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An Educational Intervention to Increase Telemedicine Nurses' Knowledge in Screening, Identifying, and Coordinating Care for Depression in the Veteran Population with Diabetes: A Quality Improvement Project

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An Educational Intervention to Increase Telemedicine Nurses' Knowledge in Screening, Identifying, and Coordinating Care for Depression in the Veteran Population with Diabetes: A Quality Improvement Project

A Doctor of Nursing Practice Project Presented to the Faculty of the

Nicole Wertheim College of Nursing and Health Sciences

Florida International University

In partial fulfillment of the requirements

For the Degree of Doctor of Nursing Practice

By

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Jonas Scholar 2021-2023

Supervised By

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Date:_____

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Abstract

Background: Diabetes is a condition that disproportionally affects the Veteran population. Depression often accompanies this condition and may contribute to worsening disease outcomes. It is therefore essential for depression to be treated in a timely manner to prevent further complications. As an important member of the health care team, nurses can potentially enhance the proportion of Veteran patients with diabetes that receive timely care for depression.

Purpose: The purpose of this DNP quality improvement project is to improve telehealth nurses' knowledge on the PHQ-2/PHQ-9 screening tools, identification of depression and care coordination for Veteran patients with diabetes in order to improve healthcare outcomes.

Methodology: This quality improvement project was done with a group of seven telehealth nurses with a pre-test/post-test design. A 10-point Likert scale survey was administered pre-intervention and post-intervention to assess for knowledge in identification, screening, and coordination of care, as well as confidence in ability to identify, screen and coordination care. The intervention was done via video-based platform.

Results: In total n=7 nurses with > 4 years of nursing experience participated in the project. Mean score changes were not statistically for three out of the four question categories. The Wilcoxon Signed Ranks Test showed a statistically significant increase in knowledge score post-intervention for question category number 2 regarding knowledge of screening tools (p=.027).

Conclusions: Nurses in the unit improved in their knowledge of utilization of the PHQ-2 and PHQ-9 screening tools post-intervention. Educating nurses regarding proper administration of screening tools may help increase their knowledge base and improve care practices.

Key Words: depression, diabetes, patient health questionnaire, nurse, education, veteran

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Deliverable 4: DNP Project Proposal

An Educational Intervention to Increases Telemedicine Nurses' Knowledge in Screening, Identifying, and Coordinating Care for Depression in the Veteran Population with Diabetes: A Quality Improvement Project

Diabetes mellitus is a complex chronic condition that is associated with a high disease burden and a range of comorbidities (Tomic et al., 2022). Veterans are disproportionately affected by diabetes among the US population, affecting approximately 25% of the Department of Veteran Affairs patients (Liu et al., 2017). Due to this statistical significance, it is essential to ensure that Veterans with diabetes are receiving optimal care and are effectively managing all aspects that may harbor proper disease management.

One particular area that needs attention is the comorbidity between depression and diabetes. Patients with diabetes are about twice as likely to experience depression which can exacerbate disease burden and mortality rates (Sartorius, 2018). Depression is also associated with greater disability and worse self-management in patients with diabetes including improper dieting, medication non-compliance and lack of exercise (Sartorius, 2018). Uncontrolled diabetes can pose a major threat to the health and well-being of patients. It can result in major microvascular and macrovascular complications such as kidney failure, neuropathy, stroke, heart disease and so forth (Tomic et al., 2022). Therefore, it is critical to identify and address depressive symptoms in a timely manner in Veteran patients with diabetes.

Screening tools are effective methods in detecting a range of conditions including depression. Research has shown that the PHQ-2 and PHQ-9 are useful screening tools to identify and determine the severity of depression (Levis et al., 2020). According to the Centers for Disease Control and Prevention (n.d.), lack of provider mental health training is a significant

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barrier to screening and treatment of depression in patients with diabetes. It is therefore important for nurses to be properly educated on the use and application of screening tools. Nurses are at the forefront of facilitating care and they are important members of the patient care team. It is essential that nurses develop confidence in screening for depression and understand methods to address mental health concerns during patient visits (CDC, n.d.).

The COVID-19 pandemic has been a major contributor to the increased use of telemedicine services including telephonic and video conferencing methods. Telehealth has many benefits in improving care for chronic disease management such as more frequent visits and follow ups, enhanced patient access to care, eliminating barriers and promoting open dialogue with patients (Corbett et al., 2020). Reaping the benefits of telehealth can extend to incorporating screenings into scheduled telephonic encounters to improve screening processes. This can be a particularly useful method for telehealth nurses that manage chronic disease in Veterans to assess for depressive symptoms and coordinate care accordingly.

Purpose and PICO Question

The Veteran population is disproportionally affected by diabetes and diabetes is linked to higher levels of depression which can increase disease burden (Liu et al., 2017; Sartorius, 2018). The purpose of this DNP quality improvement project is to improve telehealth nurses' knowledge on the PHQ-2/PHQ-9 screening tools, identification of depression and care coordination for Veteran patients with diabetes in order to improve healthcare outcomes. The goal is to create a process change by which nurses will routinely utilize this knowledge during telephonic visits by appropriately administering screenings and facilitating care accordingly.

The PICO (population, intervention, comparison, and outcomes) format was utilized in the table below to formulate an EBP question (Dearholt and Dang, 2018). The PICO question is

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as follows: Will an evidenced-based educational module improve telehealth nurses' knowledge on screening, identification, and care coordination of depression in Veteran patients with diabetes?

Table 1. PICO Components

P-Population	Telehealth nurses at a Level 1A VA Facility in the Western Region
I-Intervention	An evidence-based educational module on identification, screening, and care coordination of depression in Veteran patients with diabetes
C-Comparison	Nurses' knowledge prior to and following the educational intervention
O-Outcomes	Increase in nurses' knowledge on screening, identifying, and coordinating care in Veteran patients with diabetes and comorbid depression post-intervention

Problem Statement

According to Moran et al. (2020), a problem statement should identify the problem, describe it thoroughly and explain why addressing the problem is essential. Hemon and Schwartz (2007) explain that a problem statement should include the following elements: lead-in, declaration of originality, explanation, and indication of the central focus (Moran et al., 2020). The lead-in introduces the readers to the problem of interest, the declaration of originality identifies gaps in knowledge based on evaluation of the current literature, the explanation emphasizes the benefits of the project, and the indication of central focus describes what the project will accomplish (Moran et al., 2020). These elements will be successfully implemented under the following subheadings: problem identification, background, scope of the problem, consequences of the problem, knowledge gaps and proposed solution.

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Problem Identification

Transitioning to the community after military services carries with it many challenges for Veterans. Among these, learning to cope with and manage chronic diseases may pose some particular difficulties. Veteran patients have a higher prevalence of chronic conditions, with comorbid diabetes and depression being of concern (Kane et al., 2021). An observational study performed in the Department of Veteran Affairs surveyed Veteran patients with diabetes to determine how mental health comorbidities influence patient-centered care and found that Veterans with mental health comorbidities had worse patient experiences (Benzer et al., 2019). This suggests the need for the VA to improve care coordination for Veteran patients with comorbid depression (Benzer et al., 2019). To further support this, another study examined how Veterans with diabetes and mental health comorbidities benefitted from individualized psychological services to improve diabetes care. It utilized the PHQ-9 screening method prior to and after the intervention, uncovering a statistically significant reduction in depressive symptoms post-intervention (Kane et al., 2021).

The patterns identified in the literature shows that effective diabetes management among U.S. Veterans may require us to take a closer focus on developing techniques that would improve levels of depression among these patients. Incorporating a psychosocial approach in the care of Veteran patients with diabetes may help bridge the gap and improve their self-management behaviors for diabetes (Kane et al., 2021). Although the US Preventive Services Task Force guideline does recommend screening for depression in the general population, it is frequently delayed due to reduced knowledge of guidelines, external barriers, or lack of

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communication on the use of best evidence-based practices (Garcia et al., 2022). Improving nursing staff knowledge can be a beneficial approach to fostering improved care.

Background

The Veteran population is predisposed to significant stressors due to military service, affecting both their physical and mental health (Betancourt et al., 2021). In addition, they may suffer from service-related causes of diabetes such as exposure to chemical warfare. A research study found that there was a higher number of Veterans that were exposed to chemical warfare that had diabetes compared to those who were not exposed (Safi-Aghdam et al., 2019). These factors may make Veterans more vulnerable to poor disease outcomes due to chronic disease. It has been shown that integrating mental health on a system level can improve outcomes for physical chronic health conditions, such as diabetes (Leung et al., 2022). As previously discussed, patients with diabetes are more likely to suffer from depression (Sartorius, 2018). This may be due to the clinical complexities of the disease or to military-related predispositions in the Veteran population.

There are certain barriers that exist that make it more difficult for Veterans to seek care. This includes geographical barriers impeding them from visiting the VA facility, uncertainty of available resources and many Veterans would be hesitant to seek help for mental health disorders (Taylor et al., 2020). This further supports the need for providers to understand the unique needs of Veteran patients and improve screening numbers. Telehealth can also help enhance access when patients are not able to make it for physical visits and can encourage continuity of care (Joo et al., 2022). It is important to keep into consideration the historical context that already make Veterans more vulnerable including rigorous military training, removal of social support and having difficulty accepting weakness due to expectations to be resilient (Taylor et al., 2020).

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This suggests the need for the Veterans Health Administration to support more interventions that is tailored to improving screening, diagnosis, and timely care coordination.

Scope of the Problem

According to the Centers for Disease Control and Prevention (2022), the prevalence of diabetes has been increasing overtime and there are about 37.3 million people in the United States that have diabetes. About 16 million people in the US are affected by depression yearly and 1 out of 6 adults will experience it as some point in their life (CDC, 2022). As evidenced by the statistics, a large number of the U.S. population is burdened by these chronic conditions. The CDC presents a more alarming statistic regarding the comorbidity of diabetes and depression. As per the CDC (2022), individuals with diabetes are 2 to 3 times more likely to experience depression than their counterparts, yet only 25-50% of them are diagnosed and treated for comorbid depression. Upon further investigation, statistics have shown that U.S. veterans have a higher prevalence of diabetes than the general population, with about 25% of the U.S. Department of Veteran Affairs patients being affected by the disease (Liu et al., 2017).

Upon review of the literature and statistics from the CDC, it is evident that depression can present in higher levels in Veteran patients with diabetes. This can lead to poor disease management and worse outcomes for Veteran patients with diabetes; resulting in greater complications and mortality rates (Sartorius, 2018; Tomic et al., 2022). Higher disease burden can result in increased costs of care. A survey study revealed that the average medical cost for those with diabetes without comorbid depression was $10,016 and for those with comorbid depression was $20,105, more than an 100% increase (Alva, 2020). Managing these diseases are a necessary approach to both improving patient quality of life and reducing health care expenses associated with complications.

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To address this issue, the U.S. Preventive Services Task Force recommends depression screening for adults and made the public aware that patients with diabetes have a higher risk of depression (Alva, 2020). Enhancing knowledge on the issue is advantageous but there are still barriers that exist that impede proper diagnosis. The barriers include limited provider time, shortage of mental health services, lack of healthcare staff training and poor access (CDC, n.d.; Alva, 2020). The U.S. Department of Veteran Affairs has many services available for depression and diabetes. For depression, they offer Veteran patients counseling, self-help resources, suicide prevention, medication and so forth. For diabetes, they provide weight loss programs, diet counseling, blood glucose monitoring, a diabetes education program and so forth (U.S. Department of Veteran Affairs, 2019; U.S. Department of Veteran Affairs, 2022). Although they offer an extensive number of services and programs, it may be beneficial to form a collaborative approach that would merge diabetes care with a mental health aspect to address depression. Incorporating a comprehensive screening approach via telehealth may help reduce some of the barriers and improve timely diagnosis with care coordination.

Consequences of the Problem

There are numerous consequences of neglecting to fix the problem. Comorbid diabetes and depression results in significant economic burdens, as both diseases are known for their high financial costs in the United States. In 2017, the estimated total medical cost of diabetes was $237 billion, and the lost productivity cost was $90 billion, totaling $327 billion (CDC, 2022). Alongside, the costs of major depressive disorder have risen from $236 billion in 2010 to $326 billion in 2018 (Greenberg et al., 2021). The rising costs of health expenditures is affecting our society as a whole and it is especially evident with the cost burden of chronic conditions. Of

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special note, the particular areas that result in great economic burden for depression in adults are suicide-related costs, direct costs, and workplace costs (Greenberg et al., 2021).

Upon further examination of the suicide-related costs factor, it is evident that it significantly impacts the Veteran population. Unfortunately, suicide is known as the second leading cause of death among Veterans (Selleck et al., 2021). The suicide rate for Veterans with depression were among the highest at 66.4 per 100,000 (Ramchand, 2022). Improving screening strategies may help identify suicidality and level of risk in order to prevent patient mortality or worsening disease outcomes. As suicide prevention has a great level of urgency at the Department of Veteran Affairs, it is essential to incorporate measurement-based care to alleviate psychological suffering and the PHQ-9 is a valid instrument to utilize in the screening process (Selleck et al., 2021).

A systematic review was performed by researchers to further investigate the costs of depression. It was discovered that comorbid depression with other somatic diseases had enhanced costs, with the treatment costs of diabetes being increased with comorbid depression (König et al., 2020). Aside from the cost concerns, it is also pertinent to address social outcomes and the ability of maintaining a healthy society. The literature has pointed to the implications of clinical complexity in Veterans care. In particular, there is mention of how physical and mental comorbidities affect help-seeking behaviors of Veteran patients and impede providers from delivering optimum care (Creech et al., 2021). A 27-year longitudinal study including 787 male twin veterans found that depressive symptoms were linked with diabetes and several chronic cardiometabolic health conditions (Ditmars et al., 2021). It is therefore pertinent to understand the long-term implications of underdiagnosis or undertreatment of depression and its impact on overall Veteran health. The magnitude of the social cost burden of chronic conditions is great

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and understanding the multifactorial effects of chronic disease can encourage improved recognition.

Knowledge Gaps

Upon examination of the literature, there has been found supportive evidence to suggest an integrated approach to diabetes and depression care. There are significant knowledge gaps that need to be addressed in regard to this problem area. The most alarming issue is the lack of nursing training necessary to provide optimal care for patients. A study examined a pharmacist-led telehealth disease management program versus a nurse-led telehealth program in improving care for Veteran patients with comorbid diabetes and depression. It found that the pharmacist-led telehealth program was better at improving patient outcomes than the nurse-led telehealth program (Cohen et al., 2020). This may signify that nurses have a lack of training in areas related to patient education and may require a more comprehensive educational training on knowledge related to diabetes with comorbid depression.

Furthermore, a systematic review identified that studies have shown that nurses were better able to implement best evidence-based practices with effective education and training, including presentations and video demonstrations (Ten Ham-Baloyi, 2022). Therefore, improving nurses' gaps in knowledge of caring for this patient population is key to improving the care delivered to Veteran patients. The impact of education can also be understood as enhancing confidence levels for nurses and making them more comfortable in their roles (Ten Ham-Baloyi, 2022). Lack of confidence may be associated with poor job performance, which could further exacerbate gaps in care.

Telemedicine has become widely understood to be a useful tool in chronic disease care and has been beneficial in improving patient outcomes (Corbett et al., 2020). There is a gap in

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knowledge in understanding whether a nurse-led telemedicine intervention can specifically improve care for Veteran patients with comorbid diabetes and depression. Although there is a scant amount of literature related to nurses with this focus area, it has been shown that nurse-led telehealth interventions improve patient satisfaction, enhances continuity of care, and improves patient access overall (Joo et al., 2022). While the impact of nursing care can sometimes be undermined in the current health care system, it is important to note that nurses remain the largest number of health professionals globally (Joo et al., 2022). Therefore, implementing a quality improvement project that would improve nursing care is imperative to the Veterans health system as a whole. Moreover, there is still sufficient literature to support implementation of this project and it may help fill the gaps in knowledge successfully.

