DEVELOPMENT OF A CLINICAL GUIDELINE AND ALGORITHM TO ENHANCE SELF-EFFICACY IN NON-COMPLIANT CHRONIC DISEASE PATIENTS

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DEVELOPMENT OF A CLINICAL GUIDELINE AND ALGORITHM TO ENHANCE SELF-EFFICACY IN NON-COMPLIANT CHRONIC DISEASE PATIENTS

A Scholarly Project Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Nursing Practice

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December 2019
This Scholarly Project by: Karen Alexander

Entitled: Development of A Clinical Guideline and Algorithm to Enhance Self-Efficacy in Non-Compliant Chronic Disease Patients

has been approved as meeting the requirement for the Degree of Doctor of Nursing Practice in College of Natural and Health Sciences, School of Nursing, Program of Nursing Practice

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ABSTRACT


This scholarly project was a nonexperimental quality improvement project to create a practice care guideline and algorithm with the intention of enhancing self-efficacy in non-compliant chronic disease patients within the primary care setting. The objectives of the clinical guideline and algorithm were to assist primary care providers in identifying low self-efficacy in chronic disease patients, provide guidance in selection of interventions to develop or improve self-efficacy in patients, and promote better disease management. The guideline outlines tools and techniques to give primary care providers the information and skills needed to improve strategies to counsel patients to become more active in the management of their illness, to influence a sense of empowerment, to enhance the ability to face challenges competently, and also in transforming the patient-provider relationship into a collaborative partnership.

Throughout the United States, the level of chronic disease morbidity and mortality is significant. With the burdens chronic disease places on individuals, families, the healthcare system, and society as a whole, this reinforced the need for an increased focus on management at all stages of these diseases. Emphasizing patient responsibility while cultivating an effective patient-provider relationship to enhance chronic disease self-management resulted in a promising strategy for managing chronic conditions by
evolving beyond education to teaching patients to actively identify challenges and solve problems associated with their condition.

The overall objective of this project was to provide primary care providers with guidance in the assessment of self-efficacy in chronic disease patients and provide direction toward enhancement in patients’ self-efficacy in order to improve health outcomes. Bandura’s (1994) self-efficacy theory was applied in the practice care guideline and algorithm for providers across primary care settings to utilize to support patients in gaining confidence in decision-making, problem-solving, and self-management with regard to their chronic disease as a means to positively impact their health status and quality of life.

An integrated literature review regarding chronic disease self-management and self-efficacy was performed; twenty-five articles were selected to guide development of the practice care guideline and algorithm based on scientific and theoretical underpinnings for chronic disease self-management interventions and evidence for their effectiveness. Then while using the best evidence available, a clinical practice guideline and algorithm were developed and designed to enhance self-efficacy in non-compliant chronic disease patients. Practicing nurse practitioners were recruited through email to review the initial version of the clinical guideline and algorithm and then surveyed to elicit opinions and suggestions for improving the clinical guideline and algorithm. Five participants completed the survey. These respondents all identified as females between the ages of 40 through 58. Collectively, there were 52 years of experience among participants and on average, participants reported seeing 44.4 patients per week. Considering whether the proposed clinical guideline and algorithm would be useful and
feasible in the primary care setting, four stated they agreed and one disagreed. Based on the suggestions provided in the survey, changes were made to the practice care guideline and algorithm to enhance benefit and practicality.

Considering the results from this non-experimental quality improvement project, it would be pragmatic to offer the opportunity for an expert panel to review the edited practice care guideline and algorithm. The panel could convene in person or within an online format to discuss concerns, suggestions, and future steps. Another questionnaire could be an avenue for pertinent information. Pilot testing the documents in a real-world primary care setting would be a valuable action moving forward in the direction of improved patient care. It would also be beneficial to implement more extensive studies that have the ability to examine self-management scores both pre and post intervention.

In summary, while the expert opinion responses of the DNP project were small with five surveys returned, there was indication from participants that the practice care guideline and algorithm could be a valuable tool to utilize in the primary care setting. No current tools, algorithms, or guidelines were reported by expert reviewers to be available or utilized for disease self-management enhancement in non-compliant chronic disease patients. The need for an increased focus on management at all stages of chronic disease is essential. The clinical guideline and algorithm to enhance self-efficacy in noncompliant disease patients could be a positive step toward improved self-management strategies and better health outcomes.
ACKNOWLEDGEMENTS

Foremost, I would like to thank my Research Advisor, Dr. Kathleen Dunemn, for her expert guidance and her unwavering support and encouragement. Additionally, I am grateful to my committee members—Dr. Katrina Einhellig, Dr. Faye Hummel, and Miranda Babiak, CScD, CCC-SLP—for contributing insight and providing guidance as I worked through this scholarly project. I highly appreciate all my professors at the University of Northern Colorado (UNC) for providing me with knowledge foundational to completing my project and the Doctor of Nursing Practice degree. Furthermore, I am grateful to my classmates at UNC, especially Angie Pickerel, whose encouragement throughout the program helped to sustain and uplift me. I want to give special thanks to my children—Tiffany, Jacob, Harley and Nina—for their loving support and inspiration throughout this entire journey. Finally, I am forever grateful to my amazing husband, Kelly, for giving me strength, motivation, and accepting the many sacrifices inherent in the pursuit of my doctoral degree.
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CHAPTER I

INTRODUCTION

Background and Significance of the Problem

Chronic conditions are characterized by non-curable, long-lasting illnesses with complex etiologies and treatments. “Chronic diseases affect approximately 133 million Americans, representing more than 40% of the total population” (National Health Council, 2014, para. 2). Moreover, chronic conditions often do not exist in isolation; rather, “one in four U.S. adults have two or more chronic conditions, while more than half of older adults have three or more chronic conditions” (Tinker, 2017, p. 1). The most common chronic diseases include heart disease, cancer, stroke, chronic obstructive pulmonary disease, diabetes, Alzheimer’s, and chronic kidney disease. Many of these chronic conditions linger over many years, require comprehensive, continual management; and are the leading cause of diminished quality of life, economic burden, and mortality in the United States.

Quality of Life

Quality of life (QOL) is considered an individual’s general well-being, happiness, and satisfaction with life. Health-related quality of life (HRQOL) is perceived physical health that includes elements such as energy level, mood, health condition, body image, employability, and functional and socioeconomic status. Even though the spectrum of chronic diseases varies in presentation, characteristic clinical symptoms, and natural history, the majority of chronic diseases have the potential to worsen over time and
impair the overall health of patients with bothersome symptoms that limit functional status and productivity, causing adverse effects on QOL. A recent study examined the self-perceived HRQOL of multimorbid patients by assessing mobility, self-care, usual activities, pain/discomfort, and anxiety/depression (N’Goran et al., 2017). The results suggested that of the 888 participants, “self-perceived HRQOL is considerably and significantly affected by multimorbidity compared to the general population” (N’Goran et al., 2017, p. 11).

Aside from physical health, there are emotional dimensions of chronic disease. Individuals with persistent illness experience psychosocial problems such as worry, anger, anxiety, withdrawal, loss of status in family or workplace, loss of self-confidence, social isolation, and fear of death. Additionally, for some, chronic disease symptoms can result in dependence on others, inducing more despair, depression, and possible suicidal ideation.

Depression is often comorbid with chronic disease. “Patients with chronic medical illnesses have been found to have two- to threefold higher rates of major depression compared with age- and gender-matched primary care patients” (Katon, 2011, p. 8). Depression is exacerbated when the chronic condition causes pain and disability. Conversely, depression intensifies symptoms such as pain and fatigue—this bidirectional relationship between depression and chronic disease results in a cycle that worsens overall health outcomes.

**Economic Burden**

“A recent Milken Institute analysis determined that treatment of the seven most common chronic diseases will cost the U.S. economy more than $1 trillion annually,
which could balloon to nearly $6 trillion by the middle of the century” (Raghupathi & Raghupathi, 2018, p. 2). Chronic disease extorts a different economic toll than do acute conditions due to long-term management, follow up, and sustained resources required to maintain stabilization of health. Individuals with multiple chronic conditions are known to access primary care services more often and are associated with higher medication usage, emergency department visits, and hospital admissions.

The more chronic conditions people have, the more they use services of all types. As one example, those with five or more chronic conditions use twice as many drugs on average per year, compared with those with three or four conditions. As another, people with five or more conditions averaged 20 doctor visits per year, compared with 12 visits for those with three or four conditions. (Buttorf, Ruder, & Bauman, 2017, p. 14)

In terms of productivity and on an individual level, chronic disease sufferers intermittently miss working due to exacerbations, which adversely affects earning power. Many are unable to work altogether, which can harm medical coverage, pension benefits, and years of savings. Loss of work ultimately leads to lower socioeconomic status, social isolation, and subsequent depression.

On a social level, chronic conditions are a significant contributor to the costs of insurance premiums, Medicare/Medicaid expense, and employee medical claims. Employers/corporations also pay in terms of lost productivity from employee absenteeism and presenteeism (working while sick and causing lost productivity). It is estimated “productivity losses from missed work cost employers $225.8 billion, or
$1,685 per employee, each year” (Centers for Disease Control and Prevention, 2017, para. 3).

**Mortality**

Chronic disease causes 7 out of 10 deaths each year in the United States (National Health Council, 2014, para. 5). With the nation’s aging baby-boomer population, combined with continued prevalent risk factors such as poor diet and sedentary lifestyles and medical advances that extend human longevity, the number of chronic disease patients will continue to increase and thus amplify burdens that come with them. Striving toward effective management of chronic conditions would assist in avoiding severe complications and death, improve QOL for patients, and significantly reduce ballooning healthcare costs.

