve long-term compliance and further research is needed (Pengo, 2017).

The two research studies in this systematic review by Paragas (2019) and Grady (2011) addressed the impact of loss- and gain-framed messaging on patient knowledge, attitudes, and behavior. The participants in the two studies that specifically addressed loss- and gain-framed interventions spoke to the increase in knowledge and self-care behavior of the participants, based on the type of intervention each subject received. Paragas and Grady documented increase in knowledge or improved self-management with the gain-framed intervention messages used in the research. Neither Paragas (2019) or Grady (2011) talked about the impact on the patient glucose levels and the impact messaging had on changing glycemic control. One might assume with increased knowledge and increased self-care behaviors that the overall glucose level might have

improved. Without the measurement of glycemic levels, it is impossible to know if the patient had an improvement in the HgbA1C or an elevation in the level of the HgbA1c. Without taking a measurement of the pre and post HgbA1c levels in the Paragas and Grady studies, there is no evidence to support whether the changes in self-care behavior impacted improved HgbA1c levels in the patient populations with diabetes type II that were studied. This leaves my practice focused question unanswered. No conclusive evidence supported use of loss-framed messages in the patient education intervention to improve the HgbA1C level of patients with type II diabetes. The lack of evidence points to the need for further research to investigate use of loss-framed messages in patient education for the patient population with type II diabetes to further study the education intervention.

Paragas (2019) studied the effects of message-framed informational videos on diabetes management knowledge and self-efficacy and the Grady study (2011) used message framing to achieve long-term behavioral changes in patients with diabetes. The findings support use of gain-frame messaging as a tool to improve patient knowledge and self-efficacy. See appendix A for full article review. The two authors added more information to the body of knowledge with the findings. Grady noted that of the diabetes there is a link between patient knowledge, attitudes behavior. The foot care information presented in the videos used in the study was found to be effective in educating patients with diabetes to change their health care behaviors. Paragas and Grady noted that further study is needed to see if loss-frame messaging is useful for educating

the patient with diabetes and influencing behavior changes to improve glycemic levels. It is important to keep seeking and studying certain phenomena to achieve more information about what is best for patients in certain instances. Use of loss-or gain-frame messaging for the diabetic population has a sparse amount of research, and more study is needed due to the lack of empirical data to support or refute a best practice at the juncture. Helping patients make autonomous decisions about health decisions also brings us closer to achieving the goals of Healthy People 2020. The overarching goal of the Healthy People 2020 emphasizes helping people achieve high-quality, longer lives, free of preventable disease, disability, injury, and premature death and eliminate health disparities (Sondik, 2020). Additionally, having a healthier population should impact a reduction in health care economic expenditures that are currently affecting individuals, families, and society in the United States.

Recommendations

Further research needs to be performed that not only measures changes in knowledge, attitudes, and behaviors among individuals with diabetes who receive a loss-frame education intervention, but also measures the changes of HgbA1c from pre loss-framed education intervention to post loss-framed education intervention. The measure would indicate if the intervention made a difference and if it lowered or increased HgbA1c levels for patients who receive the education intervention.

Strengths and Limitations

Working with the chair and my instructors to narrow my question for the study was critical to keeping the focus on required studies for the systematic review. There was not a wealth of studies that looked at the use of loss-frame messaging to improve the HgbA1C levels of individuals with diabetes. The results of the systematic review and conclusions drawn are limited by the quality and amount of research that has been performed using loss-frame messaging to evaluate to educate patients with diabetes.

Section 5: Dissemination Plan

The plan for dissemination includes presenting findings from the systematic review to the clinic executive team where my project was initially supported. Presentation at the journal club at the military primary care clinic in northeastern United States another venue to get the findings out to staff. It is important to share the project findings with other personnel who are interested in the results and how further work may help improve glycemic control for the diabetic population at the facility.

My other plan is to present the project at the Doctorate in Nursing Conference that is held on an annual basis. After attending the conference this past year, many of the new DNP graduates presented their projects, and the conference was a supportive environment for sharing evidence-based projects. If given the opportunity, I do plan to implement the project at my site.

Analysis of Self

The capstone process is labor-intensive and has shown me that I have a real desire to find answers that are supported by evidence in literature. It is not always an easy process but requires hard work. The findings are not always what the researcher hypothesized, and it is not always easy to find the evidence needed to support the research thesis. I have grown through this process and have a much better appreciation for empirical research and how the conduct of sound studies can advance the practice of nursing.