Proposed Solution

The proposed solution to the problem is to implement a quality improvement project that utilizes an evidence-based educational presentation to increase telemedicine nurses' knowledge in screening, identifying, and coordinating care for depression for Veteran patient with diabetes. Best-evidence based practices will be utilized in the formulation of the educational content. It will teach valid and reliable screening methods, current practices on disease identification and facilitating care coordinating. A pretest-posttest design will be utilized to identify whether nursing knowledge improved post-intervention. This will guide future change and practices at the facility to improve the quality of Veteran patient care.

Research has shown that educational methods have been successful at improving provider knowledge in various areas. One study showed that an educational video regarding a new public health law that affects patient care was able to improve provider's knowledge (Comer et al., 2021). In regard to colorectal cancer, it has been seen that provider barriers such as

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knowledge deficits of screening guidelines can be improved through provider education (Inadomi et al., 2021). A quality improvement project performed in a primary care setting aimed to improve depression screening and demonstrated that the greatest rise in screening happened after educating providers (Blackstone et al., 2022). The literature further supports the intervention proposed for the quality improvement project and exhibits that it can be an effective route in achieving positive results.

According to the U.S. Preventive Services Task Force (2016), there is adequate evidence that depression screening programs combined with ample support systems improve clinical outcomes. It has also been found that chronic illness remains a risk factor for depression (USPSTF, 2016). As the literature has already demonstrated the prevalence of comorbid diabetes and depression among Veterans, it is evident that this area requires intervention. The Patient Health Questionnaire-9 (PHQ-9) is a depression screening tool with 9 items developed based on the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) and is currently one of the depression screening tools recommended for use as best clinical practice (Sun et al., 2020). The Patient Health Questionnaire-2 (PHQ-2) is a shorter screening method, easier to administer and recommended for use as a prescreen prior to the PHQ-9 (Levis et al., 2020). Research has shown that administering both the PHQ-2 and PHQ-9 demonstrated higher specificity and similar sensitivity (Levis et al., 2020). The goal of the project is to properly educate telemedicine nurses' on how to utilize these screening tools, as well as to improve their identification of depression and effective care coordination in order to increase telemedicine nurses' confidence levels in these three categories, thereby improving care provided to these patients.

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Summary

The literature has identified the importance of developing an intervention to improve screening and diagnosis for depression in Veteran patients with diabetes. Veteran patients are disproportionately affected by diabetes, depression, and other chronic conditions. Comorbid depression can have a negative impact on diabetes self-management for patients. Based on a review of the literature, the PICO question developed is whether an evidenced-based educational module will improve telehealth nurses' knowledge on screening, identification, and care coordination of depression in Veteran patients with diabetes. This quality improvement project will help identify gaps in knowledge and may contribute to a system-wide dissemination of nursing education to enhance care.

Literature Review

In this section, the literature review will be performed including the literature search process, literature appraisal, characteristics of the studies and synthesis of the literature. Literature reviews are an essential component of a scholarly paper, as it forms the foundation for developing high-quality evidence-based research (Maggio et al., 2016). It will therefore provide the context necessary to ensure that this quality improvement project is pertinent for future change. Developing this section will set a premise for conducting the project and will help facilitate improved quality of care.

PICO Question

The PICO question for this project is: Will an evidenced-based educational module improve telehealth nurses' knowledge on screening, identification, and care coordination of depression in Veteran patients with diabetes?

Population (P): Telehealth nurses working with the Veteran population

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Intervention (I): An evidence-based educational module on screening, identification, and care coordination of depression in Veteran patients with diabetes

Comparison (C): Nurses' knowledge prior to and following the educational intervention

Outcomes (O): Improvement in nurses' knowledge on screening, identifying, and coordinating care in Veteran patients with diabetes post-intervention

Literature Search Process

The databases utilized for the literature search process were *Academic Search Complete*, *CINAHL Plus*, *PubMed*, *PubMed Central* and *Google Scholar*. These databases were chosen due to their expanded selection base for scholarly articles, credibility, user-friendliness, and expansiveness of health-related literature. The limiters placed on the search were full-text, peer-reviewed articles ranging from the year 2016 to 2023. In A number of search terms were used to find the literature including veterans, depression, diabetes, telehealth, screening, self-management, and patient health questionnaire. Synonyms were also used, and integrated searches were done by means of Boolean phrases AND/OR, for example: "veterans OR soldiers OR servicemen OR veteran" AND "diabetes OR diabetes mellitus" AND "screening OR assessment" AND "telehealth OR telemedicine OR telenursing." The search identified 9 relevant scholarly articles that are summarized in Appendix 1: Literature Matrix.

Inclusion and Exclusion Criteria

The inclusion criteria for the literature review were peer-reviewed articles published within the last 5 years in the English language. The articles were selected based on relevance to the topic and primarily focused on studies that described comorbidities between depression and

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diabetes, the impact of integrative care, screening, and telehealth. Several of the articles included were done directly with the Veteran population to enhance the information gathered during the review. The exclusion criteria were articles older than 5 years, not in English, not available in full text and literature not relevant to the subject of this paper.

Literature Appraisal and Literature Matrix

This literature review will be performed to support the implementation of a quality improvement project. Literature articles are categorized based on level of evidence. According to Dearholt and Dang's (2017) evidence hierarchy, literature articles are classified from Level I to Level V evidence, with I being the highest degree of evidence and V being the lowest. The literature matrix provides an organized table describing each article comprehensively. The literature matrix is included in the appendix and includes 10 literature articles. Below each article will be analyzed in detail and synthesis of the literature will be performed.

Characteristics of the Included Studies

Nine studies were selected during this literature review that were relevant to the topic being studied. Benzer et al. (2019) developed an observational study with a 2 x 2 factorial design to understand the views of Veteran patients with type 2 diabetes regarding how mental health and cardiovascular comorbidities affect care coordination. According to Dearholt and Dang (2017) evidence hierarchy, this article is considered Level III evidence. The sample included five thousand eight hundred six patients from the Department of Veteran Affairs that had done an online survey regarding patient-centered coordinated care and who had ICD codes for diabetes, as well as one other comorbidity (Benzer et al., 2019). The Patient Perceptions of Integrated Care (PPIC) survey was utilized with 92 items and most using a Likert response scale. There was a

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seven-dimension factor utilized with one dimension being separated in two components. The dimensions included knowledge integration, knowledge fragmentation, staff knowledge, support for self-directed care, treatment-related communication, communication of test results, information flow and hospital transitions (Benzer et al., 2019).

The results indicated that comorbidities that are in the higher severity resulted in lower treatment-related communication with increased knowledge fragmentation, there was also a negative association with seven dimensions coupled with mental health comorbidities and lower severity mental health conditions, such as depression, lowered communication test results and resulted in increased knowledge fragmentation scores (Benzer et al., 2019). In conclusion, this study indicated that Veteran patients with type 2 diabetes and higher severity comorbidities had increased knowledge fragmentation, showing that care coordination can be improved for these patients (Benzer et al., 2019). Furthermore, it highlights that lower severity conditions such as depression may result in patients experiencing poorer views of coordinated care, indicating that the VHA may benefit from enhancing care coordination for patients with depression and diabetes (Benzer et al., 2019). The limitations of this study were the design utilized, use of merely administrative records and the inclusion of only two comorbidity types while the strengths were the utilization of administrative and survey data, reducing the impact of common method variance (Benzer et al., 2019). This study is beneficial in increasing awareness of the importance of patient perceived care coordination and the need for better approaches to mental health comorbidities such as depression.

González-Castro et al. (2021) developed a systematic review with meta-analysis to identify the risk of be affected by depressive symptoms in individuals with type 2 diabetes and obesity. Data was collected in accordance with the PRISMA statement using a preset protocol

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and included articles later than August 2018. Inclusion criteria for the studies selected were English language and adult population. In total, 27 studies were included in the review that encompassed cross-sectional studies (González-Castro et al., 2021). According to Dearholt and Dang (2017) evidence hierarchy, this systematic review is considered level III evidence due to it being a systematic review of cross-sectional studies versus RCTs.

The systematic review found that having type 2 diabetes comorbid with obesity increases the risk of depression by 1.63-fold (González-Castro et al., 2021). There are several influences that can be attributed to this such as increased costs, social situation, psychological burden and so forth. The limitation of this study is that all articles were cross-sectional, various measures to assess depression were utilized among the studies collected and certain variables such as gender were not factored into the study (González-Castro et al., 2021). The study concluded stating that those with type 2 diabetes are at higher risk of developing depression when experiencing obesity as well (González-Castro et al., 2021). This study may serve to clarify one of the many reasons that it is has been found that depression and diabetes tend to coexist.

Jensen et al. (2016) developed a process improvement pilot project in order to enhance quality of life measures and improve depression symptoms within a worksite chronic disease management program. According to Dearholt and Dang (2017) evidence hierarchy, this article is considered level V evidence due to it being a quality improvement project and it meets the standards of a high-quality level V evidence. The setting was a worksite health promotion clinic. The population was a group of employees and their spouses who had a history of diabetes, hyperlipidemia, or hypertension (Jensen et al., 2016). The clinic consisted of a family nurse practitioner and a medical assistant. The purpose of this study was to develop a depression screening program and provide the individuals enrolled in the study proper mental health care

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and determine if this process change improved depression outcomes (Jensen et al., 2016). The enrolled individuals were screened for depression using the PHQ-9 screening tool and the Veteran's Rand-12 was utilized to measure quality-of-life. The participants who screened positive for depression were offered proper mental health support including counseling sessions with the FNP. Pretest-posttest scores of the PHQ-9 and VR-12 were utilized to measures results (Jensen et al., 2016).

The mean PHQ-9 score was 9.3 pre-implementation and dropped to 4.5 and 4.9 post the 12-week intervention. The results of the study showed that both depression symptoms and mental health quality-of -life were improved for these participants post-intervention (Jensen et al., 2016). The key conclusions that were derived from this pilot project was that screening for depression and a collaborative approach to care is important is critical in individuals with chronic conditions and addressing it should be included in the treatment plans (Jensen et al., 2016). Furthermore, it can be understood through this project the important role of those in the nursing profession and the significance of ensuring staff knowledge disease management. The limitations of this process improvement project were that familiarity of the provider may have led to reporting bias and some employment groups were underrepresented while the strength is the ability to be replicated in another setting (Jensen et al., 2016). It should also be noted that in the context of the proposed project topic, this pilot project was not representative of the Veteran population. Although, it did provide insight on the benefits of screening for depression when chronic comorbidities are present.

Leung et al. (2022) designed a retrospective cohort study to examine the association between Primary Care-Mental Health Integration (PC-MHI) and chronic disease healthy quality among Veteran patients. According to Dearholt and Dang (2017) evidence hierarchy, this article

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is considered Level III evidence. The sample included 828,050 Veteran patients among clinics utilizing PC-MHI. The study utilized multilevel logistic regression models to study the association between quality metrics and PC-MHI proportion. The primary quality metric patient level outcomes were measures of diabetes and hypertension (Leung et al., 2022). The results of this study showed that higher clinic PC-MHI proportion was associated with better glycemic control for patients with diabetes, with each two- fold rise in proportion of Veteran patients seen by PC-MHI specialists resulting in about 4% lower odds of poor glycemic control (CI=.94–.99) (Leung et al., 2022).

In conclusion, the findings of the study showed that there is an association between enhancing a clinic's mental health integration and performance markers of chronic physical diseases, and that collaborative care among these domains can prove beneficial for patients (Leung et al., 2022). The limitations of this study include that study focused on an organizational-level explanatory variable, data came from a sample of each clinic's patient charts and the database may have had coding differences due to system transitions (Leung et al., 2022). Although there were limitations, the strength of the study was that health records were randomly sampled and that is directly studied Veteran patients (Leung et al., 2022).

Levis et al. (2020) conducted a systematic review with meta-analysis to figure out the accuracy of utilizing the PHQ-2 only and together with the PHQ-9 to screen for depression. According to Dearholt and Dang (2017) evidence hierarchy, this article is considered Level I evidence. The methods used to develop this systematic review included development of a protocol and used PRISMA for reporting. Several databases were searched for articles published from 2000 and eligibility was determined based on data sets that included PHQ-2 scores, adults 18 years and older, performed diagnostic interview and PHQ within 2 weeks, and had

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classification based on the DSM or ICD (Levis et al., 2020). The study included 100 data sets. Statistical analysis was performed to estimate sensitivity and specificity of PHQ-2 scores on its own and in combination with PHQ-9 while accounting for semi-structured versus fully structured diagnostic interviews (Levis et al., 2020). The sensitivity and specificity for the PHQ-2 only with semi-structured interviews were 0.91 (95% CI, 0.88-0.94) and 0.67 (95% CI, 0.64-0.71) for scores greater than 2 and 0.72 (95% CI, 0.67-0.77) and 0.85 (95% CI, 0.83-0.87) for scores greater than 3 (Levis et al., 2020). Results showed that specificity was increased with PHQ-2 of more than 2 in combination with PHQ-9 score of more than 10 with specificity of 0.87 (95% CI, 0.84-0.89) (Levis et al., 2020).

In conclusion, this systematic review identified that specificity was slightly increased with PHQ-2 scores greater than 2 in combination with PHQ-9 scores greater than 10 and it was approximated that using this method can lower the quantity of patients by 57% that will be required to perform the full PHQ-9 (Levis et al., 2020). The study also showed that PHQ-2 scores sensitivity were greater when semi-structured interviews were utilized, indicating that trained providers may be better equipped to perform screenings (Levis et al., 2020). The limitations of the study were moderate heterogeneity among studies, data from 36 studies not utilized, many studies did not have low risk bias, categorization based on interview type and inclusion of studies without specification of depression diagnosis. The strengths of the study include large sample size, utilization of results from all cutoffs, assessing combination PHQ-2/PHQ-9 and determining precision of PHQ-2 by subgroups, as well as separately across reference standards (Levis et al., 2020). This study highlighted the benefits of possibly using a combination approach to screen patients with depression.

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Naik et al. (2019) performed a randomized clinical trial to study the effect of screening and a telephone-based intervention on patients with diabetes and comorbid depression. According to Dearholt and Dang (2017) evidence hierarchy, this article is considered Level I evidence. The sample included 225 US veterans with uncontrolled diabetes and comorbid depressive symptoms. Participants were assigned to groups randomly (Naik et al., 2019). The HOPE group received coaching sessions from trained health professionals including nurses, psychologists, pharmacists, and social workers. The clinicians were trained via 2 teleconferences and sessions included patient empowerment and modules on improving health outcomes for diabetes with depression (Naik et al., 2019). Reports regarding HbA1c, PHQ-9 scores and participation was provided to primary care providers (Naik et al., 2019). The control in the study was the Enhanced Usual Care group that received educational materials.

The HOPE group had statistically significant reduction in depressive symptoms over a 12-month period (mean [SD], 15.8 [4.2]) to 6 months (10.9 [6.1]) and had statistically significant improvement in glycemic control (mean [SD] HbA_{1c} 12 months: 8.7% [1.6%]) (Naik et al., 2019). The PHQ-9 mean difference between the intervention and control group were also statistically meaningful (mean difference 12 months, 2.14; 95% CI, 0.18-4.10; $P = .03$) Although, the mean difference HbA_{1c} scores were negligible (Naik et al., 2019). The results of this study showed that trained healthcare staff utilizing a collaborative goal-setting intervention may benefit patients with diabetes and comorbid depression in improving depressive symptoms (Naik et al., 2019). The limitations of the study were that it may have lacked generatability due to gathering participants from a localized area and there were uneven participants among the groups (Naik et al., 2019). The pertinent gathering from this study is that trained professionals can be influential in the improvement of care for the Veteran population and this study has

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provided a foundation for understanding the implications for improving mental health care for depression.