**Statement of the Problem**

Traditionally, primary care practices focused mainly on treating acute episodes rather than preventing problems or effectively managing chronic conditions to prevent exacerbations from occurring. This conventional medical model has historically focused on managing illness as opposed to managing the patient. This strategy did not address the whole, complex person with regard to multiple chronic diseases and often led to fragmented care. Development of guidelines to enhance disease self-management could assist providers in encouraging individuals to adopt and maintain long-term health behavior to manage their chronic disease, reduce incidences and severity of exacerbations, prevent further progression, improve quality of life, and conserve health care resources and costs.
Chronic diseases could be better managed through proper self-management in tandem with primary care treatment therapy and support. Such an approach ideally includes patients adopting and maintaining multiple lifestyle behavioral changes in dietary practices, exercise, use of prescribed medications, response to exacerbations, as well as managing complex communications with primary healthcare providers.

Individuals with chronic conditions must be encouraged and guided to take an active role in day-to-day management to improve their HRQOL and health outcomes. Despite the importance, the realization is only “29% of diabetics have well-controlled lipid levels, and only 26% have well-controlled blood pressure. Just 27% of people with high blood pressure are adequately treated (Agency for Healthcare Research and Quality, n.d., table 3). Proper self-management could have a positive effect on life quality by avoiding complications, improving independence and overall wellbeing, and prolonging life.

Self-management of chronic diseases is an essential objective to provide better quality healthcare to patients and improve their overall HRQOL. The old models of care, where healthcare providers told patients what to do to motivate them to change, did not work. Patients needed self-investment in daily decisions and actions to have a significant and residual impact on their health; they must be active, informed participants in the healthcare process. Primary care providers (PCPs) could help patients take charge of their conditions through self-efficacy education and encouragement to set self-management goals.
Purpose of the Project

The purpose of this project was to develop a clinical guideline and algorithm to enhance self-efficacy for non-compliant chronic disease patients within the primary care setting. Self-efficacy is described as the belief one has in one’s ability to succeed in specific situations or challenges and to achieve desired goals. In terms of chronic disease patients, self-efficacy helps determine the beliefs a patient holds regarding his/her power to affect situations such as activity level and tolerance, health regimen and medication adherence, and disease exacerbations. Self-efficacy influences the sense of empowerment, the ability to face challenges competently, and even affects health-related choices a patient might make. One study found,

Given the high potency of self-efficacy factors on self-care behaviors of patients, enhancement of self-efficacy in these patients can be very effective in disease control, prevention of complications, reduction of hospitalization costs, and improve their quality of life. (Heidarali, Salimi, Feizi, & Safari, 2013, p. 421)

Healthcare professionals are in a prime position to support and enable individuals with chronic conditions to manage their conditions on a day-to-day basis and also could have a positive impact on self-efficacy that resulted in positive behavior changes leading to successful self-management of chronic disease.

The intention of this clinical guideline and algorithm was to assist PCPs in identifying low self-efficacy in chronic disease patients, providing guidance in selection of interventions to develop or improve self-efficacy for patients, and promoting better disease management. The guideline outlined tools and techniques to give PCPs the information and skills they need to be better able to counsel patients to become more
active in the management of their illness, influence a sense of empowerment, enhance the
ability to face challenges competently, and also transform the patient-provider
relationship into a collaborative partnership.

Need for the Project

Throughout the United States, the level of chronic disease morbidity and mortality
is significant. With the burdens chronic disease places on individuals, families, the
healthcare system, and society as a whole, the need for an increased focus on
management at all stages of these diseases was reinforced. It is projected that by 2025,
“chronic diseases will affect an estimated 164 million Americans—nearly half (49%) of
the population” (Partnership to Fight Chronic Disease, n.d., para. 2). As chronic disease
prevalence increases, so does the need for adequate healthcare and support. This
increasing number of those living with chronic conditions represents a public health
concern of growing magnitude. Emphasizing patient responsibility while cultivating an
effective patient-provider relationship to enhance chronic disease self-management has
resulted in a promising strategy for managing chronic conditions by evolving beyond
education to teaching patients to actively identify challenges and solve problems
associated with their condition.

The Institute of Medicine (IOM, 2004) defined self-management support as
the systematic provision of education and supportive interventions by health care
staff to increase patients’ skills and confidence in managing their health problems,
including regular assessment of progress and problems, goal setting, and problem-
solving support. (p. 57)
In a report entitled “Priority Concerns for National Action: Transforming Health Care Quality,” self-management was acknowledged as one of the 20 most urgent areas of concern for the provision of quality health care (Committee on Identifying Priority Areas for Quality Improvement, 2003). The report indicated self-management is a critical success factor for chronic disease management and the patient must be recognized as the source of control. Enhancing patient self-efficacy empowers the patient and is vital to promoting long term adherence to healthcare regimens. To optimize chronic disease management, it is imperative that strategies in the primary care setting be re-evaluated and improved to meet the needs of this disease population. This clinical guideline and algorithm based on self-efficacy theory would aid PCPs and patients to review and implement self-management interventions and behaviors.

**Objectives of the Project**

The objective of this project included determining support interventions with an emphasis on self-efficacy for chronic disease patients and providing PCPs with the information to assist these patients with self-management. The ultimate goal was to provide a clinical guideline and algorithm based on the self-efficacy theory for PCPs to utilize in the primary care setting that would enhance empowerment for patients to gain confidence in decision-making, problem-solving, and self-management of their chronic disease.

**Definition of Terms**

**Chronic disease self-management program.** An evidence-based prevention and health promotion program that addresses common issues faced by people with chronic conditions.
**Health-related quality of life.** Quality of an individual's daily life that includes emotional, social, and physical aspects and is an assessment of well-being.

**Multimorbid.** Afflicted with more than one chronic illness at the same time.

**Primary care provider.** Physician, physician assistant, or a nurse practitioner who works in medical clinics caring for patients of all ages on a regular basis for various health complaints or concerns.

**Quality of life.** Refers to quality of various areas in life guided by values, goals, and social and/or cultural context. Expectations of an individual for a good life.

**Self-efficacy.** Belief in one’s capacity to execute behaviors necessary to produce specific performance attainments such as disease management and improved health.

**Stetler model of research utilization.** Assesses how research findings or pertinent evidence could be applied into practice.
CHAPTER II

REVIEW OF THE LITERATURE

Historical Background

A search for literature was conducted to identify articles dedicated to self-management strategies that promote self-efficacy in chronic disease patients. The literature search used keywords such as chronic disease self-management, self-efficacy and chronic disease, support needs of chronic disease patients, and prevention of chronic disease exacerbations. Various search engines were utilized that included PubMed, Cochrane, Cinahl, and Google Scholar. Other resources, websites, and journals utilized were the Partnership to Fight Chronic Disease (n.d.), American Public Health Association (2013), and the Centers for Disease Control and Prevention (2017). Citations in journal articles during literature examination provided additional avenues for exploration beyond the search engines. Titles and abstracts were screened and those that did not meet the inclusion criteria were excluded. Abstracts of potentially pertinent articles were assessed for their relevance to the pre-determined parameters of chronic disease patients, self-management, and self-efficacy. Full copies of articles identified as potentially relevant were then obtained and assessed to verify significance and applicability.

The goal of the literature search involved discovering both successful and failed self-management approaches as well as isolating possible gaps that might exist in chronic disease self-efficacy interventions and management. The literature search considered all studies that involved human subjects regardless of gender who were aged 18 years of age.
and older and diagnosed with a chronic disease. Mild to severe levels of disease, number of comorbidities, and exacerbation history did not exclude articles examined. Articles published within the last 30 years were considered. Type of studies surveyed involved quantitative, qualitative, random control trials, or systematic reviews that were published in peer review journals. However, the studies were limited to those that addressed self-management of chronic disease and self-efficacy interventions conducted within the primary care setting.

**Synthesis of the Literature**

Eighteen articles were included for the review. The common theme among studies revealed that chronic disease self-management is vital to enhancing patient-provider relationships, improving QOL, and reducing healthcare cost for chronic disease sufferers among various patient populations. Different studies examined different elements of self-management: relationships, QOL, cost, populations, and sustainability. It was also revealed that self-efficacy was a significant driver in each of these different components in a patient’s ability to effectively self-manage his/her condition.

**Relationships**

Most articles agreed support and education are the cornerstones for maintaining health. It was established that in chronic disease management, the PCP becomes the teacher and advisor in supporting the patient in developing appropriate health practices, becoming an active partner, and applying knowledge in the care process. One of these studies pointed out, “Participants valued discussions about managing health and strategies for better communication with care providers, including keeping track of medications, action plans and nutrition labels” (Wurzer, Waters, Robertson, Hale, &
Hale, 2016, p. 23). This finding suggested self-management discussions between PCPs and patients might be a favorable and effective strategy to promote self-efficacy. This empowerment approach facilitates self-directed behavior change that helps patients discover and use their innate ability to gain mastery over their conditions.

One author expressed the patient-provider partnership is unrealistic in today’s practice. When PCPs are forced to see as many as 20 patients a day, there is no room for the necessary quality time for acting as the medical health “coach” often required with a long-term illness. Therefore, healthcare systems must take into account the need to support PCPs to encourage this partnership of care that is necessary and beneficial for chronic disease patients.