The emphasis placed by Walden University professors on the essentials of the doctorate in nursing and competencies for leadership, healthcare delivery systems, quality and health care policy have provided a deeper understanding to the doctoral candidate of the depth and preparation required for practice at the doctoral level. The capstone project has allowed me to understand the essentials of the DNP. The underpinnings of scientific research provided the focus for the research question. Working with the executive leadership and facility staff at the large primary care military medical facility in northeastern United States to better understand the challenges they face while addressing patient quality improvement in the area of diabetes management. Improving the overall health plan employer data and information set (HEDIS) measure for diabetes required looking at processes and practices that need to change to provide better results for patients with diabetes in the population of the large military primary care clinic in the northeastern United States. HEDIS measures required that patients with diabetes achieve a HgbA1C of 7% or less to be considered in adequate control of their illness. Interprofessional collaboration between nurses and medical staff for improving patient and population health outcomes was addressed with this project. This systematic review helped me understand my need to refine the research question and focus on literature that provides evidence that supports or refutes the question.

Summary

Further study is needed to find out how loss-frame messaging can motivate patients to change their health behaviors and improve their hemoglobin A1C level. It is

incumbent on healthcare professionals to seek sound evidence-based methods to achieve this goal to improve glycemic levels in the diabetic patient population and achieve the 7 percent measure established by the HEDIS measure. Sound methods can help change the lives of many who are living with diabetes. The aim of future study for me will be to continue to make needed changes to improve quality of life and hopefully extend the years of those who are struggling with the fallout from diabetes complications.

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Appendix A: Articles Included in the Review

Title and Abstract **Author**
Systematic Review Articles
1. Title, Year Grady, J.L., Entin, E.B., Entin, E.E. & Brunye, T.T. Using message framing to achieve long-term behavioral changes in persons with diabetes, 2011
2. Abstract How framing educational information affects changes in health-related knowledge, attitudes, and behavior. Patients who have diabetes viewed a gain-or loss-framed message in a video about foot care and its importance in prevention of health threatening problems. The research used experimental research format.
Introduction
3. Problem Description Educating individuals about diabetes takes time and resources and there is a shortage of nursing staff to perform the role This study examined the impact of information framing in an education program about proper foot care and its importance for preventing diabetic complications on long-term changes in foot care knowledge, attitudes, and behavior.
4. Sample Sixty-four men and 91 women; mean age 61.2 years; fifty-six percent of sample had diabetes more than 5 years. Individuals included must be 18 years of age or older.
5. Setting Diabetes outpatient facility of an acute care hospital in west central Pennsylvania
6. Specific Aims To determine if gain-framed or loss-framed messaging impacts the long-term behavior, knowledge, and attitudes of patients with diabetes.
Methods
7. Study Design Education intervention that utilized two groups. One group received a loss-framed message intervention while the other group received a gain-framed message intervention. Experimental research design
8. Ethical Considerations Institutional Review Board was obtained from the participating facility.
9. Results The results of the study suggest that when the focus of health related information is on prevention, gain-framed messaging is more effective than loss-frame messaging in changing behavior, Although both framing resulted in improved behavior, those with gain-frame continued to improve over 3-6 months whereas those who has the loss-frame messaging reported behavior that leveled off in a shorter time-frame.

10. Limitations

1. The results are from a self-selected sample of volunteers. That fact alone indicates the participants may be more motivated to engage in activities than the general public. The increased level of motivation may have increased the positive effect in the gain-framed manipulation.
2. The behavioral measures were found through self-report. If professional trained observers performed the observation of the gain-framed group, there may have been more accurate results.
3. Diabetes is a chronic illness and the results were taken for a short period. There is no certainty of when the gain-framed message effect will decrease, and additional reinforcement of that knowledge would need to be provided.

11. Analysis & Synthesis

1.The researchers utilized ANOVAs, analysis of variance with framing as a between-subject factor (two levels: gain-framed and loss-framed) and inventory items as levels of a within-subjects repeated-measures variable (items: demographics, behavior, 12 items; attitudes 10 items; knowledge, 17 items, behavior; 15 items). All four ANOVAs revealed a nonsignificant main effect of framing. It was therefore concluded that no differences existed between two framing groups
2. The impact of framing on long-term (i.e.., 6-month) behavior was gauged by analysis of covariance (ANCOVA) which controlled for initial behavior prior to the message and behavior at 3 months.
3. Multiple regression analyses were performed to predict attitude change and framing long-term behavior.
4. Synthesis: With the increasing number of individuals with diabetes and the dearth of diabetes educators, effective surrogate method for educating patients with diabetes are supported in this study with the use of the gain-frame messaging educational video. The compelling results should be shared and put into practice.

12. Strengths/weaknesses

Strength: Low cost and easily implemented educational intervention.
Weakness: Short time of study does not guarantee that the behavior change will be sustained for long periods without reinforcement of information.