Novak et al. (2016) performed a prospective cohort study to determine if there is an association between depression and increased risk of chronic kidney disease among US Veterans with diabetes. According to Dearholt and Dang (2017) evidence hierarchy, this article is considered Level III evidence. The included participants had diabetes and glomerular filtration rate of greater than 60 (Novak et al., 2016). Four outcomes were being studied including incident CKD, all-cause mortality, coronary heart disease and ischemic stroke (Novak et al., 2016). The summarization of data was performed via means +/- SD, median or proportions, Student t test and Mann-Whitney U test were used to compare continuous variables, logistic regression analyses was used to assess predictors of depression and Kaplan-Meier curves and Cox proportional hazard models were utilized to assess associations between depression and outcomes (Novak et al., 2016). The result showed that those with depression had a much higher risk of developing CKD (21%; event rate: 36.3 [95% CI 36.1–36.6]/1,000 patient-years) versus those without depression (18%; event rate: 30.7 [95% CI 30.5–30.9]/1,000 patient-years) (Novak et al., 2016). Mortality rate was also higher for Veteran patients with depression (29%; mortality rate: 42.6 [95% CI 42.4–42.9]/1,000 patient-years) versus for patients without depression (26%; mortality rate: 38.1 [95% CI 37.9–38.3]/1,000 patient-years) (Novak et al., 2016). Depression was also associated with a higher risk for a CHD event (10.3 [95% CI 10.2–10.5]/1,000 patient-years vs. 6.9 [95% CI 6.8–7.0]/1,000 patient-years) and a higher risk of having a stroke event (6.4 [95% CI 6.3–6.6]/1,000 patient-years vs. 4.5; 95%CI [4.4–4.6]/1,000 patient-years) (Novak et al., 2016).

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In conclusion, this study highlighted that US veterans having diabetes and comorbid depression are associated with a higher risk of chronic kidney disease, patient mortality, incident CHD events and stroke (Novak et al., 2016). The strengths of this study are large sample size and veteran representation while the limitations are study design, inability to remove residual confounders and determining diagnosis of depression based on codes (Novak et al., 2016). Since this study was performed directly with the Veteran population, it can serve as an implication for the development of a quality improvement project. Recognizing the association between depression and poor clinical outcomes in Veteran patients with diabetes may suggest the need for enhanced screenings with improved care coordination.

Sedeeq et al. (2022) developed a cross-sectional study to determine the diagnostic accuracy of performing the PHQ-2 screening tool. According to Dearholt and Dang (2017) evidence hierarchy, this article is considered Level III evidence. The setting is primary care, and the sample inclusion criteria includes adults 18 to 65 years old and finished PHQ-2 scores in the records (Sedeeq et al., 2022). Predictive values, negative values and optimal cut-off points were calculated and to estimate performance Youdon's index, gain in certainty metric and area under the curve was computed (Sedeeq et al., 2022). The results showed that a score of 2 was the optimal cut-off with a sensitivity of 88.73% and specificity of 69.31% (Sedeeq et al., 2022). In conclusion, this study suggests that a PHQ-2 cut off score of greater than or equal to 2 may be better able to diagnose clinical depression (Sedeeq et al., 2022). The strengths of the study are large sample size and reliable data extraction while the limitation is the study design (Sedeeq et al., 2022). This study highlights the importance of accurate screening tool utilization, and this may point to the benefits of improving screening knowledge among health professionals.

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Wang et al. (2022) performed a systematic review with meta-analysis to understand if patients with diabetes and comorbid depression may benefit from collaborative care in improving HbA1c and depressive outcomes, as well as quality of life. According to Dearholt and Dang (2017) evidence hierarchy, this article is considered Level I evidence. The study included 12 articles. Various databases were utilized for the search, and it was performed using PRISMA guidelines. Criteria for the search included randomized control trials, full-text and had to have baseline with 1 or more follow-up measures for HbA1c, as well as depression (Wang et al., 2022). The methods utilized for data synthesis included reporting with Relative Risks with 95% Confidence Intervals for dichotomous variables and Standard Mean Differences with 95% Confidence Intervals for continuous variables (Wang et al., 2022).

The results showed that Collaborative Care patients demonstrated an improved depression screening response rate (RR = 1·31, 95% CI 1·23 to 1·39, I^2 = 0%) and enhanced quality of life (SMD = 0·12, 95% CI 0·03 to 0·21, I^2 = 54·2%) while HbA1c did not show statistical significance between the groups (Wang et al., 2022). In conclusion, this study highlights the role of collaborative care in improving depression outcomes and quality of life for patients (Wang et al., 2022). The strengths of the study include utilization of many databases, following PRISMA guidelines and having pure trial effects while the limitations include selective reporting and possible sources of bias (Wang et al., 2022). This study reinforces the need to incorporate collaborative care into clinical practice and this quality improvement project can serve as benchmark for improving collaboration between diabetes and depression care.

Synthesis of the Literature

Diabetes with Comorbid Depression

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The literature has demonstrated that diabetes is often accompanied with depression. One study showed that patients with obesity and diabetes may be more likely to experience significant depressive symptoms (González-Castro et al., 2021). Another selected study showed a strong association between depression and chronic kidney disease, stroke, mortality, and cardiac events among Veteran patients with diabetes (Novak et al., 2016). These associations require a closer examination of the clinical implications of diabetes and comorbid depression. It also serves to show that there exists a bidirectional relationship between the two chronic conditions. As the rates of incident chronic kidney disease increases with depression comorbidity, it implies a strong clinical relationship with microvascular complications of diabetes (Novak et al., 2016). Therefore, a better approach is necessary to better understand how health care providers can best meet the comorbid needs of these patients. This may require a multifactorial approach to care and increased awareness of potential clinical outcomes of comorbidities (Novak et al., 2016). Multiple chronic conditions can predispose individuals to various disease burdens. These studies support a quality improvement project by exhibiting that there are potential consequences for patients with diabetes and depression. It serves to explain how implementing a project has clinical significance in preventing further complications for Veteran patients.

Screening

Screening tools are important methods for aiding in disease detection and should be utilized in various clinical settings. The selection of screening tools is generally made based on applicability and accuracy. The literature review demonstrated the benefits of screening and the accuracy of the patient health questionnaire-2 (PHQ-2) and patient health questionnaire-9 (PHQ-9) screening tools. Jensen et al. (2016) showed that depression screening led by those in the

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nursing profession can influence better-quality depression management and improve outcomes for patients with comorbid chronic diseases such as diabetes. This demonstrates both the role of those in the nursing field in developing quality improvement changes and the significance of increasing depression screening rates. The patient health questionnaire is a screening tool that is utilized in the clinical setting to screen for depression. The PHQ-2 is recommended as prescreen and includes only the first two items on the PHQ-9 (Levis et al., 2020). The use of the prescreen approach can minimize the necessity to perform the full PHQ-9 and can be more efficient in the clinical setting (Levis et al., 2020). Often, providers may not have sufficient time to administer a full depression screening tool and using an abbreviated version may help improve screening rates.

Depression is a major mental health condition that affects many individuals globally (Sedeeq et al., 2022). Research has shown that this has been a specific area of concern among Veteran patients with diabetes. Diabetes with comorbid depression can have detrimental effects of overall Veterans health and quality of life (Novak et al., 2016). A telehealth screening intervention performed on Veteran patients with diabetes and comorbid depression showed positive results on improving management of depression (Naik et al., 2019). There are several barriers to screening and treating depression in patients with diabetes. This includes limited skilled providers, living far from the facility and inability to attend frequent (Naik et al., 2019). Therefore, a telehealth approach may help eliminate some of these barriers and further expand the number of screenings performed. It can also help facilitate faster treatment referral and patients can have better access to their network of providers.

The PHQ-2 tool has been found to have high diagnostic accuracy, being very sensitive at cut-off scores of greater than or equal to 1 or 2 and successfully identifying depression at scores

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greater than or equal to 2 (Sedeeq et al., 2022). Administering this tool via telehealth to patients with diabetes at the Veterans Health Administration may be an excellent method to enhancing screening rates and increasing care coordination for those who screened positively for depression. Due to its shorter nature, it can be easily utilized in a timely manner making it more user friendly for both providers and patients. Provider knowledge on the benefits and use of this screening tool is pertinent prior to implementation.

Integrating Care for Diabetes with Comorbid Depression

Integrating care for patients with comorbid conditions is essential to optimizing healthcare outcomes. Research has shown that the integration of mental health care can result in improved management of chronic conditions such as diabetes (Leung et al., 2022). Veteran patients seen at VHA clinics with mental health integration had shown improved glycemic control (Leung et al., 2022). The results of the study also showed a strong association between mental health integration and physical health quality performance markers, recognizing the importance of addressing mental health comorbidities (Leung et al., 2022). A collaborative care approach has exhibited improved depression outcomes for patients with comorbid diabetes, as these conditions often have an effect on each other (Wang et al., 2022). Studies have shown improved glycemic control, reduced depressive symptoms and less care fragmentation through proper care coordination (Wang et al., 2022). A survey administered to patients from the Veterans Health Administration have also shown that Veteran patients with diabetes and mental health comorbidities report lower patient experiences with care coordination (Benzer et al., 2019). Research on a system level and patient perspectives at the VHA point to the understanding that improvements in coordination of care for these patients is imperative.

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There are various reasons why integration of care for depression and diabetes is essential. Proper depression care may make it easier for patients to self-manage diabetes and improved patient access to mental health services can help facilitate better physical disease management (Leung et al., 2022). An integrative approach can be challenging to implement for depression and diabetes due to the fact that these are typically managed by different departments. An approach that can help combat this issue and deliver effective integration is the use of telemedicine services. The use of a telephone-delivered collaborative goal setting among Veteran patients from the VHA achieved improvements in depressive symptoms (Naik et al., 2019). Utilizing telehealth delivery is an important tool in helping integrate mental health care for Veteran patients.

Definition of Terms

Veterans: an individual who has served in the activity military, naval and air service and completed their service under any conditions other than dishonorable (U.S. Department of Veteran Affairs, 2019).

Diabetes Mellitus: a chronic condition described as a metabolic dysfunction that is caused by the inadequacy of insulin to properly perform its function. The disease has various etiologies and requires adaptation and constant self-management by individuals who have it (Silva et al., 2018).

Depression: a mental health condition that is characterized by persistent altered mood, anhedonia or reduced interested in activities that is caused by a multifaceted interaction of psychological, behavioral, and social influences (World Health Organization, 2023).

Screening test: a test that is done on individuals to assess for the likelihood of having a certain condition (Givler and Givler, 2023).

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Patient Health Questionnaire: a screening tool utilized to detect and monitor depression severity (Sun et al., 2020)

Summary

This collective data has strong relevance to the projected quality improvement project. Incorporating a telehealth approach to integrate depression screening and care coordination among a Veteran population at the VHA may be influential. It can help close some of the gaps of care that exist and expand mental health services provided to patients. The successful completion and implementation of this project can also help facilitate improved healthcare outcomes for diabetes and depression. Enhancing detection of depression among Veteran patients with diabetes is imperative in reducing complications, improving patient experience, and increasing care coordination. Improving provider knowledge on identification and screening of depression is an important step in ensuring that care is wholesome. The literature has provided sufficient understanding of the problem and demonstrated evidence-based solutions.

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Organizational Assessment

The purpose of this section is to provide an organizational assessment that includes identifying the project goal, developing SMART objectives, describing the program structure, performing a SWOT analysis, and introducing a theoretical framework that will guide this quality improvement project. This will help further enhance support for this quality improvement project. It will aid in establishing a basis which will be utilized as a guide to facilitate project completion.

Primary DNP Project Goal

The purpose of this project is to increase telemedicine nurses' knowledge in screening, identifying, and coordinating care for depression in veteran patients with diabetes. This will help accomplish improved awareness of depression among nurses managing these patients. It will provide the effective education necessary to make telemedicine nurses better prepared to facilitating screening and care for these patients. Thereby, screening rates will increase, and veterans will be provided appropriate care in a timelier manner.

The Veterans Health Administration (VHA) is a leading healthcare organization whose mission is to "Honor America's Veterans by providing exceptional health care that improves their health and well-being" (US. Department of Veterans Affairs, 2022). The VHA is a United States government funded organization that has 171 VA Medical Centers and 1113 outpatient facilities with greater than 9 million Veterans part of their system (US. Department of Veterans Affairs, 2022). Over 371,000 health care professionals are employed under the VHA and the VHA is a major facilitator of research (US. Department of Veterans Affairs, 2022). The VHA offers an extensive number of health care services exclusively to the Veteran population and has a primary goal to provide high quality patient care (US. Department of Veterans Affairs, 2022).

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The significance and relevance of this practice site is that they are the primary organization that offers care to U.S. Veterans and key contributors to advancing care for the Veteran population.

There are several barriers to mental health care among Veteran patients with diabetes at the Veterans Health Administration facilities. Research has shown that those with diabetes have a higher risk of depression and worse clinical outcomes. Therefore, there needs to be more integrated care for physical and mental health conditions. The VHA needs to establish improved routine mental health screening and timely interventions to improve the care provided (Hester, 2017). Additionally, there are several barriers that Veterans face when it comes to utilization of mental health services. This includes social stigma, health issues, long travel time to VA facilities, lack of follow up, difficulty obtaining an appointment, shortage of health care staff, slow clinic response times and insufficient knowledge regarding care coordination or treatment for mental health services (Cheney et al., 2018). These barriers are significant, and strategies need to be developed to overcome them in order to facilitate more client centered care for Veterans.

Since health care professionals are at the forefront of care, nurses can help bridge the gaps that currently exists in the care of Veterans with diabetes and comorbid depression. Telemedicine nurses in particular can help improve access to care for Veterans and therefore should be properly trained in screening, identifying, and coordinating care for depression in Veteran patients with diabetes. Trained health care professionals can be influential in improving mental health care and lack of provider knowledge can contribute to worse outcomes for patients (Naik et al., 2019). The literature has shown a strong association between mental health integration and physical health quality performance markers among Veteran patients at the VHA

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(Leung et al., 2022). Therefore, educating telemedicine nurses should be prioritized at the VHA as this can improve their knowledge base and confidence in facilitating care for these patients.

The key stakeholders for this quality improvement project was the Nursing Research and Education Department, Diabetes Education Department, Mental Health Department and Telemedicine-Based Program at the Veterans Health Administration facility in Colorado. Each department was a key contributor to the project and helped facilitate the project completion. The Associate Chief of Nursing Research and Education was leading as the primary project oversight and assisted with coordinating project logistics. The VHA facility is also an important stakeholder to consider as they gave permission for project completion via the QI process of approval.

The projected number of participants were 25 but only 7 participants completed the presentation and survey. The sample included telemedicine nurses working at a VHA facility. This population was selected due to their applicability to the quality improvement project and importance in bridging gaps to care. Due to the fact that these nurses directly work with the Veteran population with chronic conditions and perform consistent follow ups, they can serve as facilitators for future change.

SMART Objectives

SMART goals are specific, measurable, attainable, realistic and time bound. This is known as a reliable method for creating actionable goals (Aghera et al., 2018). For the purposes of this DNP quality improvement project, the following SMART objectives have been developed:

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- Develop educational presentation to enhance knowledge of screening, identifying, and coordinating care for depression among the Veteran population for telemedicine nurses by July 2023
- Develop a pre and post-test survey to assess knowledge prior to and after the intervention by July 2023
- Administer video-based educational intervention to nurses and analyze survey results within a 1-month timeframe

Description of the Program Structure

The Veteran health care system is comprehensive system with multiple departments that contributes to major improvements in the care of Veterans. In order to proceed with this project, an integrated approach involving stakeholders from both the mental health and diabetes departments was necessary. Coordinating between experts in these departments and several others aided in implementing this quality improvement project successfully. Experts from these departments reviewed the educational module to ensure it is evidence-based, one of whom was the preceptor who was oversighting this project. A survey was developed that was distributed prior to and after the educational intervention, which was also reviewed by the preceptor prior to implementation of the project. A SWOT analysis was also performed within the next section in order to further identify the strengths, weaknesses, opportunities and threats at the organization chosen and this helped identify both barriers, as well as advantages of performing this project at this particular facility.

Organizational SWOT Analysis

The SWOT analysis is a tool that can be successfully utilized when conducting research (Yermukhanova et al., 2022). It characterizes the practice site based on four different categories

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including strengths, weaknesses, opportunities, and threats. Strength and weaknesses are in determined in relation to the internal environment while opportunities and threats are determined in relation to the external environment (Yermukhanova et al., 2022). In the following paragraphs, these objectives will be identified and described as it pertains to the Veterans Health Administration.