**Quality of Life**

Consensus among the majority of the articles was chronic disease patients, especially those who are multimorbid and with a low self-efficacy, had a higher disease burden and lower QOL. One study proposed that understanding where a patient was in his/her self-efficacy level was vital to proper care. “Awareness of self-efficacy levels among patients with multi-morbidity may help health professionals identify patients who are in need of enhanced self-management support because higher self-efficacy leads to enhanced quality of life” (Peters, Potter, Kelly, & Fitzpatrick, 2019, p. 9). Once low self-efficacy was determined, it was possible to better provide patients with the knowledge, resources, and skills necessary to perform tasks essential to self-manage their conditions toward better health outcomes.

One article examined the applicability of a chronic disease self-management program for cancer survivors and compared the outcomes with other chronic disease
patients. It was determined that among the cancer survivors, general health, depression, and sleep significantly improved by six months. Communication with PCPs, medication compliance, pain, days with physical distress, poor mental health, and reduced physical activity also improved significantly by 12 months. Among other chronic disease patients, all outcomes except medication compliance and stress improved significantly by six months and by 12 months, medication compliance also improved significantly. (Salvatore, Ahn, Jiang, Lorig, & Ory, 2015, p. 1714). These data concluded chronic disease patients, including those with cancer, could significantly improve QOL in terms of physical and psychosocial health status through self-efficacious behaviors.

**Cost**

Clearly chronic diseases are among the most prevalent and costly health conditions in the United States. According to the National Conference of State Legislatures (2013), 75% of healthcare spending in the United States goes to treat chronic conditions and costs are even higher for Medicaid where 80 cents of every $1 is spent on chronic conditions. A national study by Ahn et al. (2013) examined Stanford University’s Chronic Disease Self-Management Program (CDSMP, Ahn et al., 2013)—an evidence-based prevention and health promotion program that addresses common issues faced by people with chronic conditions. The program offered information on appropriate exercise, proper diet, and medication usage as well as improving communication with healthcare providers; it has been shown to help participants improve their health behaviors and health outcomes and reduce healthcare utilization. The national study surveyed 1,170 community-dwelling participants at baseline, six months, and 12 months from 22 organizations in 17 states.
“Findings from analyses showed significant reductions in ER visits (5%) at both the 6-month and 12-month assessments as well as hospitalizations (3%) at six months among national CDSMP participants. This discovery would equate to potential net savings of $364 per participant and a national savings of $3.3 billion if 5% of adults with one or more chronic conditions were reached. (Ahn et al., 2013, p. 1141).

Populations

A study by Franks, Chapman, Duberstein, and Jerant (2009) examined personality factors that might influence self-efficacy and self-management success. The authors agreed self-management interventions could strengthen self-efficacy and result in positive changes in patient health behaviors. However, personality factors might moderate those effects. It was postulated efficacy at baseline was lower in those with low conscientiousness, high neuroticism, low agreeableness, and low extraversion across study groups and intervention success was confined to those individuals. Therefore, measuring personality factors in chronically ill patients might facilitate targeting of self-management interventions to those most likely to respond. Despite this finding, other literature pointed to measurable success regardless of personality trait considerations.

A second study conducted by Jonker, Comijs, Knipscheer, and Deeg (2009) questioned whether older vulnerable adults who were confronted with deteriorating health were successful with self-efficacy interventions. Overall, a self-management program led to an increase in physical exercise, a decrease in health distress, an improvement in self-care, and a beneficial effect on self-efficacy with this age group (Jonker et al., 2009).
Another population examined was chronic disease patients in the rural primary care setting. Two studies examined this population with different results. The first studied a small sample of rural, underserved, poor community members with chronic disease (Farrell, 2008). The participants were provided tailored education aimed at empowering them with knowledge and skills for chronic disease self-management. Interventions were created within the framework of the self-efficacy theory. Significant improvements in perceived health status were noted on the health distress and energy/fatigue scales. The study suggested self-management interventions were feasible and relevant to this unique population and might be beneficial compared to usual care. Of importance was the finding that focus on patient-provider partnerships could meaningfully improve perceived health status, self-management behaviors, and health-related outcomes (Farrell, 2008).

The second study (Jaglal et al., 2014) examining rural patients found confounding patterns of healthcare utilization before and after participation. Surprisingly, there was a 34% increase in physician visits for participants ≤ 66 in the 12 months following the program. Conversely, there were decreased emergency department visits in those >66 years (Jaglal et al., 2014). A significant difference in this study compared to others was the telehealth method used for intervention, which might have explained the different result from other studies examined.

Important for consideration was the sustainability of self-efficacy for disease management. A 12-month follow up study assessed whether positive changes garnered for self-efficacy and disease self-management interventions were maintained over time (Barlow, Wright, Turner, & Bancroft, 2005). A sample of 171 participants who attended
a chronic disease self-management intervention was surveyed with questionnaires. The significant improvements in outcomes identified at four months—such as cognitive symptom management, self-efficacy, communication, fatigue, anxious and depressed moods, and health distress—were sustained at 12 months. Questionnaire data confirmed participants continued to use many of the self-management techniques obtained through education over the 12-month period (Barlow et al., 2005).

**Summary of the Literature Review**

Improving disease self-management knowledge in conjunction with self-efficacy might be fundamental to achieving successful chronic disease self-care, prompting health-enhancing behaviors, and improving overall QOL. High self-efficacy reflects confidence in the ability to exert control over one’s own motivation toward positive health behavior. Given the effectiveness of self-efficacy on self-management behaviors, it was suggested empowerment through education with an emphasis on the strengthening of self-efficacy was vital to better outcomes.

The published literature reviewed suggested healthcare systems and providers should consider implementing self-management programs with a focus on self-efficacy for patients with chronic conditions. This process starts with the PCP. Therefore, care providers need skills and information to assist their chronic disease patients with enhancing self-management amid a self-efficacy focus.

**Theoretical Frameworks**

**Self-Efficacy Theory**

Theory, particularly the self-efficacy theory, could be a valuable tool that contributes to successful chronic disease self-management. Self-efficacy is described as
the belief in one’s own ability to accomplish goals or objectives. Perceived self-efficacy reflects one’s confidence in the ability to exert control over motivation, health behavior, and physical and social well-being. Psychologist Albert Bandura (1994) advanced the self-efficacy theoretical concept as part of his broader social cognitive theory. According to Bandura, “People with high self-efficacy—that is, those who believe they can perform well—are more likely to view difficult tasks as something to be mastered rather than something to be avoided” (para. 2). Efficacious individuals set necessary and sometimes challenging goals and maintain a firm commitment to achieving them. Conversely, patients who are uncertain about their ability to accomplish challenging tasks try to avoid them. Since Bandura’s description of this theory, many scholars, medical care providers, and theorist have utilized this concept to explain human behavior, guide interventions, and facilitate change for human betterment and improved health outcomes.

One such study used a quasi-experimental pretest-posttest design to examine if participation in a chronic disease self-management program improved self-efficacy and self-management behaviors (Farrell, Wicks, & Martin, 2004). Chronic disease self-management education based on Bandura’s self-efficacy theory that included strategies for personal exercise, cognitive symptom management, problem-solving, and communication skills was provided. After completion of the six-week program, it was found that “significant improvements (p < .10) in self-efficacy, self-efficacy health, and self-management behaviors occurred” (Farrell et al., 2004, p. 289).

Barbara Resnick (2002), a gerontology primary care nurse practitioner and nursing theorist, explored self-efficacy from a nursing perspective by examining the impact of self-efficacy on the functional status of older adults, often with comorbid
conditions. Resnick postulated motivation is an essential variable in health maintenance and in the recovery process from a disabling event or a disease exacerbation. Throughout her work in various settings, she discovered understanding the theory of self-efficacy provided greater insight related to motivation and also provided guidelines for appropriate interventions to improve healthcare-related behavior.

To evaluate a patient’s self-efficacy and outcome expectations related to participation in rehabilitation; if they are low, the provider could implement interventions such as verbal encouragement and self-efficacy education. These interventions would ultimately improve self-efficacy and outcome expectations and thereby improve participation in rehabilitation. (Resnick, 2002, p. 158)

Self-efficacy is very suitable for chronic disease self-management strategies and PCPs could utilize educational approaches to help foster patient self-efficacy. Bandura (1994) noted four sources of self-efficacy (see Figure 1 for visual representation):

- Mastery experience (performance accomplishment)
- Vicarious experience
- Verbal persuasion (social persuasion)
- Physiological and emotional state.
**Mastery experience.** Mastery experience occurs when an individual accomplishes the desired task or has mastered a projected goal (Bandura, 1994). In a healthcare context, mastery of desired health behavior change could have a residual effect on the execution of further health behavior changes. Mastery, in turn, fosters the development of coping mechanisms to deal with obstacles and impediments that might be encountered. For example, when a patient masters knowledge of symptom awareness and early intervention strategies, with practice, this creates more confidence in their disease self-management ability. For success in mastery experience, practice is essential including repetition or rehearsal to develop and refine skills. It is important to start with small, manageable, incremental changes to allow the patient to experience success. After
mastering the goal, the patient can then build on this goal and aspire for more difficult tasks.

**Vicarious experience.** Vicarious experience is the observation of the successes or failures of others who are similar to oneself (Bandura, 1994). Watching a peer obtain a mutually desired goal could enhance self-efficacy. This method of efficacious discovery occurs through observation of events or people when the observer especially relates to or connects to that person or experience, i.e., similar age group, gender, cultural background, etc. Vicarious experience could be encountered in person, through video, or related through storytelling.