13. Level of Evidence

Experimental design or level 1 research

14. Conclusion

This research is important because it provides educators and practitioners opportunities to leverage new experimental research to improve patient's health, quality of life and wellness via an inexpensive and easily implemented educational intervention.
The study reveals that gain-framed prevention messages are more effective than loss-framed messages for promoting health-maintaining behavior in individuals with

diabetes. The findings are pertinent for nurses who are educating patients with diabetes but can also applicable to other health education teaching. The research indicated that the way the message is presented can impact outcomes as much as content. The researchers noted that properly designed research can empower patients with diabetes embrace and maintain health-promoting behaviors.
15. Funding The study was funded by the Office of Naval Research and Administered by the Henry M. Jackson Foundation in Rockville, Maryland

Title and Abstract **Author**
1. Title, Year Paragas, Emmanuel, & Barcelo, Teresita, 2019 Effects of message-framed informational videos on diabetes management knowledge and self-efficacy
2. Abstract Nurses are essential in educating patients to improve their health. The study investigated the effects of message-framed videos on diabetes management and self-efficacy in patients with type 2 diabetes
Introduction
3. Problem Description The rapid increase in chronic diseases including diabetes is alarming. Diabetes has surged to rates estimated at 347 million worldwide and pushed the World Health Organization to demand a change in the focus of health teams from provider-centered to a patient-centered approach. The nursing shortage impacts the ability to provide needed education to address this epidemic. These challenges has led to seeking methods to educate patients Paragas noted that a message-framing with loss- or gain-framed video has been used in other professions, but there has been very incidences found in the nursing literature, particularly in high risk actual health problems like diabetes and cardiovascular disease.
4. Sample The sample consisted of 165 patients with type 2 diabetes that were selected from 175 outpatients who were screened for eligibility. Purposive sampling was used rather than randomization
5. Setting The study was carried out in two diabetes centers in the city of Manila, Philippines.
6. Specific Aims The study aim was to examine the effect of message framing using an informational video when delivering self-care education to older adults with type 2 diabetes for the purpose of increasing their diabetes-management knowledge and self-efficacy.
Methods
7. Study Design The study is a quasi-experimental pretest and posttest study with two intervention treatments and a standard care comparison group.
8. Ethical Considerations The study protocol was approved by the Institutional Review Boards of Ospital of Maynila Medical Center and Manila Health Department in the Philippines and was conducted in accordance with the Helsinki Declaration of 1995.
9. Results Analyses showed that both loss-framed and gain-framed video-viewing groups attained significantly higher tests of knowledge about diabetes self-care (ATKADS) posttest

scores compared to the group (p<.01). However, was no significant difference between the two video groups ATKADs posttest scores (p>.05). Analysis also showed the self-efficacy scale showed an average increase following the intervention in the gain-framed group was higher than the loss-framed group (P<.01)
10. Limitations A purposive, nonrandomized sampling could show selection threat and maturation bias. The study did set careful inclusion criteria for the participants, considered socio-demographic and clinical characteristics of participants and clinical characteristics and obtained their average baseline scores before the intervention to minimize biases. Participant's memory capacity and preferred learning style was not assessed and may have affected the study results.
11. Analysis & Synthesis The authors used descriptive statistics to group participants according to sex, age, highest educational attainment, and previous diabetes education. Analysis of variance (ANOVA and X2 test were used to compare socio-demographic and clinical differences between groups. ANOVA was employed to identify any significant differences in the knowledge and self-efficacy scores in the two message-framed video groups and the lecture-type comparison group. Tukey's test was used for post-hoc analysis. All data were analyzed using IBM SPSS statistics. Based on the study findings the video learners with loss- and gain-framed interventions were superior to the lecture intervention group. Scores for self-efficacy for the video intervention group were higher and information delivered in the videos about self-management increased their self-efficacy levels after the intervention. Results showed that the gain-framed video group scored significantly higher than the loss-framed video group. The study indicates that message framed informational videos are effective in increasing the diabetes management knowledge and self-efficacy of patients with type 2 diabetes. These findings indicate that educational videos using framed messages are effective for nurses to use to teach patients who have type 2 diabetes.
12. Strengths/weaknesses The study was performed on patients in the Philippines. Culture is a factor that has influential power in shaping the message for the patient. The authors used a study by Guzman that noted how the Filipino culture is one that has a cultural value of always having a positive outlook, which may also influence the participant's responses to the video message education intervention. Not assessing the preferred learning style of the participants is a weakness of the study that may have caused some bias.
13. Level of Evidence Level II Evidence with good quality
14. Conclusion The findings support the use of message-framed video education to teach patients with type II diabetes. The use of this intervention approach should assist patients to

increase self-care and increase knowledge of diabetes care. There was no mention of any changes in the blood sugar or HgbA1c level for the participants
15. Funding There was not any mention of how the study was funded.