Strengths

The Veterans Health Administration facilities have several organizational strengths that make it a conducive environment for this quality improvement project. Firstly, the VHA is an organization that dedicates all its efforts to specifically caring for the Veteran population exclusively (US. Department of Veterans Affairs, 2022). This is a valuable strength because the organization focuses all of its resources to enhancing the lives of Veteran patients. Another strength is that the VHA is a leading facilitator of Veteran-based medical research (US. Department of Veterans Affairs, 2022). They have a designated department that is involved with research related matters and can serve as an excellent support to develop sound research. Not many organizations have a designated department that is research focused so this is a major strength of the VHA.

Weaknesses

There are a few weaknesses within the VHA system that need to be overcome. Being that this organization is a primary provider of the health care needs of Veteran patients, the volume of patients can be high, and it may be difficult for the organization to manage such a patient load. It is essential for VHA facilities to ensure that patients with chronic conditions are receiving routine follow up care (Price et al., 2020). Due to the facility location, it may also be difficult for some patients to travel to the VHA facilities to get the care they need. About 25% of Veterans

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live in rural areas and may have challenges with access to care. Furthermore, most rural Veterans are over age 65, making them more likely to suffer from chronic conditions such as diabetes that require ongoing care (U.S. Department of Veteran Affairs, n.d.). Utilizing telehealth services is an excellent method to connect these Veterans with the care that they need (U.S. Department of Veteran Affairs, n.d.). Therefore, the project goal aligns well and is a potential solution for these patients. It is also important to identify that nurses may training in mental health care, and this can contribute to worse outcomes for patients (CDC, n.d., Naik et al., 2019). This further supports the need to provider improved education to nurses working with Veterans.

Opportunities

The Veterans Health Administration has several organizational opportunities that can help facilitate this project and enhance the care provided to Veterans. The Veterans Health Administration has strong government funding and support for patient services and research. The VHA has an estimated 68-billion-dollar budget designated to them to improve the care provided to enrolled Veterans (US. Department of Veterans Affairs, 2022). There are also opportunities for the utilization of new technologies to facilitate improved access to care. Telehealth technologies and devices are a method that can provide Veterans with access to care anytime and anywhere, making it an important tool to helping Veterans take charge of their personal health (US. Department of Veterans Affairs, n.d.). The VHA has expanded the use of video teleconferencing in 2016 by using tablet-enabled secure video technology and this helped address geographic, clinical, and social barriers (Zulman et al., 2019). These opportunities can be utilized effectively to facilitate the quality improvement project proposed.

Threats

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The organizational threat that is of most concern is the rising costs of VA services. The VA's budget has more than quintupled in the last two decades and these costs continue to grow as the needs of Veterans become greater (US. Department of Veterans Affairs, n.d.). It may be necessary for the VHA to find strategies to improve allocation of funds, while not compromising the quality of care provided to patients. Another threat is the shortage of providers and the need for more providers to meet the need of Veterans (Zulman et al., 2019). The training of nurses can help combat this issue, as it will enable them to bridge the gaps that exist from physician and mid-level provider shortages. The utilization of telehealth technologies can help reduce the burden from these threats by reducing costs and improving productivity (Snoswell et al., 2020). Therefore, implementing the quality improvement project using telehealth services is beneficial.

Table 2: SWOT Analysis

Strengths ▪ Exclusively serves the Veteran population ▪ Leading facilitator of evidence-based Veteran research ▪ Designated Veteran Research Department	*Weaknesses* ▪ Lack of training or knowledge on mental health care among the diabetes nursing population ▪ High patient load ▪ Facility location can be difficult for some patients to travel to
Opportunities ▪ Strong government funding and support ▪ New technologies available that can improve access to mental health care	*Threats* ▪ Health care professional shortages ▪ Rising costs of VA services

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Conceptual Underpinning and Theoretical Framework

Theoretical frameworks are an essential tool to guide nursing research and there are various frameworks available that can be utilized to guide this project. Frameworks can help supplement value to the research plan and can essentially give researchers a method to provide structure to their project plans (Lynch et al., 2020). In summary, it can help researchers explain the phenomena they are studying and clarify assumptions that exist (Luft et al., 2022). Researchers should select the framework that best fits the phenomena that will be studied and should use careful judgement to ensure the framework delivers greater insights (Luft et al., 2022). The framework that was selected to guide this study is Lewin's Three-Step Model of Change. The theoretical framework, clinical fit to the project and theory evaluation will be discussed below in detail.

Theory Overview

Lewin's Three-Step Model of Change is a theoretical framework that has been utilized to guide research. It postulates that in order to achieve change a three-step approach of unfreezing, moving, and freezing should be utilized (Burnes, 2019). During the unfreezing phase, problems should be made aware through educating individuals regarding the issue or showing that the issue exists, the moving phase involves finding alternatives and taking action, and during the refreezing phase the changes are reinforced and integrated (Wojciechowski et al., 2016). Lewin postulated that it is important for organizations to sustain an equilibrium and balance opposing forces by creating planned changes using his approach (Wojciechowski et al., 2016). As a renowned psychologist, Lewis utilized his skills and experiences in the field to develop a framework that is being consistently utilized to alter human behavior and bring improved

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changes to health care organizations (Burnes, 2019). Using this model, change can be successfully facilitated throughout an organization.

Theory/Clinical Fit

The Three-Step Model of Change developed by Lewin has been selected as the framework to guide this quality improvement project due to its excellent clinical fit. Applying this model of change helped develop a strategic approach to achieving the project goals. As change is a necessary component to achieving positive outcomes, this framework was chosen. The following paragraph will discuss its applicability to the project by applying the three-step approach to the project.

The unfreezing phase consisted of bringing awareness to the issue of comorbid depression and diabetes in Veterans among the organizational leaders and staff members. This is demonstrated by educating others regarding the potential harms of untreated depression in Veteran patients with diabetes. Discussing this issue with leaders and stakeholders is essential as well and their feedback had demonstrated a need for change. Once awareness of the issue had been made, it was time to shift to the moving phase. During this phase, action was be taken, and an educational module regarding screening, identifying, and coordinating care for depression was presented to nursing staff. A pre-test-post-test survey was developed based on the educational content and was evaluated in order to demonstrate if the education stimulated positive changes. The organization may also choose to evaluate the effects and analyze whether long-term screening rates improved post-intervention. Once it was determined that nursing staff knowledge has improved after the intervention, then it was time to move on to the refreezing phase. During this phase, changes will be reported to the organizational leaders and they can

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choose to utilize the educational content periodically to educate staff on the importance of this matter.

Theory Evaluation

Lewin's Change Framework has been frequently used by nursing leaders to develop change. Due to the fact that healthcare organizations are constantly evolving, this framework can transform the care provided to patients (Wojciechowski et al., 2016). A common critique of Lewin's Three-Step Model of Change is that it is simple, linear and lacks fluidity (Burnes, 2019; Wojciechowski et al., 2016). This criticism can often underplay the changes that can realistically be obtained through utilization of this model, as it has gained considerable strength in creating changes in different settings. On the contrary, Lewin was an experienced psychologist that used his experience to shape the theory he created (Burnes, 2019). Lewin's Three-Step Model of Change is in actuality not simplistic or linear as it is based on an extensive background of human psychology and is an iterative process (Burnes, 2019). Furthermore, it does have a follow an effective sequence that is naturally occurring and it has been shown to be effective (Burnes, 2019). This model has been a remarkable tool that helped guide many quality improvement projects to improve nursing care (Wojciechowski et al., 2016). As the strengths of this model far out way the weaknesses, it will be an excellent choice in guiding this quality improvement project to success.

Methodology

The role of methodology is to describe the steps that will be taken in the quality improvement research process (Bhaskar and Manjuladevi, 2016). It is an essential component to organizing the methods utilized in developing the project and establishing a comprehensive approach to achieve project completion. The contents of this section will include procedures,

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setting, participants, methods of data analysis, management and collection, recruitment procedures and other critical steps to the methodology will be discussed. These sections will carefully detail how and under what conditions this project will be performed.

Setting and Participants

The quality improvement project was conducted at a Level 1A VA facility in the western region. It was performed via telehealth technologies. This VA facility serves exclusively the Veteran population and provides a range of services to the Veteran population . It is a sophisticated and large health care system with a large number of health care staff. IRB exemption was obtained via Florida International University and permission to perform a QI project was obtained via the VA compliance department prior to recruiting participants. It was performed via telehealth technologies. The participants for this project were predicted to be 25 nurses and the final number of participants were 7 nurses.

Procedures

This quality improvement project utilized a pre-post-intervention design. An educational module was developed that includes identification of depression, utilizing PHQ-2/PHQ-9 screening and care coordination for depression in patients with diabetes. This educational intervention was used to educate telehealth nurses working with Veteran patients. The participants were voluntary and initially provided a survey based on the educational module prior to undergoing the intervention stage. The pre-intervention survey assessed their current knowledge on identifying depression, regarding the PHQ-2/PHQ-9 and care coordination. It also collected information regarding demographics.

The next step included administering the educational module via a technological platform or email. After participants completed the module, the survey was administered again to assess if

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their knowledge improved after the intervention by comparing the results with the pre-intervention survey. The results were analyzed and summarized in order to influence future change in practice. If the intervention is successful in improving knowledge in the categories studied, then leaders will be notified to implement these educational interventions.

Participant Recruitment

Participants for this project were be recruited via email. Telehealth nurses working at the Veterans Medical Center were be sent an email from their manager describing the project and asking for their participation. Attached to the email was an informational letter. Those who voluntarily choose to participate in the project were be asked to fill out the demographic questionnaire, pre/post-survey and participate in the educational intervention.

Data Collection

Data for this project was be collected via a pre- and post-intervention survey. The survey included a section regarding demographics (years of employment) and the remaining questions were formulated based on the educational content provided to subjects for the intervention. The demographics were collected and analyzed, while the remaining questions were scored on a likert scale of 0 to 10. These questions were reviewed by the preceptor and department leaders in order to ensure its accuracy and validity prior to administering to subjects.

Data Management

No information that directly identified participants was collected. The information was stored on a VA password protected computer while the project was taking place. The clinical preceptor collected the data and inserted the data into an excel file which was then provided to the student in order to ensure privacy and anonymity of the data.

Data Analysis

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Descriptive and inferential statistics were utilized to analyze the data. This includes calculating the mean and standard deviation. The mean score pre-intervention was compared to the mean score post-intervention to determine if knowledge of the participants improved in identification, screening, and care coordination, as well as if confidence levels improved in these categories. The Wilcoxon Signed Ranks test was utilized to determine if the difference in scores pre-intervention and post-intervention can be considered statistically significant. This test was chosen due to the small sample size and due to the fact that the data was ordinal.

Protection of Human Subjects

Steps were taken to protect the privacy and safety of the subjects participating in the research. Firstly, all information collected from this project was be stored on a VA password protected computer in a designated folder. Upon collection of the data, no personal identifiers were asked from the participants such as name, address, phone number and so forth to ensure their identity remains confidential. IRB approval was be obtained through Florida International University to ensure the protection of the subjects. A separate permission to conduct this project at the VA facility went through the QI/PE process compliance and was approved. Nursing union permission was also obtained to proceed with the project. Additionally, participants were informed that their participation is voluntary and that they are able to end participation whenever they choose to do so.

Timeline

- June-October 2023: Acquired IRB approval from FIU and approval to perform intervention at Veterans Medical Center
- July 2023-October 2023: Developed survey questionnaire and educational module

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- October 2023: Administered pre-intervention survey, educational content, and post-intervention survey to the participants
- October-November 2023: Performed data analysis and developed final doctoral paper with results

Results

The data from this intervention will be delineated below. Seven nurses (n=7) participated in the educational intervention and completed the pretest-posttest survey. Descriptive statistics were utilized to examine score changes. Statistical significance was measured using a non-parametric test called the Wilcoxon Signed Ranks Test. SPSS software was utilized to apply this test and generate results. This non-parametric test was chosen due to it being the appropriate test for ordinal data with a small effect size.

Demographic Characteristics

The demographic characteristics of the population sample of seven nurses (n=7) are provided in Table 3. The only nursing union approved demographic data obtained was regarding years of experience for protection of anonymity with a small sample size. As demonstrated below, all of the nurses had more than 4 years of experience as a nurse. There was a variation among the nurses for years of experience as a telehealth nurse. Four nurses (n=4) had greater than 4 years of experience working as a telehealth nurse. One nurse (n=1) had 3 to 4 years of experience working as telehealth nurse. Two nurses (n=2) had 1 to 2 years of experience working as a telehealth nurse. Upon examination of the data, it was noted that the nurses with greater than 4 years of experience (n=4) as a telehealth nurse all scored greater than 7 on question number one relating to knowledge of identifying depression. One nurse (n=1) with greater than 4 years of experience as a telehealth nurse scored 10 for pre-intervention and post-intervention for all four

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survey questions. Two nurses (n=2) scored 10 on several categories both pre-intervention and post-intervention. Scores of 10 were only seen among the nurses with greater than four years of experience as a telehealth nurse.

Table 3

Demographic Data

	Nurse 1	Nurse 2	Nurse 3	Nurse 4	Nurse 5	Nurse 6	Nurse 7
Years of experience as a telehealth nurse	>4 yrs	1-2 yrs	3-4 yrs	>4 yrs	>4 yrs	>4 yrs	1-2 yrs
Years of experience as a nurse	>4 yrs	>4 yrs	>4 yrs	>4 yrs	>4 yrs	>4 yrs	>4 yrs

Raw Data

Table 4 and 5 demonstrate the raw data scores collected for the reference of the reader. For anonymity purposes, the nurses were randomly represented numerically from Nurse 1 to Nurse 7. The survey included four questions regarding identification of depression, screening tools knowledge, care coordination and confidence level. Scores were rated on a scale of 1 to 10 with 1 being the lowest score and 10 being the highest score. Although more nurses participated in the intervention, only 7 nurses (n=7) voluntarily submitted their pre-test and post-test survey results. In all categories, 6 of the nurses (n=6) showed improvement or stayed the same from pre-intervention to post-intervention. Nurse 4 (n=1) had lowered scores from pre-intervention to post-intervention for question 1 regarding knowledge of identifying depression and question 2 regarding knowledge of utilization of screening tools. Due to anonymity, it cannot be determined why the scoring had worsening changes and it is presumed that this is an outlier. Demographic data such as language and literacy were not collected so that may have played a factor. Overall, raw data scores showed an increase from pre-intervention to post-intervention.

Table 4

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Pre-Intervention Survey Results

On a scale of 1 (lowest) to 10 (highest) rate:	Nurse 1	Nurse 2	Nurse 3	Nurse 4	Nurse 5	Nurse 6	Nurse 7
Your knowledge of identifying depression among patients with diabetes	8	3	5	9	10	10	8
Your level of knowledge of utilization of the PHQ-2 & PHQ-9 screening tools in clinical practice	1	1	1	1	10	5	1
Your level of knowledge in appropriate care coordination for depression among patients with diabetes	5	1	5	9	10	10	8
How confident are you in your ability to identify, screen and coordinate care for depression in Veteran patients with diabetes	5	1	7	9	10	10	8

Table 5

Post-Intervention Survey Results

On a scale of 1 (lowest) to 10 (highest) rate:	Nurse 1	Nurse 2	Nurse 3	Nurse 4	Nurse 5	Nurse 6	Nurse 7
Your knowledge of identifying depression among patients with diabetes	9	5	6	2	10	10	8
Your level of knowledge of utilization of the PHQ-2 & PHQ-9 screening tools in clinical practice	8	5	6	2	10	7	2
Your level of knowledge in appropriate care coordination for depression among patients with diabetes	7	5	7	9	10	10	8
How confident are you in your ability to identify, screen and coordinate care for depression in Veteran patients with diabetes	7	5	6	9	10	10	8

Percentage Change

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Table 6 demonstrates percentage change in scoring responses for each score level from 1 to 10. Percentage change ranged from 0 to 71.43% either in the positive or negative direction. Overall scoring selections had lower percentage changes ranging from 14.28 to 28.57% either in the negative or positive direction for each question from pre-intervention to post-intervention. For question #2 regarding level of knowledge of utilization of screening tools, the percentage change for score 1 was 71.43% (in Bold letters in the table below). 71.43% of participants (n=5) selected 1 on the ranking scale pre-intervention and 0 participants selected the score of 1 post-intervention. Familiarity with PHQ-2 and PHQ-9 screening tools are likely low in this population. Significant percentage changes were not seen in other categories.