In the primary care setting, storytelling could be an avenue for discussion of the complexities and practicality of disease management and could be performed either in written format or orally. One research review examined 10 articles to identify interventions describing how storytelling was used to support people in disease self-management (Gucciardi, Jean-Pierre, Karam, & Sidani, 2016). The authors concluded the implementation of storytelling could enhance chronic disease self-management by guiding patients to take ownership and be more active in their health care by identifying their specific needs and gaps in knowledge and skills. Additionally, it could also provide PCPs with greater insight into their patients’ needs and increase understanding of how patients managed and coped with their chronic disease (Gucciardi et al., 2016).

Other avenues of vicarious experience could include attending appropriate support groups to provide opportunities for patients to share personal experiences, feelings, coping strategies, and additional techniques for disease self-management. Linking patients to community-based self-management resources is another method and
might include local chapters of societies such as the Arthritis Foundation and the American Lung Association either in person or with online formats.

**Verbal persuasion.** Verbal persuasion or social persuasion ascribes to the philosophy that when individuals are convinced they have abilities to achieve or master a behavior, they are more likely to accomplish that behavior. This notion is especially true when persuasion is presented by individuals in authority positions or who have specialized knowledge and expertise. Verbal persuasion must be coupled with education. Providing information about relevant aspects of changing health behavior and positive verbal support for goal attainment presented by an authority figure such as a PCP facilitates increased self-efficacy. Another essential point of verbal persuasion is the identification of goals combined with positive reinforcement. It is necessary to establish realistic short- and long-term goals and review those goals regularly. Positive support for goal attainment further helps motivate health behavior change.

Verbal persuasion can also be accomplished through positive self-talk. One’s own self-persuasion through self-talk is effective when this internal dialogue is positive, which powerfully affects the way a person thinks, feels, and behaves. It is necessary to practice a constructive inner voice with creative and positive tones. Positive self-talk could also be implemented through writing or journaling.

**Physiological and emotional state.** The physiological and emotional state of an individual can determine how confident that person might feel when contemplating or initiating behavior change. When an individual experiences adverse physiological and psychological symptoms such as weakness, fatigue, stress, anxiety, or depression, this impairs confidence, weakens performance, and prevents engagement in the behavioral
change process. One way to raise self-efficacy beliefs is to improve physical and emotional well-being and reduce negative physical and emotional states. Teaching appropriate exercise, for example, provides increased mobility, which can, in turn, decrease depression and fatigue for patients. It is also essential to help patients explore thoughts and feelings and to assist in developing a practical attitude toward their current ability level, e.g., encouraging experimentation with new approaches and ideas in stressful situations such as relaxation and distraction techniques.

Considering some of the conceptual and practical challenges relating to chronic disease management, applying the self-efficacy theory could assist in achieving increased levels of self-management, self-ability, and improve outcomes for the chronic disease population. The self-efficacy theory offered a useful framework for understanding, assessing, and providing interventions for chronic disease management by offering a systematic direction that allows one to interpret, modify, and predict patients' behaviors.

**Stetler Model**

The Stetler (2001) model of research utilization assists with assimilating evidence-based research and other relevant information and applying those discoveries to influence policies and procedures, make practice decisions, and integrate the findings into daily practice. To assist in the development of a clinical guideline and algorithm, this model was utilized. The Stetler model of research utilization consists of the following five decision-making steps or phases:

**Phase I.** Phase I, the preparation stage, consists of identifying the purpose and the need to solve a problem or revise a policy. This phase includes exploring relevant research literature regarding successful chronic disease self-management strategies with a
self-efficacy focus and existing available resources or tools to guide primary care providers. The literature pointed to self-management with a self-efficacy focus as a valuable tool to decrease individual, social, and economic burdens related to chronic disease.

**Phase II.** The validation phase examines the credibility of findings and the potential for application. A systematic review of chronic disease management evaluated the pattern of health outcomes in chronic disease self-management interventions in primary or community care settings. The review examined 157 studies and concluded that “self-management support interventions (45.8% of studies) most frequently resulted in improvements in patient-level outcomes” (Reynolds et al., 2018, p. 1). However, no set primary care guidelines or algorithms were discovered to affect provider-led interventions toward self-management for chronic disease patients. This phase included identifying the needed elements elicited from relevant literature and development of the proposed clinical guideline and algorithm for enhancing self-efficacy in non-compliant chronic disease patients.

**Phase III.** This phase included evaluation through surveying PCPs about the feasibility, likability, and appropriateness of the clinical guideline and algorithm in the primary care setting. Surveys administered elicited comments, suggestions, and expert opinions from practicing nurse practitioners with regard to the clinical guideline and algorithm content and suggestions for additions or deletions of the document.

**Phase IV.** This translation and application phase allowed for writing of the final clinical guideline and algorithm. Cumulative findings from both literature research and from survey responses were utilized to create the final clinical guideline and algorithm.
Phase V. This phase anticipated an evaluation of the final guideline and algorithm where participants would be asked to either approve or disapprove the final document with additional comments. Any implementation of the clinical guideline and algorithm will be accomplished after the completion of this project.
CHAPTER III

METHODOLOGY

Design

This DNP scholarly project was a non-experimental quality improvement design to create a practice care guideline and algorithm to provide nurse practitioners (NPs) with guidance for augmenting improved disease self-management in chronic disease patients through enhancement of self-efficacy. The project was developed with the use of a survey intended to obtain expert opinions from a panel of NPs in primary care settings who managed chronic disease patients. Participants were invited via email using the snowball method. Colleagues who had expressed shared interest in this project were contacted first and then asked to share the invitation with peers. The initial survey was administered via SurveyMonkey to facilitate ease of use and participation.

Healthcare research surveys are vital tools used to gather information on individual perspectives within a cohort. Within this scholarly project, surveys were utilized to assess knowledge from primary care NPs regarding the clinical guideline and algorithm in relation to chronic disease patients. This allowed not only for creation of the clinical guideline and algorithm based on expert opinion but also provided judgment of usability and feasibility of the finished document.

Setting

Professional panelists were pooled from NPs in primary care settings in southeastern Wyoming and northern Colorado regions. Survey responses were garnered
from NP participants in primary care clinics located in both rural and urban areas. The primary care clinics were typical medical centers providing day-to-day healthcare given by PCPs including chronic disease management.

**Sample**

The sample for this DNP scholarly project was practicing NPs in the primary care setting within southeastern Wyoming and northern Colorado regions. Five nurse practitioners participated; this sample size was considered appropriate based on the premise that suitable results could be obtained by a comparatively small group of homogenous experts.

Panels of similarly trained experts who possess a general understanding in the field of interest provide effective and reliable utilization of a small sample from a limited number of experts in a field of study to develop reliable criteria that inform judgment and support effective decision-making. (Akins, Tolson, & Cole, 2005, p. 10)

**Inclusion Criteria**

Individuals currently certified as family nurse practitioners within the primary care focus and employed within rural or urban outpatient family practice clinics were considered for participation.

**Exclusion Criteria**

Individuals not certified as Family Nurse Practitioners, those who did not care for chronic disease patients, those not currently working, or those not working in an outpatient family practice clinic were excluded from participation.
Recruitment

Participants were recruited through an introductory email sent to family nurse practitioners who had expressed interest in this project and were currently employed in family practice clinics in northern Colorado and southeastern Wyoming regions. Additional participants were recruited via the snowball method where initial participants were encouraged to share emails and invite peers and colleagues to participate. Email addresses were kept confidential in a password-protected file that was not shared with any other sources or with other participants in the program. The project lead was the only one with access to password protected information. The consent to participate was implied by participants’ completion of the surveys. Formal participation consent language was stated within the invitation email and at the beginning of each survey.

Project Mission, Vision, and Objectives

Mission

The project mission was to assist PCPs in empowering chronic disease patients with successful disease self-management through a practice care guideline that enhanced self-efficacy in order to improve QOL of health outcomes.

Vision

The vision of the project aspired to provide a chronic disease clinical guideline and algorithm based on the self-efficacy theory that could be utilized for providers across primary care settings to prevent and reduce disease exacerbation, hospitalizations, and reduce morbidity and premature mortality. This vision included advocating for the implementation of the self-efficacy theory to enhance patient empowerment and
provider-patient collaboration and improve quality of life in chronic disease patients to benefit both patients and society as a whole.

**Objectives**

The objectives included providing strategies and supporting patients in gaining confidence in decision-making, problem-solving, and self-management with regard to their chronic disease as a means to positively impact their health status and quality of life.

The objectives of this project were as follows:

1. Conduct an integrated literature review regarding chronic disease self-management and self-efficacy.
2. Use best evidence available to develop a clinical guideline and algorithm designed to enhance self-efficacy in non-compliant chronic disease patients.
3. Survey nurse practitioners to elicit opinions and suggestions for the clinical guideline and algorithm to produce a feasible and productive strategy for self-efficacy enhancement and disease self-management in chronic disease patients.
4. Edit the clinical guideline with algorithm as suggested by expert opinions.
5. After completion of the DNP scholarly project, assess primary care provider opinions of approving the edited version of the clinical guideline and algorithm.
Project Plan

Preparation

An integrated literature review was used to guide clinical guideline and algorithm development where relevant research literature regarding successful chronic disease self-management strategies with a self-efficacy focus were examined. The dominant interventions garnering success were comprised of education, goal setting, support systems, positive persuasion, and holistic care approaches.

Guideline development strategies were utilized to guide development of the guideline and algorithm, ensuring achievement of the desired outcome. Strategies were ascertained from the most referenced journal article, Developing Guidelines (Shekelle Woolf, Eccles, & Grimshaw, 1999), which assisted with identifying and assessing evidence and translating that evidence into the clinical practice guideline. Important steps were as follows:

1. Identifying and refining the subject area of a guideline. This entailed identifying the need for improved chronic disease management in the clinical setting. Justification for developing the guideline involved statistical data related to morbidity, mortality, and personal and societal burdens.

2. Setting up a guideline development project. A systematic approach to project development involved planning of such tasks as the identification, synthesis, and interpretation of relevant evidence toward the production of the resulting guideline and accompanying algorithm.
3. Identifying and assessing the evidence. A literature review assessed for strategies for chronic disease self-management. Data were then extracted from the relevant studies on the most probable successful interventions and the benefits of the interventions being considered.

4. Translating evidence into a clinical practice guideline. The evidence was interpreted for the applicability to the population of interest. The guideline was written with consideration for feasibility including time, necessary tools for the provider to carry out the recommendations, and the ability of systems of care to implement the proposed guideline.

5. Reviewing and updating guidelines. To ensure guideline and algorithm content validity, clarity, and applicability, a Survey Monkey questionnaire was created to elicit opinions from external reviewers with expertise in the clinical area of chronic disease. The guideline and algorithm were then edited based on suggestions and opinions provided by the expert panel.

After completion of the DNP scholarly project, another evaluation of the improved guideline and algorithm is desired.

The survey along with the clinical guideline and algorithm were distributed to willing participants meeting inclusion criteria to critique the materials. Participants received an introductory email introducing them to the survey and respectfully asking for their participation. The email contained a brief description of the project objectives and information about consent with a link to the survey through Survey Monkey where participants were again advised that completion of the survey constitutes consent. Question formats included open-ended queries or yes/no responses with room for
additional comments. This survey assessed expert opinions and suggestions regarding the proposed clinical guideline and algorithm. Participants had the ability to contact the project lead with questions or assistance through contact information provided within the recruitment email.

Responses were collected and edits to the proposed clinical guideline and algorithm were guided by the responses and comments provided. As a future step after completion of this scholarly project, a closing survey would be distributed to the participants with the edited guideline and algorithm to elicit additional approval and suggestions.

**Instrumentation**

**Self-Efficacy Scale**

The Self-Efficacy for Managing Chronic Disease Six-Item Scale provided by Stanford Patient Education Research Center (Lorig, Sobel, Ritter, Laurent, & Hobbs, 2001) measures confidence level in several domains common across many chronic diseases such as symptom control, role function, emotional functioning, and communicating with physicians. This scale was free to use without permission and was part of the algorithm to assist PCPs in identifying chronic disease patients with a low self-efficacy. This self-efficacy scale showed an .91 internal consistency reliability when tested on 605 subjects with chronic disease (Lorig et al., 2001). Recognition of which patients exhibited poor chronic disease self-management allowed facilitation of treatment planning and effective interventions. The Self-Efficacy for Managing Chronic Disease Six-Item Scale was part of the clinical guideline and algorithm to measure a patient’s level of self-efficacy and drive interventions.
Analysis

Analysis encompassed both quantitative and qualitative data from the survey. Quantitative data encompassed descriptive data of the participants and the approval rate of the components of the guideline and algorithm. Qualitative data contained suggestions and opinions provided by the expert panel. A closing survey is anticipated as a future phase and will consist of primarily quantitative data measuring the approved rate of the edited clinical guideline and algorithm.

Data Analysis Procedures

Data Collection

SurveyMonkey, an online survey software service, was used to collect questionnaire answers. The survey questions were designed by the project lead and responses were sent over a secure, encrypted connection and kept in a password protected file with the project lead being the sole holder of the password.

Statistical Analysis

All data were combined within a Survey Monkey spreadsheet and examined. Data analysis included both quantitative and qualitative data from the survey.

Duration of the Project

This project was completed over approximately 12 weeks starting with participant recruitment through the evaluation of the final clinical guideline and algorithm, data analysis, and completion of final written work. The project began one day after Institutional Review Board (IRB) approval (see Appendix A) was obtained. Final
submission of findings and defense were anticipated to be completed by October 31, 2019. The projected timeline for this project was as follows.

- July 22, 2019: Proposal completion
- September 10, 2019: Completion of the proposed clinical guideline and algorithm
- September 13, 2019: University of Northern Colorado’s Institutional Review Board approval (see Appendix A)
- September 14, 2019: Participant recruitment through email and questionnaire (see Appendix B), the Self-Efficacy for Managing Chronic Disease Six-Item Scale (see Appendix C), algorithm, and guideline sent via SurveyMonkey
- October 1 2019: Email reminder to complete closing survey
- October 9, 2019: Synthesize information from survey, analysis, and interpretation.
- October 10-12, 2019: Develop final guideline/algorithm (see Appendices D and E)
- October 15, 2019: Completion of final paper
- October 30, 2019: DNP scholarly project defense
- November 5, 2019: File final DNP scholarly project document

**Ethical Considerations**

The overall objective of this project was to provide PCPs with a guideline and algorithm to guide assessment of low efficacy in chronic disease patients and provide support to enhance patient self-efficacy and disease self-management. The guideline
materials were not considered controversial. This DNP project was submitted through the IRB at the University of Northern Colorado to evaluate any risk to human participants. Participants received a written introductory email with the explanation of the project and included implied consent. Participants were guaranteed that their participation was completely voluntary and any surveys might be answered or left unanswered at their discretion. All data remained confidential and secured.

Summary

This project was designed to incorporate an evidence-based literature review into a clinical guideline and algorithm to improve self-efficacy in noncompliant chronic disease patients and help primary care nurse practitioners best address the needs of these patients. It was theorized that participants who utilized a clinical guideline and algorithm based on the self-efficacy theory would have the knowledge and skills to better support chronic disease patients in self-management of their disease(s). With the continuing growth of chronic disease patients, adequate support guidance from PCPs is vital. Using the self-efficacy theory allows nurse practitioners to empower patients to gain confidence in decision-making, problem-solving, and self-management of their chronic disease to positively impact their health status and quality of life.
CHAPTER IV

DATA ANALYSIS AND RESULTS

Objective One Outcome

Objective one was met as follows: Through the use of the best evidence ascertained through an extensive literature research, a clinical guideline with algorithm were developed by this researcher with the intention of enhancing self-efficacy in non-compliant chronic disease patients.

Research literature was examined to determine most probable successful interventions for increasing self-efficacy in chronic disease patients. The literature search used keywords such as chronic disease self-management, self-efficacy and chronic disease, support needs of chronic disease patients, and prevention of chronic disease exacerbations. Articles published within the last 30 years were considered and 18 articles were ultimately included for the review.

Leading interventions in chronic disease self-management success involved education, goal setting, support systems, positive persuasion, and holistic care approaches. Utilizing Bandura’s (1994) self-efficacy theory as the framework for creating the algorithm and guideline, strategic interventions were connected to corresponding sources of self-efficacy.

Guideline development strategies outlined in the most referenced journal article, Developing Guidelines (Shekelle et al., 1999), guided the development of the practice care guideline. The key steps referenced by the authors assisted with identifying and
assessing evidence and translating that evidence into the clinical practice guideline and algorithm. Steps included refining the subject area, setting up the guideline, assessing evidence, translating the evidence into the guideline, and reviewing and updating the guideline. The results of the clinical guideline and algorithm are the finished documents themselves (see Appendix E for the guideline and Appendix D for the draft algorithm). However, a summary is provided in the following sections.

**Clinical Guideline**

The clinical guideline delineated recommendations for evaluation and enhancement of self-efficacy in chronic disease patients. The target audience was primary care providers who care for the population that encompasses any chronic disease patients who present to the primary care office for routine management and exacerbation treatment. Recommendations were divided according to Bandura’s (1994) four main sources of self-efficacy beliefs: mastery experiences, vicarious experiences, verbal persuasion, and emotional and physiological states. Leading interventions (education, goal setting, support systems, positive persuasion, and holistic care) were tailored to each source of self-efficacy beliefs.

The guideline began by identifying the target audience and discussed the scope of the chronic disease burden, patient population, and inclusion criteria. A rationale and objective were then provided. The guideline directed the healthcare provider to first evaluate the patient’s level of self-efficacy. Evaluation was conducted with the use of the Self-Efficacy for Managing Chronic Disease Six-Item Scale provided by Stanford Patient Education Research Center (Lorig et al., 2001), which was free to use without permission. High self-efficacy was considered when the score was greater than 42. With
these scores, self-efficacy was not considered a barrier to disease self-management and other alternate impediments to compliance could be considered. Barriers might include financial concerns, lack of resources, time management, environment, etc. Low self-efficacy was considered when the score was 42 or less and the provider should continue with the recommendations based on the patient’s primary concern. Primary concerns were grouped within the four sources of self-efficacy described within Bandura’s (1994) self-efficacy theory: mastery experience, vicarious experience, verbal persuasion, and physiological/emotional state.

Mastery experience, vicarious experience, and verbal persuasion included knowledge-based interventions. Mastery experience interventions are constructed from skill knowledge deficits. Skill knowledge relates to the proficiency in the application of knowledge and includes making decisions and performing tasks through direction and routines. Practice and repetition are essential components along with building from incremental, manageable goal attainment.

Vicarious experience interventions are created to enhance experience knowledge. Experience knowledge pertains to knowledge gained through involvement in or exposure to experiences. Essential experiences might be passive or active and can be practiced in person, in literature, or online. Avenues of experience include in-person or online support groups, community-based resources, or disease-specific organizations.