Table 6

Percentage Change

Question	Pre-Intervention (n=7)	Post-Intervention (n=7)	% Change
Your knowledge of identifying depression among patients with diabetes			
10 (highest)	2 (28.57%)	2 (28.57%)	0
9	1 (14.29%)	1 (14.29%)	0
8	2 (28.57%)	1 (14.29%)	14.28↓
7	0 (0%)	0 (0%)	0
6	0 (0%)	1 (14.29%)	14.29↑
5	1 (14.29%)	1 (14.29%)	0
4	0 (0%)	0 (0%)	0
3	1 (14.29%)	0 (0%)	14.29↓
2	0 (0%)	1 (14.29%)	14.29↑
1 (lowest)	0 (0%)	0 (0%)	0
Your level of knowledge of utilization of the PHQ-2 & PHQ-9 screening tools in			

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clinical practice			
10 (highest)	1 (14.29%)	1 (14.29%)	0
9	0 (0%)	0 (0%)	0
8	0 (0%)	1 (14.29%)	14.29↑
7	0 (0%)	1 (14.29%)	14.29↑
6	0 (0%)	1 (14.29%)	14.29↑
5	1 (14.29%)	1 (14.29%)	0
4	0 (0%)	0 (0%)	0
3	0 (0%)	0 (0%)	0
2	0 (0%)	2 (28.57%)	28.57↑
1 (lowest)	**5 (71.43%)**	**0 (0%)**	**71.43↓**
Your level of knowledge in appropriate care coordination for depression among patients with diabetes			
10 (highest)	2 (28.57%)	2 (28.57%)	0
9	1 (14.29%)	1 (14.29%)	0
8	1 (14.29%)	1 (14.29%)	0
7	0 (0%)	2 (28.57%)	28.57↑
6	0 (0%)	0 (0%)	0
5	2 (28.57%)	1 (14.29%)	14.28↓
4	0 (0%)	0 (0%)	0
3	0 (0%)	0 (0%)	0
2	0 (0%)	0 (0%)	0
1 (lowest)	1 (14.29%)	0 (0%)	14.29↓
How confident are you in your ability to identify, screen and coordinate care for depression in Veteran patients with diabetes			
10 (highest)	2 (28.57%)	2 (28.57%)	0
9	1 (14.29%)	1 (14.29%)	0
8	1 (14.29%)	1 (14.29%)	0
7	1 (14.29%)	1 (14.29%)	0
6	0 (0%)	1 (14.29%)	14.29↑
5	1 (14.29%)	1 (14.29%)	0
4	0 (0%)	0 (0%)	0
3	0 (0%)	0 (0%)	0
2	0 (0%)	0 (0%)	0

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1 (lowest)	1 (14.29%)	0 (0%)	14.29↓

Descriptive Statistics

The mean scores were generated using the SPSS software. The following descriptive statistics are presented in Table 7 below. For question number one, the mean score pre-intervention was 7.56 (SD 2.637) and the mean score post-intervention was 7.14 (SD=2.968). The nurses displayed lower levels of knowledge of identifying depression when compared with baseline knowledge as per the mean scores. For question number two, the mean score pre-intervention was 2.86 (SD=3.485) and the mean score post-intervention was 5.71 (SD=2.984). The nurses displayed higher levels of knowledge of utilization of screening tools when compared with baseline knowledge with a mean scores difference of 2.85. For question number three, the mean score pre-intervention was 6.86 (SD=3.338) and the mean score post-intervention was 8.00 (SD=1.826). The nurses displayed higher levels of knowledge of care coordination when compared with baseline knowledge with a mean scores difference of 1.14. For question number four, the mean score pre-intervention was 7.14 (SD=3.236) and the mean score post-intervention was 7.86 (SD=1.952). The mean scores difference in this category was 0.72 which did not display a significant change for confidence levels. Overall, the mean score difference was most significant for question number 2 regarding knowledge of screening tools.

Table 7

Descriptive Statistics

	N	Mean	Std. Deviation
Q1Pre	7	7.57	2.637
Q2Pre	7	2.86	3.485

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Q3Pre	7	6.86	3.338
Q4Pre	7	7.14	3.237
Q1Post	7	7.14	2.968
Q2Post	7	5.71	2.984
Q3Post	7	8.00	1.826
Q4Post	7	7.86	1.952

*Generated using SPSS Software

Inferential Statistics

Inferential statistics were generated using the SPSS software to determine if there was a statistically significant difference between the mean knowledge scores from pre-intervention to post-intervention for each question category. A nonparametric testing method was selected as parametric testing methods were not appropriate for this data. Nonparametric testing methods are the correct choice for statistical analysis of data continuous, consists of a small sample size and has ordinal outcomes (Kim, 2014). This is why this method was chosen to analyze the data from this quality improvement project. The Wilcoxon Signed Ranks Test was utilized as it is the appropriate test to compare two independent data that are ordinal (Kim, 2014).

The results of the Wilcoxon Signed Ranks Test shows there was no statistically significant change in knowledge scores following the educational intervention for question categories number 1 (p=7.13), number 3 (p=.102) and question number 4 (p=.285) as the p value was greater than 0.05 in each of these question categories. The results of the Wilcoxon Signed Ranks Test shows there was a statistically significant change in knowledge scores following the educational intervention for question category number 2 (p=.027) as the p value was less than 0.05.

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Table 8

Wilcoxon Signed Ranks Test Statistics

	Q1	Q2	Q3	Q4
Z	-.368[b]	-2.207[b]	-1.633[b]	-1.069[b]
P Value	.713	.027	.102	.285

Discussion

Findings

This quality improvement project was intended to examine the relationship between an educational intervention and improvement in nurses' knowledge on identifying, screening, and coordinating care for depression for Veteran patients with diabetes, as well as their confidence in utilizing knowledge learnt. The overall results of this project showed that the educational intervention was not successful in improving nurses' knowledge for identification and coordination of care but did improve knowledge of utilization of screening measures among the nurses on the unit. As per the mean scores, the level of knowledge improved slightly for questions related to care coordination (16.62% mean score increase) and confidence levels (10.08% mean score increase) while the score worsened for the question related to identification of depression (5.68% mean score decrease). The mean score changes for utilization of screening tools showed good improvement (99.65% mean score increase).

According to the results of the Wilcoxon signed ranks test, there was only a statistically significant change in knowledge scores for question number two regarding utilization of the PHQ-2 and PHQ-9 screening tools in clinical practice. Majority of participants (71.43%, n=5) had a score of 1 pre-intervention in this subject category, indicating the lowest level of knowledge of utilization of screening tools. There may be several factors that facilitated this

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response including educational barriers and VA system role designation. Nurses on the unit are not provided education regarding screenings due to the fact that the VA assigns the task of screening to mental health providers, as it is assumed that they are more qualified to assess for depression. As nurses comprise a large number of the health care team, nurse-led telehealth interventions can help improve the overall care provided to patients (Joo et al., 2022). Therefore, the findings of this quality improvement project may point to the benefit of incorporating screening education among nurses.

Limitations

Although this quality improvement project was developed utilizing best evidence-based literature, there were various limitations that impacted the final project. A major limitation of this quality improvement project is the small sample size of seven participants. Primarily, this was a result of significant delays in approval of the quality improvement project which only left about two months for project implementation and completion. Additionally, the VA management attempted to recruit a wider range of participants but due to the anonymity and voluntary nature of the study, there were participants that chose not to fill out the surveys. Furthermore, there were individuals that could not attend the meeting in which the intervention took place.

An additional limitation was that demographic data such as language and literacy could not be collected. Nursing union approval was required to proceed with this project and such demographic data could not be included. Therefore, it is unknown whether some of the participants may have had language barriers that may have impeded their understanding of the survey and skewed some of the results. For example, one nurse scored lower on two categories post-intervention, and it is unknown whether poor understanding of the questions may have contributed to this.

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Implications for Advanced Nursing

It has been shown that the PHQ-2 and PHQ-9 are effective screening tools to detect depression and determine its' severity (Levis et al., 2020). The implications of the results obtained from this project can serve to improve nursing education and the way nurses practice their care. Nurses can help bridge gaps that exist in health care. The educational intervention was successful in improving nurses' knowledge base regarding utilization of the PHQ-2 and PHQ-9 screening tools at the telehealth unit. This will serve as a guide for nursing leaders. Nursing leaders can help further facilitate improved education among nurses by expanding training at the VA facilities on effective screening utilization. Education and proper training can help nurses implement best practices (Ten Ham-Baloyi W, 2022). This project can also assist leaders in creating an environment where nurses are more confident in care processes and the way they serve patients.

The results of this project will be presented at the Florida International University Symposium, and this can help further bring awareness of this subject to other nurses and nursing leaders as well. Although this project is not generalizable, it can be viewed as a pilot for future researchers to develop a comprehensive research study to further investigate this topic in order to improve nursing care for Veteran patients. Improving education is key to building a foundation for future nurses to be change agents in the settings they are employed.

Conclusion

The Veterans Health Administration facilities are federal agencies whose primary focus is to improve the lives of Veteran patients. The primary goal of this quality improvement project was to enhance the knowledge base of nurses facilitating care for Veterans with diabetes and comorbid depression at a Veterans Health Administration facility through an educational

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intervention. This can thereby heighten screening rates and care coordination for depression in Veteran patients with diabetes. A SWOT analysis that was conducted identified strengths, weaknesses, opportunities, and threats at VHA facilities. The primary strength of these facilities it that they foster an environment of improving the care provided specifically to the Veteran population. Lewin's Three-Step Model of Change was applied to the proposed change and is a framework that helped guide the quality improvement project to completion.

Upon review of the literature, there has been a collection of evidence that points to the importance of this quality improvement project. Depression accompanied with diabetes can cause worsen outcomes for Veteran patients and increasing awareness of this issue is imperative to improving the care provided. Nurses are typically at the forefront of care and serve an important role in facilitating change. This quality improvement project served as a small snapshot of the role education can have on improving knowledge of screening. Researchers can utilize these results to further examine the relationship between education and nursing care in order to make important changes at VA facilities for this specific issue.

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References

Aghera, A., Emery, M., Bounds, R., Bush, C., Stansfield, R. B., Gillett, B., & Santen, S. A. (2018). A Randomized Trial of SMART Goal Enhanced Debriefing after Simulation to Promote Educational Actions. *The Western Journal of Emergency Medicine*, *19*(1), 112–120. https://doi.org/10.5811/westjem.2017.11.36524

Alva M. L. (2020). Co-occurrence of diabetes and depression in the U.S. *PloS one*, *15*(6), e0234718. https://doi.org/10.1371/journal.pone.0234718

Bhaskar, S. B., & Manjuladevi, M. (2016). Methodology for research II. *Indian Journal of Anaesthesia*, *60*(9), 646–651. https://doi.org/10.4103/0019-5049.190620

Benzer, J. K., Singer, S. J., Mohr, D. C., McIntosh, N., Meterko, M., Vimalananda, V. G., Harvey, K. L. L., Seibert, M. N., & Charns, M. P. (2019). Survey of Patient-Centered Coordination of Care for Diabetes with Cardiovascular and Mental Health Comorbidities in the Department of Veterans Affairs. *Journal of General Internal Medicine*, *34*(Suppl 1), 43–49. https://doi.org/10.1007/s11606-019-04979-8

Bernard, Burnes. (2020). The Origins of Lewin's Three-Step Model of Change. *The Journal of Applied Behavioral Science*, *56*(1), 32–59. https://doi.org/10.1177/0021886319892685

Betancourt, J. A., Granados, P. S., Pacheco, G. J., Reagan, J., Shanmugam, R., Topinka, J. B., Beauvais, B. M., Ramamonjiarivelo, Z. H., & Fulton, L. V. (2021). Exploring Health Outcomes for U.S. Veterans Compared to Non-Veterans from 2003 to 2019. *Healthcare (Basel, Switzerland)*, *9*(5), 604. https://doi.org/10.3390/healthcare9050604

Blackstone, S. R., Sebring, A. N., Allen, C., Tan, J. S., & Compton, R. (2022). Improving Depression Screening in Primary Care: A Quality Improvement Initiative. *Journal of Community Health*, *47*(3), 400–407. https://doi.org/10.1007/s10900-022-01068-6

DocuSign Envelope ID: 2C30DCFB-1829-4FAF-A35C-BFA1FAB7D047

Center for Disease Control and Prevention (2022). *Mental health conditions: Depression and Anxiety.* Retrieved February 3, 2023, from https://www.cdc.gov/tobacco/campaign/tips/diseases/depression-anxiety.html#:~:text=In%20general%E2%80%9A%20about%201%20out,some%20time%20in%20their%20life.&text=Depression%20affects%20about%2016%20million%20American%20adults%20every%20year.&text=Anyone%20can%20get%20depressed%2C%20and,in%20any%20type%20of%20person.

Center for Disease Control and Prevention (2022). *By the number: Diabetes in America.* Retrieved February 1, 2023, from https://www.cdc.gov/diabetes/health-equity/diabetes-by-the-numbers.html#:~:text=Total%20Diabetes,have%20been%20diagnosed%20with%20diabetes.

Center for Disease Control and Prevention (n.d.). *A research brief screening for depression and diabetes distress in adults with Type 2 diabetes.* Retrieved February 1, 2023, from https://www.cdc.gov/diabetes/pdfs/managing/Depression_Diabetes_Distress_Brief_508.pdf

Center for Disease Control and Prevention (2022). *Mental Health.* Retrieved February 1, 2023, from https://www.cdc.gov/diabetes/managing/mental-health.html#:~:text=People%20with%20diabetes%20are%202,depression%20get%20diagnosed%20and%20treated.

Cheney, A. M., Koenig, C. J., Miller, C. J., Zamora, K., Wright, P., Stanley, R., Fortney, J., Burgess, J. F., & Pyne, J. M. (2018). Veteran-centered barriers to VA mental healthcare services use. *BMC Health Services Research*, *18*(1), 591. https://doi.org/10.1186/s12913-018-3346-9

DocuSign Envelope ID: 2C30DCFB-1829-4FAF-A35C-BFA1FAB7D047

Cohen, Taveira, T. H., Wu, W.-C., & Pirraglia, P. A. (2020). Pharmacist-led telehealth disease management program for patients with diabetes and depression. *Journal of Telemedicine and Telecare*, *26*(5), 294–302. https://doi.org/10.1177/1357633X18822575

Comer, A., Slaven, J., & Torke, A. (2021). An educational video improves physician knowledge of a public health care law that affects patient care during hospital clinical practice. *Journal of public health research*, *10*(4), 1983. https://doi.org/10.4081/jphr.2021.1983

Corbett, J. A., Opladen, J. M., & Bisognano, J. D. (2020). Telemedicine can revolutionize the treatment of chronic disease. *International Journal of Cardiology. Hypertension*, *7*, 100051. https://doi.org/10.1016/j.ijchy.2020.100051

Creech, S. K., Pulverman, C. S., Crawford, J. N., Holliday, R., Monteith, L. L., Lehavot, K., Olson-Madden, J., & Kelly, U. A. (2021). Clinical Complexity in Women Veterans: A Systematic Review of the Recent Evidence on Mental Health and Physical Health Comorbidities. *Behavioral medicine (Washington, D.C.)*, *47*(1), 69–87. https://doi.org/10.1080/08964289.2019.1644283

Cynthia S. Selleck, Teena M. McGuinness, John P. McGuinness, Glenda J. Stanley, Rebecca S. Miltner. (2021). Identifying Veterans in Your Practice: What Clinicians Need to Know. *The Journal for Nurse Practitioners*, *17*(5), 574–578. https://doi.org/10.1016/j.nurpra.2020.10.011.

Dearholt, S., & Dang, D. (2018). *John Hopkins nursing evidence-based practice model and guidelines.* Sigma Theta Tau International Honor Society of Nursing.

Ditmars, H. L., Logue, M. W., Toomey, R., McKenzie, R. E., Franz, C. E., Panizzon, M. S., Reynolds, C. A., Cuthbert, K. N., Vandiver, R., Gustavson, D. E., Eglit, G. M. L., Elman,

DocuSign Envelope ID: 2C30DCFB-1829-4FAF-A35C-BFA1FAB7D047

J. A., Sanderson-Cimino, M., Williams, M. E., Andreassen, O. A., Dale, A. M., Eyler, L. T., Fennema-Notestine, C., Gillespie, N. A., Hauger, R. L., … Lyons, M. J. (2022). Associations between depression and cardiometabolic health: A 27-year longitudinal study. *Psychological Medicine*, *52*(14), 3007–3017. https://doi.org/10.1017/S003329172000505X

Garcia, M. E., Hinton, L., Neuhaus, J., Feldman, M., Livaudais-Toman, J., & Karliner, L. S. (2022). Equitability of Depression Screening After Implementation of General Adult Screening in Primary Care. *JAMA network open*, *5*(8), e2227658. https://doi.org/10.1001/jamanetworkopen.2022.27658

Givler, D. N., & Givler, A. (2023). Health Screening. In *StatPearls*. StatPearls Publishing.

González-Castro, T. B., Escobar-Chan, Y. M., Fresan, A., López-Narváez, M. L., Tovilla-Zárate, C. A., Juárez-Rojop, I. E., Ble-Castillo, J. L., Genis-Mendoza, A. D., & Arias-Vázquez, P. I. (2021). Higher risk of depression in individuals with type 2 diabetes and obesity: Results of a meta-analysis. *Journal of Health Psychology*, *26*(9), 1404–1419. https://doi.org/10.1177/1359105319876326

Greenberg, P. E., Fournier, A. A., Sisitsky, T., Simes, M., Berman, R., Koenigsberg, S. H., & Kessler, R. C. (2021). The Economic Burden of Adults with Major Depressive Disorder in the United States (2010 and 2018). *PharmacoEconomics*, *39*(6), 653–665. https://doi.org/10.1007/s40273-021-01019-4

Hester R. D. (2017). Lack of access to mental health services contributing to the high suicide rates among veterans. *International Journal of Mental Health Systems*, *11*, 47. https://doi.org/10.1186/s13033-017-0154-2

DocuSign Envelope ID: 2C30DCFB-1829-4FAF-A35C-BFA1FAB7D047

IBM Corp. Released 2021. IBM SPSS Statistics for Macintosh, Version 28.0. Armonk, NY: IBM Corp

Jensen, E., Dumas, B. P., & Edlund, B. J. (2016). Depression Screening in Chronic Disease Management: A Worksite Health Promotion Initiative. *Workplace Health & Safety*, *64*(3), 89–94. https://doi.org/10.1177/2165079915608404

Joo J. Y. (2022). Nurse-Led Telehealth Interventions During COVID-19: A Scoping Review. *Computers, Informatics, Nursing: CIN*, *40*(12), 804–813. https://doi.org/10.1097/CIN.0000000000000962

Inadomi, J. M., Issaka, R. B., & Green, B. B. (2021). What Multilevel Interventions Do We Need to Increase the Colorectal Cancer Screening Rate to 80%?. *Clinical Gastroenterology and Hepatology: The Official Clinical Practice Journal of the American Gastroenterological Association*, *19*(4), 633–645. https://doi.org/10.1016/j.cgh.2019.12.016

Kane, N. S., Bloor, L. E., & Michaels, J. (2021). Enhancing Diabetes Self-Management Education and Psychological Services for Veterans with Comorbid Chronic Health and Mental Health Conditions. *Federal Practitioner: For the Health Care Professionals of the VA, DoD, and PHS*, *38*(4), e22–e28. https://doi.org/10.12788/fp.0106

Kim H. Y. (2014). Statistical notes for clinical researchers: Nonparametric statistical methods: 1. Nonparametric methods for comparing two groups. *Restorative Dentistry & Endodontics*, *39*(3), 235–239. https://doi.org/10.5395/rde.2014.39.3.235

König, H., König, H. H., & Konnopka, A. (2019). The excess costs of depression: a systematic review and meta-analysis. *Epidemiology and psychiatric sciences*, *29*, e30. https://doi.org/10.1017/S2045796019000180

DocuSign Envelope ID: 2C30DCFB-1829-4FAF-A35C-BFA1FAB7D047

Leung, L. B., Rubenstein, L. V., Jaske, E., Taylor, L., Post, E. P., Nelson, K. M., & Rosland, A. M. (2022). Association of Integrated Mental Health Services with Physical Health Quality Among VA Primary Care Patients. *Journal of General Internal Medicine*, *37*(13), 3331–3337. https://doi.org/10.1007/s11606-021-07287-2

Levis, B., Sun, Y., He, C., Wu, Y., Krishnan, A., Bhandari, P. M., Neupane, D., Imran, M., Brehaut, E., Negeri, Z., Fischer, F. H., Benedetti, A., Thombs, B. D., Depression Screening Data (DEPRESSD) PHQ Collaboration, Che, L., Levis, A., Riehm, K., Saadat, N., Azar, M., Rice, D., … Zhang, Y. (2020). Accuracy of the PHQ-2 Alone and in Combination With the PHQ-9 for Screening to Detect Major Depression: Systematic Review and Meta-analysis. *JAMA*, *323*(22), 2290–2300. https://doi.org/10.1001/jama.2020.6504

Liu, Y., Sayam, S., Shao, X., Wang, K., Zheng, S., Li, Y., & Wang, L. (2017). Prevalence of and Trends in Diabetes Among Veterans, United States, 2005-2014. *Preventing Chronic Disease*, *14*, E135. https://doi.org/10.5888/pcd14.170230

Luft, J. A., Jeong, S., Idsardi, R., & Gardner, G. (2022). Literature Reviews, Theoretical Frameworks, and Conceptual Frameworks: An Introduction for New Biology Education Researchers. *CBE Life Sciences Education*, *21*(3), rm33. https://doi.org/10.1187/cbe.21-05-0134

Lynch, J., M Ramjan, L., J Glew, P., & Salamonson, Y. (2020). How to embed a conceptual or theoretical framework into a dissertation study design. *Nurse Researcher*, *28*(3), 24–29. https://doi.org/10.7748/nr.2020.e1723

DocuSign Envelope ID: 2C30DCFB-1829-4FAF-A35C-BFA1FAB7D047

Maggio, L. A., Sewell, J. L., & Artino, A. R., Jr (2016). The Literature Review: A Foundation for High-Quality Medical Education Research. *Journal of Graduate Medical Education*, *8*(3), 297–303. https://doi.org/10.4300/JGME-D-16-00175.1

Moran, K.J., Burson, R., & Conrad, D. (2020). The Doctor of Nursing Practice Project: A Framework for Success. Jones and Bartlett Learning.

Naik, A. D., Hundt, N. E., Vaughan, E. M., Petersen, N. J., Zeno, D., Kunik, M. E., & Cully, J. A. (2019). Effect of Telephone-Delivered Collaborative Goal Setting and Behavioral Activation vs Enhanced Usual Care for Depression Among Adults with Uncontrolled Diabetes: A Randomized Clinical Trial. *JAMA Network Open*, *2*(8), e198634. https://doi.org/10.1001/jamanetworkopen.2019.8634

Novak, M., Mucsi, I., Rhee, C. M., Streja, E., Lu, J. L., Kalantar-Zadeh, K., Molnar, M. Z., & Kovesdy, C. P. (2016). Increased Risk of Incident Chronic Kidney Disease, Cardiovascular Disease, and Mortality in Patients with Diabetes with Comorbid Depression. *Diabetes Care*, *39*(11), 1940–1947. https://doi.org/10.2337/dc16-0048

Price, M. E., Done, N., & Pizer, S. D. (2020). The Relationship Between Follow-up Appointments and Access to Primary Care. *Journal of General Internal Medicine*, *35*(6), 1678–1683. https://doi.org/10.1007/s11606-020-05785-3

Safi-Aghdam, H., Shafie, M., Khoshdel, A., Moazen-Zadeh, E., Avakh, F., & Rahmani, A. (2019). Long-Term Effects of Chemical Warfare on Post-traumatic Stress Disorder, Depression, and Chronic Medical Conditions in Veterans. *Community Mental Health Journal*, *55*(3), 493–496. https://doi.org/10.1007/s10597-018-0277-1

Sartorius N. (2018). Depression and diabetes. *Dialogues in Clinical Neuroscience*, *20*(1), 47–52. https://doi.org/10.31887/DCNS.2018.20.1/nsartorius

DocuSign Envelope ID: 2C30DCFB-1829-4FAF-A35C-BFA1FAB7D047

Sedeeq, S. T., AlTamimi, M. J. M., Hamed, E., & Syed, M. A. (2022). Diagnostic accuracy of the Patient Health Questionnaire 2 (PHQ-2) in Qatar's primary care settings. *Primary Health Care Research & Development*, *23*, e5. https://doi.org/10.1017/S146342362100089X

Silva, J. A. D., Souza, E. C. F., Echazú Böschemeier, A. G., Costa, C. C. M. D., Bezerra, H. S., & Feitosa, E. E. L. C. (2018). Diagnosis of diabetes mellitus and living with a chronic condition: participatory study. *BMC Public Health*, *18*(1), 699. https://doi.org/10.1186/s12889-018-5637-9

Snoswell, C. L., Taylor, M. L., Comans, T. A., Smith, A. C., Gray, L. C., & Caffery, L. J. (2020). Determining if Telehealth Can Reduce Health System Costs: Scoping Review. *Journal of Medical Internet Research*, *22*(10), e17298. https://doi.org/10.2196/17298

Sun, Y., Fu, Z., Bo, Q., Mao, Z., Ma, X., & Wang, C. (2020). The reliability and validity of PHQ-9 in patients with major depressive disorder in psychiatric hospital. *BMC Psychiatry*, *20*(1), 474. https://doi.org/10.1186/s12888-020-02885-6

Taylor, S., Miller, B.L., Tallapragada, M., & Vogel, M. (2020). Veterans' Transition Out of the Military and Knowledge of Mental Health Disorder, *Journal of Veteran Studies*, *6*(1), 85-95. DOI: http://doi.org/10.21061/jvs.v6i1.131

Tomic, D., Shaw, J. E., & Magliano, D. J. (2022). The burden and risks of emerging complications of diabetes mellitus. *Nature Reviews. Endocrinology*, *18*(9), 525-539. https://doi.org/10.1038/s41574-022-00690-7

Ten Ham-Baloyi W. (2022). Nurses' roles in changing practice through implementing best practices: A systematic review. *Health SA = SA Gesondheid*, *27*, 1776.

DocuSign Envelope ID: 2C30DCFB-1829-4FAF-A35C-BFA1FAB7D047

https://doi.org/10.4102/hsag.v27i0.1776

U.S. Department of Veteran Affairs (2022). *Diabetes self-management education program.* Retrieved February 3, 2023, from https://www.va.gov/madison-health-care/programs/diabetes-self-management-education-program/

U.S. Department of Veteran Affairs (2019). *Innovative treatment for Vets with Type 2 diabetes.* Retrieved February 3, 2023, from https://news.va.gov/58037/innovative-treatment-vets-type-2 diabetes/#:~:text=Currently%2C%20VA%20offers%20medical%20care,who%20have%20Type%202%20diabetes.

U.S. Department of Veteran Affairs (2022). *Depression treatment for Veterans.* Retrieved February 3, 2023, from https://www.va.gov/health-care/health-needs-conditions/mental-health/depression/#:~:text=We%20offer%20treatments%20such%20as,resolving%20relationship%20problems%2C%20and%20more.

U.S. Department of Veteran Affairs (n.d.). *Department of Veteran Affairs Fiscal Years 2022-28 Strategic Plan.* Retrieved April 2, 2023, from https://www.va.gov/oei/docs/va-strategic-plan-2022-2028.pdf

U.S. Department of Veteran Affairs. (2022). *Veterans Health Administration*. Retrieved April 2, 2023, from https://www.va.gov/health/aboutvha.asp

U.S. Department of Veteran Affairs. (2019). *Verification Assistance Brief*. Retrieved May 4, 2023, from https://www.va.gov/OSDBU/docs/Determining-Veteran-Status.pdf

U.S. Preventive Services Task Force. (2016). Screening for depression in adults. Retrieved February 12, 2023, from https://www.uspreventiveservicestaskforce.org/uspstf/document/RecommendationStatem

DocuSign Envelope ID: 2C30DCFB-1829-4FAF-A35C-BFA1FAB7D047

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Wang, Y., Hu, M., Zhu, D., Ding, R., & He, P. (2022). Effectiveness of Collaborative Care for Depression and HbA1c in Patients with Depression and Diabetes: A Systematic Review and Meta-Analysis. *International Journal of Integrated Care*, *22*(3), 12. https://doi.org/10.5334/ijic.6443

Wojciechowski, E., Pearsall, T., Murphy, P., & French, E. (2016). A Case Review: Integrating Lewin's Theory with Lean's System Approach for Change. *Online Journal of Issues in Nursing*, *21*(2), 4. https://doi.org/10.3912/OJIN.Vol21No02Man04

World Health Organization. (2023). *Depressive disorder (depression)*. Retrieved May 4, 2023, from https://www.who.int/news-room/fact-sheets/detail/depression

Yermukhanova, L., Buribayeva, Z., Abdikadirova, I., Tursynbekova, A., & Kurganbekova, M. (2022). SWOT Analysis and Expert Assessment of the Effectiveness of the Introduction of Healthcare Information Systems in Polyclinics in Aktobe, Kazakhstan. *Journal of Preventive Medicine and Public health = Yebang Uihakhoe chi*, *55*(6), 539–548. https://doi.org/10.3961/jpmph.22.360

Zulman, D. M., Wong, E. P., Slightam, C., Gregory, A., Jacobs, J. C., Kimerling, R., Blonigen, D. M., Peters, J., & Heyworth, L. (2019). Making connections: nationwide implementation of video telehealth tablets to address access barriers in veterans. *JAMIA Open*, *2*(3), 323–329. https://doi.org/10.1093/jamiaopen/ooz024

DocuSign Envelope ID: 2C30DCFB-1829-4FAF-A35C-BFA1FAB7D047

Appendix 1: Literature Matrix

First Author/Year	Purpose/ Problem/ Objective/ Aims	Study Design	Sample (Setting)	Data Collection Measures	Results	Strengths/ Limitations	Relationship to Project	Level of Evidence/ Quality Ranking
Benzer et al., 2019	To understand the views of Veteran patients with type 2 diabetes regarding how mental health and cardiovascular comorbidities affect care coordination	Observational study with a 2 x 2 factorial design	5806 patients from the Department of Veteran Affairs that had done an online survey regarding patient-centered coordinated care and who had ICD codes for diabetes, as well as one other comorbidity	Patient Perceptions of Integrated Care (PPIC) survey with 92 items and most using a Likert response scale	Comorbidities that are in the higher severity resulted in lower treatment-related communication with increased knowledge fragmentation, there was also a negative association with seven dimensions coupled with mental health comorbidities and lower severity mental health conditions, such as depression, lowered communication test results and results in increased knowledge fragmentation scores	Limitations: design utilized, use of merely administrative records and the inclusion of only two comorbidity types Strengths: utilization of administrative and survey data, reducing the impact of common method variance	Highlights that lower severity conditions such as depression may result in patients experiencing poorer views of coordinated care, indicating thar the VHA may benefit from enhancing care coordination for patients with depression and diabetes Enhances support for a quality improvement project that improves patient experience with mental health care and coordination	Level III
González-Castro et al., 2021	To identify the risk of be affected by depressive symptoms in individuals with type 2	Systematic Review of Cross-Sectional Studies	N/A	Data was collected in accordance with the PRISMA statement using a preset protocol and included	The systematic review found that having type 2 diabetes comorbid with obesity increases the risk of	Limitations: articles were cross-sectional, various measures to assess depression were utilized among the	Identifies that those with diabetes may have a higher risk of developing depression when	Level III