Verbal persuasion interventions are constructed to develop behavior knowledge, which encompasses actions and behaviors based on current knowledge and confidence level. Patients can be persuaded that they possess the capabilities to master certain health behaviors. This is especially true when information comes from influential individuals
like a primary care provider. Verbal persuasion attempts to influence the way a patient thinks or behaves by appealing to emotion or logic. Verbal persuasion can also be accomplished through self-talk, which can powerfully affect the way a person thinks, feels, and behaves.

Physiological/emotional state interventions are part of the holistic care ideology. Physiologically, a patient may require treatment for nausea or pain. Emotionally, the patient may need interventions for anxiety or depression, whether in the primary care setting or referred to behavioral health services. The state a patient is in will influence how they judge their self-efficacy and ability to accomplish health tasks. Depression, for example, dampens confidence in capabilities. Stress is interpreted as a sign of vulnerability and low self-confidence. Pain prevents needed functional activities or exercise, which leads to increased depression and further noncompliance. Therefore, it is important to address the physiological/emotional state of the patient. Once these barriers are addressed, a patient’s self-efficacy level can be re-assessed and the algorithm might be followed from the beginning in a cyclic manner as needed.

**Algorithm**

The algorithm flowchart was developed by this researcher to allow visual representation of the pathways of the clinical guideline. The intent of the algorithm was to provide a logical approach in how to carry out the guideline processes by connecting steps or actions. The algorithm started with evaluating the patients’ level of self-efficacy and then following through to appropriate interventions.
Objective Two Outcome

The second objective was met as follows: Nurse practitioners were surveyed to elicit opinions and suggestions for the clinical guideline and algorithm in order to produce a feasible and productive strategy for self-efficacy enhancement and disease self-management in chronic disease patients. Survey questions were developed with the intent of eliciting opinions and suggestions on the initial practice care guideline and algorithm.

After obtaining IRB approval, recruitment of participants was initially performed through a recruitment email. Initial recruits were also asked to forward the recruitment email to colleagues. Participants were asked to review the initial version of the clinical guideline and algorithm. Nurse practitioners were then surveyed through Survey Monkey to prompt opinions on the feasibility and value of the clinical guideline and algorithm and also to obtain suggestions for altering and improving the documents to produce a productive strategy for self-efficacy enhancement and disease self-management in chronic disease patients.

A total of five participants completed the survey. These respondents all identified as females between the ages of 40 through 58. Two were master-prepared nurse practitioners and three participants held a doctorate. Collectively, there were 52 years of experience among participants. All but two of the respondents worked within the state of Wyoming; one was employed in Idaho and the other in Colorado. Three reported employment in family practice, one reported concentrating on women’s health, while another reported specializing in psychiatry. Four of the five participants described
working with rural populations with one designating an urban work setting. On average, participants reported seeing 44.4 patients per week.

All five participants stated they worked with chronic disease patients either directly, providing patient care, or, indirectly, in developing systems or procedures. None of the survey contributors indicated their current organization had utilized any clinical guidelines or protocols with regard to non-compliant chronic disease patients.

Four of five participants agreed the proposed clinical guideline and algorithm were easy to read and understand. One responder recommended using fewer words in the algorithm and another pointed out grammatical errors in the guideline. With these exceptions, no other suggestions were added or deleted in the narratives within these documents.

Considering whether the proposed clinical guideline and algorithm would be useful and feasible in the primary care setting, four stated “yes” although one pointed out a few concerns. Even though this participant stated such a guideline would be useful, one concern was whether there was enough time available in appointments as introducing another screening instrument or intervention might take more time than providers were able/willing to spend. Another concern was whether this guideline should be used by the provider or perhaps by a care/case manager. One participant stated the proposed clinical guideline and algorithm would be not be useful or feasible. This contributor contended it was another step to take in attempting to care for patients in a timely manner when it was already part of the job to assess these barriers to disease management in patients. It was pointed out that this might be helpful to a newer provider or a provider in training as they could learn to automatically perform this assessment and set goals for achievement with
the patient. None of the five contributors had any additional questions. Four participants stated they would be willing to review the final practice care guideline and algorithm if given the opportunity and one reviewer declined willingness to evaluate the final documents.

**Objective Three Outcome**

The third objective was met as follows: Developed a final clinical guideline with algorithm for primary care providers to be potentially utilized in promoting patient self-efficacy and disease self-management. One suggested changes to the practice care guideline that involved some grammatical errors, resulting in minor edits. Aside from this, no other changes were made to the clinical guideline. Considering suggestions and answers provided in the survey, a more streamlined final algorithm was developed.

Wording on the algorithm was reduced within each process step box. For example, instead of the phrase “Are disease self-management barriers related to emotional needs?” wording was changed to “barriers r/t emotional needs?” Another strategy to restructure and simplify the algorithm involved combining some of the process step boxes. The initial algorithm possessed 23 process step boxes with 28 connecting arrows. The final algorithm contained only 20 process step boxes with 24 connecting arrows.

**Objective Four Outcome**

The fourth objective was met as follows: Assessed primary care providers opinion of approving or opposing the final clinical guideline and algorithm. The next step after the completion of this project would be to obtain approval/disapproval of the final draft practice care guideline and algorithm. This would involve a Survey Monkey online assessment.
CHAPTER V
DISCUSSION
Introduction

The purpose of this DNP scholarly project was to create an evidence-based practice care guideline and algorithm for nurse practitioners to utilize that focused on improving self-efficacy in non-compliant chronic disease patients. With overwhelming chronic disease morbidity and mortality, improved management of this population is critical. The practice care guideline and algorithm were developed from extensive literature research to ascertain promising disease self-management interventions. This non-experimental quality improvement strategy received predominately positive support from expert reviewers with 80% (4 of 5 participants) stating the proposed guideline and algorithm would be feasible in the primary care setting. With this positive response, presenting the final draft of the practice care guideline and algorithm for expert opinion would be a reasonable next step toward future expansion of this project.

Key Facilitators

One key facilitator to this DNP project involved the years of nurse practitioner experience reported by the expert reviewers, which collectively totaled 52 years. This experience also took into account the level of education achieved by the participants. This translated to real world expertise based not only on clinical experience but also accumulated knowledge from both degree attainment and continuing education (see Figure 2).
Another important facilitator was all five responders described encountering chronic disease patients in their professional role. Familiarity with the targeted patient population is essential for accurate opinions. Finally, the geographical area was varied, encompassing three different states: Wyoming, Colorado, and Wyoming and covering both urban and rural areas. Given the small sample of five experts, geographic diversity ensured representation of wider patient population within provider experience.

**Key Barriers and Limitations**

One barrier to the project included the small sample of expert reviewers. Recruitment emails were sent to primary care nurse practitioners with a request to forward the email to additional providers, known as the snowball method. Only five surveys were returned. It was unknown how many potential participants received recruitment emails through the snowball method. However, it was recognized that the initial recruitment pool was too narrow. This was a limitation as the constraints of a small sample size might have led to less conclusive results. A larger sample might have provided a wider array of suggestions for altering or improving the practice care.
guideline and algorithm and opinions relating to feasibility of use in the primary care setting.

Offering expert opinion and review with the online format through Survey Monkey allowed for participants to evaluate and assess the practice care guideline and algorithm at their convenience. However, an in-person or conference video forum might have resulted in more extensive and robust conversations in the development of materials.

Conclusions

While the expert opinion response of the DNP project did not reach anticipated participation totals, there was indication from responses received that the practice care guideline and algorithm could be a valuable tool to utilize in the primary care setting. No current tools, algorithms, or guidelines were reported by expert reviewers to be available or utilized for disease self-management enhancement in non-compliant chronic disease patients. With the significant burdens chronic disease places on individuals, families, the healthcare system, and society as a whole, the need for an increased focus on management at all stages of chronic disease is essential. The clinical guideline and algorithm to enhance self-efficacy in noncompliant disease patients could be a positive step toward improved self-management strategies and better health outcomes.

Recommendations for Future Research

Considering the results from this non-experimental quality improvement project, it would be pragmatic to offer the opportunity for an expert panel to review the final practice care guideline and algorithm. The panel could convene in person or within an online format to discuss concerns, suggestions, and future steps. Another Survey
Monkey questionnaire could be additional avenue for pertinent information. Pilot testing the documents in a real-world primary care setting would be a valuable action moving forward in the direction of improved patient care. It would also be beneficial to implement more extensive studies that have the ability of examining self-management scores both pre- and post-intervention.

**Reflections on Meeting Criteria of Doctor of Nursing Practice**

**Doctor of Nursing Practice Essentials**

The Doctor of Nursing Practice is defined as follows:

any form of nursing intervention that influences health care outcomes for individuals or populations, including the direct care of individual patients, management of care for individuals and populations, administration of nursing and health care organizations, and the development and implementation of health policy. (American Association of Colleges of Nursing [AACN], 2004, p. 3)

Preparation at the DNP level requires necessary fundamentals and competencies to prepare for the DNP role. The eight essentials of doctoral education for advanced nursing practice (AACN, 2006), were implemented throughout this DNP scholarly project, thus reflecting an understanding of the responsibilities associated with the DNP degree.

- **Essential I: Scientific Underpinnings for Practice.** Essential I was met in various ways. First, organizing a comprehensive literature review and synthesis summary identified self-efficacy as a viable strategy for positive change in health practices for non-compliant chronic disease patients. The
project was underpinned by Bandura’s (1994) self-efficacy theory, which helped determine human motivation and self-perceived abilities to perform health practices. The science of human behaviors was vital in this context to enhance health care delivery. The Self-Efficacy for Managing Chronic Disease Six-Item Scale (Lorig et al., 2001) was developed and validated by the Stanford Patient Education Resource Center and was subject of various research articles. Utilization of the scale assisted with analytical and organizational science during development of the project.

- Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking. The goal of the project included developing a care delivery approach that would meet current and future needs of chronic disease patients. The practice care guideline and algorithm were built on findings described in literature from various clinical settings and situations. The purpose was to fill a process gap by developing materials that could be integrated into a clinic health policy or processes for practice-level or even system-wide practice initiatives designed to improve the quality of care for chronic disease patients.

- Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice. Development of the practice care guideline and algorithm required applying translation of research, relevant findings, and new knowledge into clinical practice. Solving the problem of poor chronic disease self-management is vital to improved health outcomes for individuals and society as a whole. Application of scholarship expanded
new knowledge of this researcher beyond discovery and toward development of this non-experimental quality improvement project.

- Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care. Information systems and technology were employed during project development. The expert opinion questionnaire developed by this researcher offered an avenue to evaluate feasibility and usability in the practice care setting. Developing the questionnaire bank on Survey Monkey provided an analytical method to collect appropriate data, analyze results, and generate evidence toward improvement of the practice care guideline and algorithm. Technical skills were necessary to create the algorithm using process improvement flowsheet techniques to visually communicate practice care guideline steps.

- Essential V: Health Care Policy for Advocacy in Health Care. This researcher demonstrated advocacy for social justice, equity, and ethical treatment of chronic disease patients. A disproportionate burden of chronic disease occurs in people of low socioeconomic status due to differences in health behaviors, sociopolitical factors, and social, structural, and environmental aspects. Bringing attention to the burdens experienced by patients and residual burdens placed on society is a vital move toward awareness and understanding. This project highlighted the need for improved healthcare strategies for this diverse population.

- Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes. This researcher exercised effective
communication and collaborative skills in the development of the practice care guideline and algorithm by eliciting expert opinions from practicing nurse practitioners. The desired result of the project was to initiate change in healthcare delivery for chronic disease patients.

- **Essential VII: Clinical Prevention and Population Health for Improving the Nation’s Health.** This improvement project was intended to go beyond implementation in a single clinic, city, or state but, instead, the hope was to spread beyond to influence improved health care for the nation. Chronic disease is a prevalent problem nation-wide. This project aimed to enhance understanding about the determinants of chronic diseases in populations and the guideline with algorithm delineated interventions designed to reduce morbidity and mortality. Improving the health status of this very large patient population equates to a healthier nation.

- **Essential VIII: Advanced Nursing Practice.** This project has allowed this researcher to design therapeutic interventions based on nursing science and other sciences such as Bandura’s (1994) self-efficacy theory. Therapeutic interventions were constructed from clinical experience, research, and then intertwined with the self-efficacy theory. The project materials also offered an avenue to foster and sustain provider-patient relationships by encouraging communication and self-care discussions. The work throughout the project process has enhanced this researcher’s knowledge and skills, further cultivating nursing excellence.
Enhance, Culmination, Partnerships, Implements, and Evaluation

The acronym EC as PIE (Enhance, Culmination, Partnerships, Implements, and Evaluation) is a “five-point system of evaluation to determine whether a DNP final project meets the outcomes of the American Association of Colleges of Nursing (AACN) in a comprehensive and rigorous way” (Waldrop, Caruso, Fuchs, & Hypes, 2014, p. 300). How the EC as PIE criteria were met are provided in the following paragraphs.

**Enhances.** The first criterion for evaluation related to how the DNP project could enhance or influence practice and health outcomes or healthcare policies, processes, or programs. This project focused on enhancing health outcomes for chronic disease patients by providing guidance to nurse practitioners in their care of this patient population. The clinical practice guideline and algorithm could assist care providers in detecting low self-efficacy and then identifying appropriate interventions. Implementing a healthcare process such as this in a primary care setting has the potential to improve healthcare delivery and patient outcomes.

**Culmination.** Culmination refers to thoroughly understanding a specific problem and using the knowledge to endorse change. The change must be feasible and sustainable in real-world settings. Culmination of the knowledge gained from literature review, clinical experience, and expert opinion was applied to develop a practice care guideline and algorithm with therapeutic interventions. The intent of the practice care guideline was to provide an effective tool to improve quality of care for chronic disease patients.
**Partnerships.** Partnerships and collaboration are vital in providing best patient care. A partnership was developed with nurse practitioners who currently cared for chronic disease patients. Expert opinion feedback offered valuable suggestions for enhancing the practice care guideline and algorithm. It would be beneficial for advancement of this project to coordinate future partnerships with a pilot study.

**Implements.** Implements denotes applying and translating evidence into practice. After completion of the practice care guideline and algorithm, an expert opinion questionnaire was created to elicit valuable information. This resulted in a final draft of the documents. The desire was for the project to go beyond a clinic, a city, or a state to be spread on a larger scale. Chronic disease morbidity and mortality significantly affect the globe and improved care for these patients are needed on a nation-wide scale.

**Evaluates.** Responses from the expert opinion questionnaire were predominately positive. Evaluation of opinions and suggestions resulted in important changes to the primary care guideline and algorithm to ensure the documents were understood, had ease of use, and were effective. Further evaluation of the guideline and algorithm is anticipated outside this researcher’s scholarly pilot project.

**Summary**

This researcher met personal, professional goals, and goals outlined from the AACN’s (2006) eight essentials of DNP education as well as criteria for EC as PIE. The DNP program and scholarly project cultivated knowledge compulsory to translate evidence-based research into nursing practice. This researcher recommends ongoing discussion of usability and feasibility of the practice care guideline and algorithm. A longer evaluation time outside of the DNP project is recommended for a pilot study.
REFERENCES


APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL
DATE: September 13, 2019

TO: Karen Alexander, DNP-FNP
FROM: University of Northern Colorado (UNCO) IRB

PROJECT TITLE: [1464239-2] Development of a clinical guideline and algorithm to enhance self-efficacy in non-compliant chronic disease patients

SUBMISSION TYPE: Revision

ACTION: APPROVAL/VERIFICATION OF EXEMPT STATUS

DECISION DATE: September 13, 2019
EXPIRATION DATE: September 13, 2023

Thank you for your submission of Revision materials for this project. The University of Northern Colorado (UNCO) IRB approves this project and verifies its status as EXEMPT according to federal IRB regulations.

We will retain a copy of this correspondence within our records for a duration of 4 years.

If you have any questions, please contact Nicole Morse at 970-351-1910 or nicole.morse@unco.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNCO) IRB's records.
APPENDIX B

INITIAL SURVEY
Initial Survey

Thank you for your participation in this survey. The objective of this project is to develop a clinical guideline and algorithm to enhance self-efficacy in non-compliant chronic disease patients. Please review the attached clinical guideline and algorithm.

The questions below pertain to opinions and suggestions after reviewing the proposed clinical guideline and algorithm. Please answer as fully as possible and feel free to elaborate or qualify your responses. Participation is voluntary; you may stop or withdraw at any time. If you have any specific questions regarding the survey or the project, please email Karen Alexander at bull9760@bears.unco.edu.

1) Demographics
   a. Age
   b. Gender
   c. Highest degree
   d. Clinical specialty
   e. How long working in specialty
   f. Urban or rural?
   g. State
   h. Average number of patients seen per week

2) Do you encounter chronic disease patients in your professional role? (either directly, providing patient care, or indirectly, in developing systems/programs)
   o Yes
   o No
   Comments:

3) Are you (or your organization) currently using any sort of clinical guideline/protocol in clinical practice with regards to noncompliant chronic disease patients?
   o Yes
   o No
   Comments:
   What do you like/dislike about the clinical guideline you currently use?

4) From your perspective do you find the attached proposed clinical guideline and algorithm easy to read and understand?
   o Yes
   o No
   Comments:
5) In your professional opinion do you feel that the proposed clinical guideline and algorithm would be useful and feasible in the primary care setting?
   o Yes
   o No
   Comments:

6) What areas or narratives would you suggest should be added in the proposed clinical guideline and algorithm?
   Please elaborate:

7) What areas or narratives would you suggest should be deleted in the proposed clinical guideline and algorithm?
   Please elaborate:

8) Do you have any questions you would like to ask at this time?
   Do you have any suggestions to offer at this time?
   Do you have any concerns?

9) Would you be willing to review the final practice guideline and algorithm with the added suggestions from this survey?
   o Yes
   o No
   Comments:
APPENDIX C

SELF-EFFICACY FOR MANAGING CHRONIC DISEASE SIX-ITEM SCALE
Self-Efficacy for Managing Chronic Disease 6-item Scale

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

1. How confident do you feel that you can keep the fatigue caused by your disease from interfering with the things you want to do?

2. How confident do you feel that you can keep the physical discomfort or pain of your disease from interfering with the things you want to do?

3. How confident do you feel that you can keep the emotional distress caused by your disease from interfering with the things you want to do?

4. How confident do you feel that you can keep any other symptoms or health problems you have from interfering with the things you want to do?

5. How confident do you feel that you can the different tasks and activities needed to manage your health condition so as to reduce your need to see a doctor?

6. How confident do you feel that you can do things other than just taking medication to reduce how much your illness affects your everyday life?
APPENDIX D

ALGORITHM TO ENHANCE SELF-EFFICACY IN NON-COMPLIANT CHRONIC DISEASE PATIENTS
Assess self-efficacy level using the Self-Efficacy for Managing Chronic Disease 6 Item Scale

Score < 42?

YES

Assess patient’s primary concern/barrier to disease self-management

Barriers r/t knowledge?