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	diabetes and obesity.			articles later than August 2018. Inclusion criteria for the studies selected were English language and adult population. In total, 27 studies were included in the review that encompassed cross-sectional studies	depression by 1.63-fold. There are several influences that can be attributed to this such as increased costs, social situation, psychological burden and so forth.	studies collected and certain variables such as gender were not factored into the study	experiencing obesity. This study may serve to clarify one of the many reasons that it is has been found that depression and diabetes tend to coexist.	
Jensen et al., 2016	To develop a depression screening program and provide the individuals enrolled in the study proper mental health care and determine if this process change improved depression outcomes	Process Improvement Pilot Project	Setting: worksite health promotion clinic Sample: group of employees and their spouses who had a history of diabetes, hyperlipidemia, or hypertension	Enrolled individuals were screened for depression using the PHQ-9 screening tool and the Veteran's Rand-12 was utilized to measure quality-of-life. The participants who screened positive for depression were offered proper mental health support including counseling sessions with the FNP. Pretest-posttest scores of the PHQ-9 and VR-12 were utilized to measures results	The mean PHQ-9 score was 9.3 pre-implementation and dropped to 4.5 and 4.9 post the 12-week intervention. The results of the study showed that both depression symptoms and mental health quality-of-life were improved for these participants post-intervention	Limitations: Familiarity of the provider may have led to reporting bias and some employment groups were underrepresented Strengths: Ability to be replicated	The key conclusions that were derived from this pilot project was that screening for depression and a collaborative approach to care is critical in individuals with chronic conditions and addressing it should be included in the treatment plans It can also be understood through this project the important role of those in the nursing profession and the significance of ensuring staff knowledge of disease	Level V

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Leung et al., 2022	To examine the association between Primary Care-Mental Health Integration (PC-MHI) and chronic disease healthy quality among Veteran patients	Retrospecti ve cohort study	The sample included 828,050 Veteran patients among clinics utilizing PC-MHI	Utilized multilevel logistic regression models to study the association between quality metrics and PC-MHI proportion. The primary quality metric patient level outcomes were measures of diabetes and hypertension	The results of this study showed that higher clinic PC-MHI proportion was associated with better glycemic control for patients with diabetes, with each two- fold rise in proportion of Veteran patients seen by PC-MHI specialists resulting in about 4% lower odds of poor glycemic control (CI=.94–.99)	Limitations: Study focused on an organizational -level explanatory variable, data came from a sample of each clinic's patient charts and the database may have had coding differences due to system transitions Strengths: Health records were randomly sampled and that is directly studied Veteran patients	In conclusion, the findings of the study showed that there is an association between enhancing a clinic's mental health integration and performanc e markers of chronic physical diseases, and that collaborativ e care among these domains can prove beneficial for patients Integrating mental health care can help improve disease outcomes for patients with diabetes	Level III
Levis et al., 2020	To figure out the accuracy of utilizing the PHQ-2 only and together with the PHQ-9 to screen for depression.	Systematic Review with Meta-Analysis	Article eligibility was determined based on data sets that included PHQ-2 scores, adults 18 years and older, performed diagnostic interview and PHQ within 2 weeks, and had classification	The methods used to develop this systematic review included development of a protocol and used PRISMA for reporting. The study included 100 data sets. Statistical analysis was performed to estimate sensitivity	The sensitivity and specificity for the PHQ-2 only with semi-structured interviews were 0.91 (95% CI, 0.88-0.94) and 0.67 (95% CI, 0.64-0.71) for scores greater than 2 and 0.72 (95% CI,	Limitations: Moderate heterogeneity among studies, data from 36 studies not utilized, many studies did not have low risk bias, categorization based on interview type and inclusion of studies without specification	In conclusion, this systematic review identified that specificity was slightly increased with PHQ-2 scores greater than 2 in combinatio n with PHQ-9 scores greater than	Level I

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			based on the DSM or ICD	and specificity of PHQ-2 scores on its own and in combination with PHQ-9 while accounting for semi-structured versus fully structured diagnostic interviews	0.67-0.77) and 0.85 (95% CI, 0.83-0.87) for scores greater than 3 Results showed that specificity was increased with PHQ-2 of more than 2 in combination with PHQ-9 score of more than 10 with specificity of 0.87 (95% CI, 0.84-0.89)	of depression diagnosis. Strengths: Large sample size, utilization of results from all cutoffs, assessing combination PHQ-2/PHQ-9 and determining precision of PHQ-2 by subgroups, as well as separately across reference standards	10 and it was approximated that using this method can lower the quantity of patients by 57% that will be required to perform the full PHQ-9 The study also showed that PHQ-2 scores sensitivity were greater when semi-structured interviews were utilized, indicating that trained providers may be better equipped to perform screenings	
Naik et al., 2019	To study the effect of screening and a telephone-based intervention on patients with diabetes and comorbid depression	Randomized Clinical Trial	225 US veterans with uncontrolled diabetes and comorbid depressive symptoms	Participants were assigned to groups randomly. The HOPE group received coaching sessions from trained health professionals including nurses, psychologists, pharmacists, and social workers. The clinicians were trained via 2 teleconferences and sessions	The HOPE group had statistically significant reduction in depressive symptoms over a 12-month period (mean [SD], 15.8 [4.2]) to 6 months (10.9 [6.1]) and had statistically significant improvement in glycemic control (mean [SD] HbA_{1c} 12 months: 8.7% [1.6%]).	Limitations: Lacked generatability due to gathering participants from a localized area and uneven participants among the groups	The pertinent gathering from this study is that trained professionals can be influential in the improvement of care for the Veteran population and this study has provided a foundation for understanding the implications for improving mental	Level I

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				included patient empowerment and modules on improving health outcomes for diabetes with depression. Reports regarding HbA1c, PHQ-9 scores and participation was provided to primary care providers. The control in the study was the Enhanced Usual Care group that received educational materials.	The PHQ-9 mean difference between the intervention and control group were also statistically meaningful (mean difference 12 months, 2.14; 95% CI, 0.18-4.10; *P* = .03) Although, the mean difference HbA_{1c} scores were negligible		health care for depression.	
Novak et al., 2016	To determine if there is an association between depression and increased risk of chronic kidney disease among US Veterans with diabetes	Prospective Cohort Study	Included participants had diabetes and glomerular filtration rate of greater than 60	Four outcomes were being studied including incident CKD, all-cause mortality, coronary heart disease and ischemic stroke The summarization of data was performed via means +/- SD, median or proportions, Student t test and Mann-Whitney U test were used to compare continuous variables, logistic regression analyses was	The result showed that those with depression had a much higher risk of developing CKD (21%; event rate: 36.3 [95% CI 36.1–36.6]/1,000 patient-years) versus those without depression (18%; event rate: 30.7 [95% CI 30.5–30.9]/1,000 patient-years) Mortality rate was also higher for Veteran patients with depression (29%; mortality	Limitations: Study design, inability to remove residual confounders and determining diagnosis of depression based on codes Strengths: Large sample size and veteran representation	Study highlighted that US veterans having diabetes and comorbid depression are associated with a higher risk of chronic kidney disease, patient mortality, incident CHD events and stroke. Since this study was performed directly with the Veteran population, it can serve as an implication	Level III

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				used to assess predictors of depression and Kaplan-Meier curves and Cox proportional hazard models were utilized to assess associations between depression and outcomes	rate: 42.6 [95% CI 42.4–42.9]/1,000 patient-years) versus for patients without depression (26%; mortality rate: 38.1 [95% CI 37.9–38.3]/1,000 patient-years) Depression was also associated with a higher risk for a CHD event (10.3 [95% CI 10.2–10.5]/1,000 patient-years vs. 6.9 [95% CI 6.8–7.0]/1,000 patient-years) and a higher risk of having a stroke event (6.4 [95% CI 6.3–6.6]/1,000 patient-years vs. 4.5; 95%CI [4.4–4.6]/1,000 patient-years)		for the development of a quality improvement project. Recognizing the association between depression and poor clinical outcomes in Veteran patients with diabetes may suggest the need for enhanced screenings with improved care coordination.	
Sedeeq et al., 2022	To determine the diagnostic accuracy of performing the PHQ-2 screening tool	Cross-sectional study	Setting: Primary Care Participants: Adults 18-65 that completed PHQ-2 scores in the records	Predictive values, negative values and optimal cut-off points were calculated and to estimate performance Youdon's index, gain in certainty metric and area under the curve	The results showed that a score of 2 was the optimal cut-off with a sensitivity of 88.73% and specificity of 69.31%.	Limitation: Study Design Strengths: Large sample size and reliable data extraction	In conclusion, this study suggests that a PHQ-2 cut off score of greater than or equal to 2 may be better able to diagnose clinical depression. It demonstrat	Level III

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				was computed			es PHQ-2 has high diagnostic accuracy. Highlights the importance of accurate screening tool utilization, and this may point to the benefits of improving screening knowledge among health professionals.	
Wang et al., 2022	To understand if patients with diabetes and comorbid depression may benefit from collaborative care in improving HbA1c and depressive outcomes, as well as quality of life	Systematic Review with Meta-Analysis	N/A	The study included 12 articles. Various databases were utilized for the search, and it was performed using PRISMA guidelines. Criteria for the search included randomized control trials, full-text and had to have baseline with 1 or more follow-up measures for HbA1c, as well as depression. The methods utilized for data synthesis included reporting with Relative Risks with	The results showed that Collaborative Care patients demonstrated an improved depression screening response rate (RR = 1·31, 95% CI 1·23 to 1·39, I^2 = 0%) and enhanced quality of life (SMD = 0·12, 95% CI 0·03 to 0·21, I^2 = 54·2%) while HbA1c did not show statistical significance between the groups	Limitations: Selective reporting and possible sources of bias Strengths: Utilization of many databases, following PRISMA guidelines and having pure trial effects	This study reinforces the need to incorporate collaborative care into clinical practice and this quality improvement project can serve as benchmark for improving collaboration between diabetes and depression care.	Level I

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				95% Confidence Intervals for dichotomous variables and Standard Mean Differences with 95% Confidence Intervals for continuous variables.				

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Appendix 2: CITI PROGRAM Biomedical Human Research Course Certificate

CITI PROGRAM

Completion Date 07-May-2023
Expiration Date 07-May-2026
Record ID 55593221

This is to certify that:

Erita Snyder

Not valid for renewal of certification through CME.

Has completed the following CITI Program course:

Basic/Refresher Course - Human Subjects Research
(Curriculum Group)
Biomedical Human Research Course
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Florida International University

CITI
Collaborative Institutional Training Initiative

101 NE 3rd Avenue, Suite 320
Fort Lauderdale, FL 33301 US
www.citiprogram.org

Verify at www.citiprogram.org/verify/ ?wdca21a08-c1f1-458e-a8a4-c507b28a9861-55593221

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Appendix 3: Demographic & Pre/Post Intervention Survey

Default Question Block **Pre-Survey**

This DNP project aims to determine whether the implementation of an educational video for nurses on the identification, screening and coordination of care for depression in Veteran patients with diabetes improves their awareness and care practices pertaining to depression. Please answer all questions within this survey. Your identity will remain anonymous.

For any questions, you can contact the principal investigator, Dr. Dana Sherman, at dsherman@fiu.edu or on phone at 305-348-4227. You could also contact the co-investigator, Erita Snyder, at eyevd001@fiu.edu.

The following will include a demographic questionnaire and a 5-item pre/post-test survey using a Likert Scale. Please read each question and rate your response on a scale of 1 to 10.

Demographic Information

How many years have you been a telehealth nurse?

- ○ <1 year
- ○ 1-2 years
- ○ 3-4 years
- ○ >4 years

How many years have you been a nurse?

- ○ <1 year
- ○ 1-2 years
- ○ 3-4 years
- ○ >4 years

Pre/Post Intervention Survey

*Please answer these questions on a scale of 1 to 10, with one being the lowest and 10 being the highest

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	1	2	3	4	5	6	7	8	9	10
On a scale of 1 to 10, how do you rate your knowledge of identifying depression among patients with diabetes?	○	○	○	○	○	○	○	○	○	○
On a scale of 1 to 10, how do you rate your level of knowledge of utilization of the PHQ-2 and PHQ-9 screening tools in clinical practice?	○	○	○	○	○	○	○	○	○	○
On a scale of 1 to 10, how do you rate your level of knowledge in appropriate care coordination for depression among patients with diabetes?	○	○	○	○	○	○	○	○	○	○
On a scale of 1 to 10, how confident are you in your ability to identify, screen and coordinate care for depression in Veteran patients with diabetes?	○	○	○	○	○	○	○	○	○	○

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Appendix 4: Informational Letter

FIU | FLORIDA INTERNATIONAL UNIVERSITY

INFORMATIONAL LETTER

An Educational Intervention to Increase Telemedicine Nurses' Knowledge in Screening, Identifying and Coordinating Care for Depression in the Veteran population with Diabetes: A Quality Improvement Project

Hello, my name is Erita Snyder. You have been chosen to be in a quality improvement project about an educational intervention on screening, identifying, and coordinating care for depression in Veteran patients with diabetes to improve telehealth nurses' care practices in this area. The purpose of this quality improvement is to enhance telehealth nursing knowledge in order to make nurses better prepared to facilitate proper care for Veteran patients. If you decide to be in this project, you will be one of about 12 telehealth nurses in this quality improvement study. Participation in this project will take approximately 1 hour of your time. If you agree to be in the quality improvement project, I will ask you to do the following things:

1. *Complete the pre-test survey regarding demographics and pertaining to identifying, screening, and coordinating care for depression in patients with diabetes*
2. *Participate in a 20–30-minute educational presentation on identifying, screening, and coordinating care for depression in patients with diabetes*
3. *Complete the post-test survey pertaining to identifying, screening, and coordinating care for depression in patients with diabetes*

There are no foreseeable risks or benefits to you for participating in this quality improvement project. It is expected that this project will benefit society by improving the assessment and management of depression in Veteran patients with comorbid depression and diabetes among nurses.

There is no cost or payment to you. If you have questions while taking part, please stop me and ask.

Your answers will remain confidential and privacy procedures will be taken to ensure your information is securely saved.

If you have questions for one of the researchers conducting this project, you may contact the principal investigator, Dr. Dana Sherman, at dsherman@fiu.edu or on phone at (305) 348-4227. You could also contact Erita Snyder at eyevd001@fiu.edu.

If you would like to talk with someone about your rights of being a subject in this project or about ethical issues with this project, you may contact the FIU Office of Research Integrity by phone at 305-348-2494 or by email at ori@fiu.edu.

Your participation in this project is voluntary, and you will not be penalized or lose benefits if you refuse to participate or decide to stop. You may keep a copy of this form for your records.

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Appendix 5: ADA Reprint and Permission to Content

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American Diabetes Association.
Connected for Life.

May 10, 2023

Erita Snyder
Florida International University
11200 SW 8th Street
Miami Florida

Permission Request Number: KL042623-ES

Dear Erita,

We are pleased to grant permission (the "Permission") to you to **reprint** (but not translate) the following (the "Work"):

- **Chapter 6 - Depression**

From: https://professional.diabetes.org
For use in: DNP- Quality Improvement Project

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Sincerely,

AGREED: DocuSigned by: Erita Snyder

DATE: 6/12/2023

Charlotte M. Carter

________ *We elect not to use this material.*

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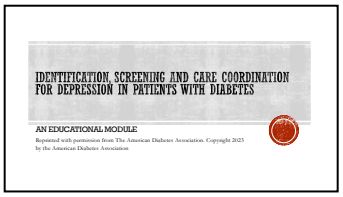
Appendix 6: Educational Presentation



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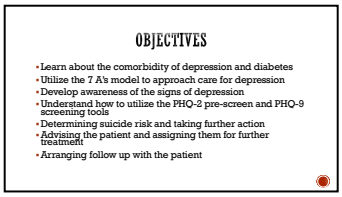

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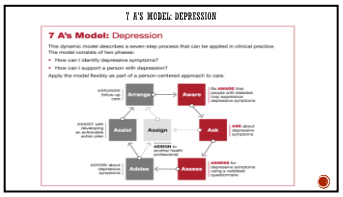

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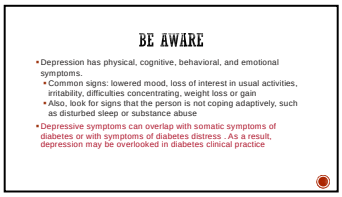

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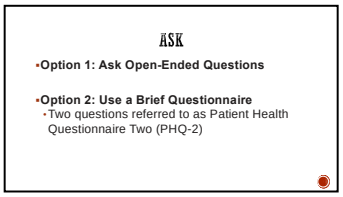

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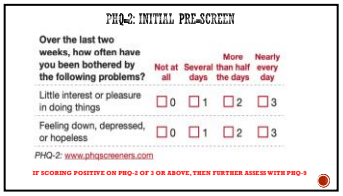

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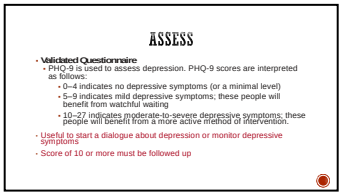

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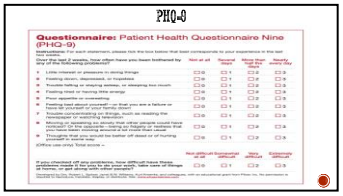

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ASSESSING RISK OF SUICIDE

- The rate of suicide among Veterans compared to non-Veterans is higher,
- Rate of suicide for Veterans with mental health conditions is 57.2 per 100,000 (Ramchand, 2022)
- **If a person is actively suicidal:** provide or arrange continuous supervision
- **If a person is in immediate danger:** follow your workplace's emergency procedure or contact 911

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ADVISE

Now that you have identified that the person is experiencing depressive symptoms, you can advise them on the options for next steps and then, together, decide what to do next.