YES

Assess if knowledge deficit is r/t: Skill, Experience, or Behavior

R/t skill?

YES

Mastery Experience:
- Initiate 1-2 incremental/achievable goals
- Educate/instruct for goal achievement
- Set goal dates
- Encourage practice of skills

NO

R/t experience?

YES

Vicarious Experience:
- Link patient to community based or online resources
- Encourage appropriate community support groups
- Introduce to online support groups

NO

R/t behavior?

YES

Verbal Persuasion:
- Provide storytelling (verbal, written, video)
- Teach self-talk, positive imagery
- Encourage personal motivational materials (written, video)

NO

Consider alternate barriers *Return to green box

Consider alternate barriers to compliance: Financial, Resources, etc.

Barriers r/t physiologic needs?

YES

Assess physiological barriers: pain, fatigue, nausea, etc. Treat as appropriate

NO

Barriers r/t emotional needs?

YES

Assess emotional barriers: depression, anxiety, etc. Treat or refer as appropriate

NO

R/t skill?

YES

Evaluate intervention participation/success (patient portal, email, telephone followup)

Success?

YES

NO

Re-evaluate barriers - Re-evaluate goals - Consider alternate interventions - *Return to green box
APPENDIX E

GUIDELINE FOR EVALUATION AND ENHANCEMENT OF SELF-EFFICACY IN CHRONIC DISEASE PATIENTS
**Primary Care Guideline with Algorithm**

**RECOMMENDATIONS FOR EVALUATION AND ENHANCEMENT OF SELF-EFFICACY IN CHRONIC DISEASE PATIENTS**

**Target Audience:**
*Primary care providers who care for chronic disease patients*

**Scope/Patient Population:**
“Chronic diseases affect approximately 133 million Americans, representing more than 40% of the total population” (National Health Council, 2014, para. 2). Moreover, chronic conditions often do not exist in isolation but rather, “one in four U.S. adults have two or more chronic conditions, while more than half of older adults have three or more chronic conditions” (Tinker, 2017, p. 1). Chronic conditions linger over many years and require comprehensive, continual management and are the leading cause of diminished quality of life, economic burden, and mortality in the United States. It is projected that by 2025, “chronic diseases will affect an estimated 164 million Americans – nearly half (49%) of the population” (Partnership to Fight Chronic Disease, n.d., para. 2). As chronic disease prevalence increases, so does the need for adequate healthcare and support. This increasing number of those living with chronic conditions represents a public health concern of growing magnitude. Emphasizing patient responsibility while cultivating an effective patient-provider relationship to enhance chronic disease self-management results in a promising strategy for managing chronic conditions by evolving beyond education to teaching patients to actively identify challenges and solve problems associated with their condition.

This guideline is based on the concept that chronic disease patients, especially those who are multimorbid and with a low self-efficacy, have a higher disease burden, lower quality of life, and poor health outcomes. Understanding where a patient is in their self-efficacy level is an important first step to proper care. “Awareness of self-efficacy levels among patients with multi-morbidity may help health professionals identify patients who are in need of enhanced self-management support because higher self-efficacy leads to enhanced quality of life” (Peters, Potter, Kelly, & Fitzpatrick, 2019, p. 9). Once low self-efficacy is determined, it is possible to better provide patients with the knowledge, resources, and skills necessary to perform tasks essential to self-manage their conditions toward better health outcomes.
Scope/Patient Population/Inclusion and Exclusion Criteria:
Chronic disease patients who present to the primary care office for routine management and exacerbation treatment.

Rationale:
Considering some of the conceptual and practical challenges relating to chronic disease management, applying the self-efficacy theory can assist in achieving increased levels of self-management, self-ability, and improve outcomes for the chronic disease population. The self-efficacy theory offers a useful framework for the understanding, assessing, and providing interventions for chronic disease management by providing a systematic direction which allows one to interpret, modify, and predict patients’ behaviors.

Objective:
The overall objective is to provide primary care providers guidance in the assessment of self-efficacy in chronic disease patients and provide direction toward enhancement in patients’ self-efficacy in order to improve health outcomes. The self-efficacy theory can be utilized for providers across primary care settings to prevent and reduce disease exacerbation, hospitalizations, reduce morbidity and premature mortality. Strategies include supporting patients in gaining confidence in decision-making, problem-solving and self-management in regards to their chronic disease as a means to positively impact their health status and quality of life.

Recommendations:
1. Patients presenting with non-compliance of chronic disease regimens should be evaluated for low level of self-efficacy by utilizing the **Self-Efficacy for Managing Chronic Disease 6-item Scale.**
   a. High self-efficacy (>42) - Consider alternate barriers to compliance: Financial concerns, lack of resources, environment, etc.
   b. Low self-efficacy (<42) – Continue with the following recommendations.

2. In terms of chronic disease compliance, evaluate the patient’s **primary** concern:
   a. Knowledge:
      i. Skill knowledge (proficiency in the application of knowledge)
      ii. Experience knowledge (knowledge gained through involvement in or exposure to experience).
      iii. Behavior knowledge (actions and behaviors based on current knowledge and confidence).
b. Physiological needs (nausea, pain, fatigue, etc).
c. Emotional needs (Depression, anxiety, cognitive dissonance, etc).

3. Interventions will fall under one of Bandura’s four sources of self-efficacy (*Mastery Experience, Vicarious Experience, Verbal Persuasion, or physiological/emotional state*):
   a. Mastery Experience
      i. **Skill knowledge:** For success in Mastery Experience, practice and repetition are essential. It is important to start with small, manageable incremental changes to allow the patient to experience success. “I will not eat chocolate for four days” - “I will walk for 15 minutes a week for 1 month.” After mastering the goal, the patient can then build on this goal and aspire for more difficult tasks. Barriers need to be addressed such as “where to walk during the winter time” etc.

   b. Vicarious Experience
      i. **Experience knowledge:** Concerns regarding past experience or knowledge deficits can be satisfied with Vicarious Experience interventions. Introducing patients to observe others similar to themselves who succeed by their sustained effort raises the belief that they too possess the capabilities to master health related activities. Vicarious Experience can be accomplished in person, in literature, or online. Appropriate support groups provide opportunities for patients to share personal experiences, feelings, coping strategies, and additional techniques for disease self-management. Linking patients to online resources is another avenue for vicarious experience. Examples of linking patients to community-based self-management resources include:
         2. Colorado: [https://211colorado.communityos.org/zf/taxonomy/detail/id/116771](https://211colorado.communityos.org/zf/taxonomy/detail/id/116771)
            [https://www.ruralhealthinfo.org/project-examples/835](https://www.ruralhealthinfo.org/project-examples/835)
         3. Any Community: Health department, Chamber of Commerce, YMCA, online or local chapters of societies such as the Arthritis Foundation and the American Lung Association.

   c. Verbal Persuasion
      i. **Behavior knowledge:** When behaviors are a concern, Verbal Persuasion, provides effective strategies. Patients can be persuaded that they possess the capabilities to master certain health behaviors. This is
especially true when information comes from influential individuals like a primary care provider. It can also be accomplished through Self Talk. One’s own self-persuasion through self-talk is effective when self-talk is positive and powerfully affects the way a person thinks, feels, and behaves. Verbal Persuasion attempts to influence the way a patient thinks or behaves in two different ways:

1. **Appeal to emotion:**

   **Decrease Self-efficacy:** “I know this is going to be hard and it is not going to be easy for you to stick to this regimen. Others have expressed how painful and difficult it was to complete.”

   **Increase Self-Efficacy:** “Others have experienced no problems with this regimen. I know and I’m sure that others around you think that you are a ‘tough’ and ‘capable’ person and can handle this situation.”

2. **Appeal to Logic:** Use facts and evidence:

   **Decrease Self-efficacy:** “Quitting rates for smokers are dismal and many fail about 95% of the time.”

   **Increase Self-efficacy:** “Each year about 1.3 million smokers do quit. Research shows that with a good smoking cessation program, 20 to 40 percent of smokers are able to quit smoking and stay off cigarettes for at least one year” (National Jewish Health, n.d.).

3. **Self-Talk:** This method can be practiced in front of a mirror:

   “I have what it takes to lose weight” – “I lost five pounds, I can lose five more” – “Taking walks makes me feel good, I can increase my distance tomorrow.”

Self-talk books to recommend to patients:

*What to Say When you Talk To Yourself.* Shad Helmstetter, PhD.
ISBN 0-671-70882-1
d. Physiological/Emotional State
   i. Other concerns may be physiological and/or emotional in nature. The state that the patient is in will influence how they judge their self-efficacy and ability to accomplish health tasks. Depression, for example, dampens confidence in capabilities. Stress is interpreted as signs of vulnerability and low self-confidence. Pain prevents needed functional activities or exercise which leads to depression and further noncompliance. Therefore, it is important to address the Physiological/Emotional State of the patient. Once these barriers are addressed self-efficacy level can be re-accessed and the algorithm followed from the beginning.
   ii. Although physiological interventions such as managing pain or nausea can be straightforward, emotional barriers may require referral to behavioral health experts. Within the primary care setting interventions can include directing the patient to focus on possibilities (e.g., envisioning the future, reframing adversity into opportunity), or developing coping strategies. Patients can be directed to online resources. For example the American Psychological Association offers many Psychology Topics with applications in everyday life:

   https://www.apa.org/topics/index


**Tool and Algorithm:** Illustrated at the end of this document.

- Tool: Self-Efficacy for Managing Chronic Disease 6-item Scale
- Algorithm: Evaluation and Enhancement of Self-Efficacy in Non-compliant Chronic Disease Patients