- Explain that their responses to the PHQ-9 indicate they are experiencing depressive symptoms
- Elicit feedback from the person
- Explain what major depression is & how it may affect diabetes management
- Advise that depression is common and help is available
- Offer the person opportunities to ask questions.
- Make a joint plan about the "next steps"

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ASSIGN

- Refer the person to health professionals who have knowledge about, or experience in, diabetes.
- If a decision is made to refer, consider the following health professionals:
  - **primary care physician (PCP)**
  - **psychologist**
  - **psychiatrist**
  - **mental health social worker**

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ARRANGE

- Mental health is important in its own right, but it is also likely to affect the person's diabetes self-management and their physical health.
- Important to follow up to check that they have engaged with the agreed treatment.
- At the follow-up appointment, revisit the plan and discuss any progress that has been made.

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REFERENCES

- American Diabetes Association. (2021). ADA mental health workbook: Chapter 6 Depression. https://professional.diabetes.org/sites/default/files/media/ada_mental_health_workbook_chapter_6.pdf
- Ramchand R. (2022). Suicide Among Veterans: Veterans' Issues in Focus. *Rand Health Quarterly*, *9*(3), 21.

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Appendix 7: ADA Educational Handout

Chapter 6

Depression

Key Messages

- Major depression[a] is a psychological condition indicated by a persistent (minimum of two weeks) state of sadness or depressed mood and/or lack of interest and pleasure in usual activities. This is in addition to other symptoms, such as significant changes in weight and sleep, a lack of energy, difficulty concentrating, irritability, feelings of worthlessness or guilt, or recurrent thoughts about death or suicide.
- Moderate-to-severe depressive symptoms, an indicator of depression, affect one in three people with insulin-treated type 2 diabetes, one in five people with non-insulin-treated type 2 diabetes, and one in four people with type 1 diabetes; this is two to three times more likely than the general population. Rates of clinical depression affect approximately one in eight people with diabetes.
- Depressive symptoms in people with diabetes are:
  - associated with suboptimal diabetes self-management and A1C, increased diabetes distress, less satisfaction with treatment, and impaired quality of life
  - highly recurrent
  - persistent/long-lasting
  - and different from, yet sometimes confused with, diabetes distress.
- Some depressive symptoms overlap with symptoms of diabetes (e.g., fatigue, sleep disturbance, changes in weight, and altered eating habits).
- A brief questionnaire, such as the Patient Health Questionnaire Nine (PHQ-9), can be used for assessing the severity of depressive symptoms. A clinical interview is needed to confirm major depression.
- Mild and major depression can be treated effectively (e.g., with psychological therapies and medications).

Practice Points

- Assess people with diabetes for depressive symptoms using a brief validated questionnaire; remember that major depression needs to be confirmed by a clinical interview.
- Treatment of depression will depend on severity, context, and the preferences of the individual. Helping people with major depression to access suitable treatment may require a collaborative care approach beginning with the person's PCP.
- Elevated depressive symptoms and mild depression also need attention, as they can develop into major depression.

a In this chapter, the terms "mild depression" or "major depression" (collectively referred to as "depression") are used when diagnosis is confirmed by a clinical interview according to DSM-5 or ICD-11 criteria. The term "depressive symptoms" is used where self-report is not yet confirmed by a clinical interview.

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How Common Are Symptoms of Depression?

Type 1 diabetes[b,1]

Type 2 diabetes (insulin)[b,1]

Type 2 diabetes (no insulin)[b,1]

WHAT IS Depression?

Depression is "an emotional, physical, and cognitive (thinking) state that is intense, long-lasting, and has negative effects on a person's day-to-day life."[2] In contrast to just "feeling down" or sad, depression is a serious mental health problem.

The diagnostic criteria for depression are described in the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-5),[3] and the *International Statistical Classification of Diseases and Related Health Problems*, 11th revision (ICD-11).[4] The "gold standard" for diagnosing depression is a standardized clinical diagnostic interview, for example the Structured Clinical Interview for DSM-5 (SCID-5; www.scid5.org).

Major depression (also known as major depressive disorder or clinical depression) is indicated by five or more of the following symptoms being present during a two-week period, representing a change from previous functioning.[3]

- At least one of the symptoms is persistent depressed mood or loss of interest/pleasure in regular activities.[3,5]
- Other symptoms include significant weight loss or gain, insomnia or excessive sleeping, lack of energy, inability to concentrate, indecisiveness, feelings of worthlessness, excessive/inappropriate guilt, and recurrent thoughts of death or suicide.[3]

Mild depression (also known as subthreshold or minor depression) is characterized by the presence of depressive symptoms that do not meet the full diagnostic criteria for major depression.[6] Although mild depression is less severe than major depression, it still significantly affects the person and deserves attention in clinical practice. Furthermore, if not treated, mild depression can develop into major depression.

Depression in People with Diabetes

There is evidence of a bi-directional association between depression and diabetes. People with depression are more likely to develop type 2 diabetes.[7]

People with diabetes are two to three times more likely than the general population to be affected by symptoms of depression.[8,9] There is also a bi-directional relationship between depression and diabetes-related complications.[10] As in the general population, depression is highly recurrent in people with diabetes.[10]

The causes of depression in people with diabetes are not well understood, but proposed mechanisms include biological, behavioral, social, psychological, and environmental factors.[11] Non-diabetes-specific contributors may include stressful life circumstances, substance use, and a personal or family history of depression.[12] Diabetes-specific contributors may include the chronic nature of the condition and complex management regimens.[8,13] As various factors can contribute, the exact cause will be different for every person.[12]

In people with diabetes, depression or depressive symptoms are associated with adverse medical and psychological outcomes, including:

- suboptimal self-management (e.g., reduced physical activity, less healthy eating, not taking medication as recommended, less frequent self-monitoring of blood glucose, and smoking)[14–19]
- elevated A1C, hypoglycemia, and hyperglycemia[14,15,20]
- increased prevalence, and earlier onset, of complications and disability[21–23]
- increased risk of diabetes distress[24–27] and elevated anxiety symptoms[27]
- impaired quality of life and social role/functioning[27–29]
- increased burden/costs to the individual and the healthcare system[14,17,30]
- and greater risk of premature mortality.[31,32]

People with coexisting depressive and anxiety symptoms are likely to experience greater emotional impairment and take longer to recover.[33,34]

b 25%, 32%, and 20% respectively have moderate-to-severe depressive symptoms (PHQ-9 total score ≥10).

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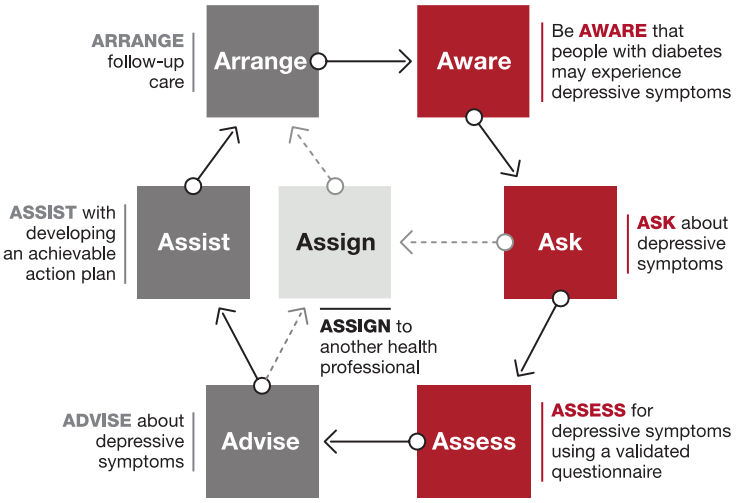
7 A's Model: Depression

This dynamic model describes a seven-step process that can be applied in clinical practice. The model consists of two phases:

- How can I identify depressive symptoms?
- How can I support a person with depression?

Apply the model flexibly as part of a person-centered approach to care.



HOW CAN I IDENTIFY Depressive Symptoms?

Be AWARE

Depression has physical, cognitive, behavioral, and emotional symptoms. Some common signs to look for include lowered mood (e.g., sadness, hopelessness, or tearfulness), loss of interest or pleasure in usual activities, irritability (e.g., exaggerated sense of frustration over minor matters or persistent anger), difficulties concentrating, lack of energy, weight loss or gain, reduced self-esteem/self-confidence, feelings of worthlessness or excessive/inappropriate guilt, psychomotor changes (agitation or retardation), social withdrawal, and recurrent thoughts about death or suicide.[2–4,35] Also, look for signs that the person is not coping adaptively, such as disturbed sleep or substance abuse (e.g., alcohol, sedatives, or other drugs).[2–4,35] Each person will experience different symptoms of depression.

Two classification systems are commonly used for diagnosing depression: DSM-5[3] and ICD-11.[4] Consult these for a full list of symptoms and specific diagnostic criteria.

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DEPRESSION

Depressive symptoms can overlap with somatic symptoms of diabetes[1] (see Box 6.1) or with symptoms of diabetes distress (see Box 6.2). As a result, depression may be overlooked in diabetes clinical practice.[36]

Although depression does not always develop in direct response to diabetes, some common signs include declining motivation to engage in diabetes self-care tasks, more frequent presentations to health professionals with the same symptoms, and missed appointments.

BOX 6.1 Symptoms of Depression or Diabetes

Depression and diabetes share some similar somatic and behavioral characteristics (e.g., fatigue, sleep disturbance, and appetite change). This poses a challenge, as symptoms of depression can be overlooked or mistaken for symptoms of diabetes and vice versa.

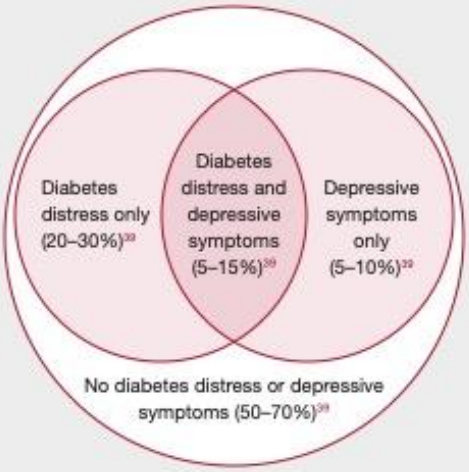
It is important to note that depression questionnaires do not have the capacity to distinguish the underlying cause of the symptoms. For example, a person may feel tired due to disturbed sleep because of depression or because they have had several nighttime episodes of hypoglycemia recently. This can result in elevated scores that do not necessarily indicate depressive disorder. Health professionals need to be mindful of these limitations.

This does not mean that depression questionnaires are not useful in clinical practice—it means that a clinical interview is needed to confirm a diagnosis of depression in people with diabetes. It is important to clarify the context and cause of the symptoms.

BOX 6.2 Depression or Diabetes Distress?

Depression is often confused with diabetes distress—both in academic literature and clinical practice. While depression can influence how people feel about living with diabetes, it is broader, affecting how they feel about life in general. Conversely, diabetes distress is the emotional distress arising specifically from living with and managing diabetes and does not necessarily affect how people feel about their life in general.[37] Diabetes distress includes problems related to the relentlessness and frustrations of everyday diabetes self-care and worries about future complications (see Chapter 3).

While diabetes distress and depression are separate constructs, they are risk factors for each other.[23–25] This means that people with depression are more likely to develop diabetes distress, and vice versa. In practice, this means that both depressive symptoms and diabetes distress need to be assessed in clinical practice, to inform the type and intensity of intervention.[37,38]



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ASK

You may choose to ask about depressive symptoms:

- in line with clinical practice guidelines (e.g., on a routine or annual basis; see Introduction, page viii)
- when the person reports symptoms or you have noted signs (e.g., changes in mood/behaviors)
- at times when the risk of developing depression is higher, such as:
  - during or after stressful life events (e.g., bereavement, traumatic experience, or diagnosis of life-threatening or long-term illness)
  - periods of significant diabetes-related challenge or adjustment (e.g., following diagnosis of diabetes or complications, hospitalization, or significant changes to the treatment regimen)
- or if the individual has a history of depression or other mental health problems.[5]

Asking "*How are you doing?*" or, "*How have you been feeling lately?*" may seem like rhetorical questions but the responses can be very revealing and are often the key to what you do next. Take the time to listen to their answers and look for any sign that they may not be doing as well as usual.

Create a supportive and safe environment so the person feels able to be open with you about how they are feeling. People will be more likely to share their innermost thoughts and feelings with you if they are emotionally engaged in the appointment and have confidence that you care and will support them. For more information about having conversations about the emotional aspects of diabetes, see Chapter 1.

There are various ways to ask about depressive symptoms. You may choose to use open-ended questions, a brief structured questionnaire, or a combination of both.

Option 1: Ask Open-Ended Questions

The following open-ended question can be integrated easily into a routine appointment:

- *"Have you noticed any change in how you have been feeling in the last couple of weeks? What have you noticed?"*

If something during the conversation makes you think that the person may be experiencing depressive symptoms, ask more specific questions, such as:

- *"I know you as a [very active] person, but you've just told me that you haven't felt motivated to [go running] lately. Do you think this is related to your mood?"*
- *"Have there been any changes in your [sleeping/eating] patterns? What have you noticed?"*

If the conversation suggests the person is experiencing depressive symptoms, further investigation is warranted (see **ASSESS**).

Option 2: Use a Brief Questionnaire

Alternatively, you can use a brief questionnaire to ask about depressive symptoms in a systematic way. Collectively, the following two questions are referred to as the Patient Health Questionnaire Two (PHQ-2).[40] They are the core symptoms required for a diagnosis of depression.

Over the last two weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things	☐ 0	☐ 1	☐ 2	☐ 3
Feeling down, depressed, or hopeless	☐ 0	☐ 1	☐ 2	☐ 3

PHQ-2: www.phqscreeners.com

Instead of administering this as a questionnaire, you could integrate these questions into your conversation.

Add the responses to the two questions to form a total score. A total score of 3 or more indicates depressive symptoms,[40] and further assessment for depression is warranted.

At this stage, it is advisable to ask whether they have a current diagnosis of depression and, if so, whether and how it is being treated

If the total score is 3 or more and the person is not currently receiving treatment for depression, you might say something like, "*It seems like you are experiencing depressive symptoms, which can be a normal reaction to […]. There are several effective treatment options for depression, but first we need to find out more about your symptoms. So, I'd like to ask you some more questions if that's okay with you.*"

You may then decide to assess for depression using a more comprehensive questionnaire (see **ASSESS**). For information about using questionnaires in clinical practice, see pages 10 and 11.

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If the total score is less than 3 but you suspect a problem, consider whether the person may be experiencing diabetes distress (see Chapter 3), elevated anxiety symptoms (see Chapter 7), or another mental-health problem.

ASSESS

Validated Questionnaire

The nine-item Patient Health Questionnaire (PHQ-9)[41] is widely used to assess depression. A copy is included on page 105. It mirrors the DSM-5 criteria for depression. It is quick to administer and freely available online (www.phqscreeners.com). Each item is measured on a four-point scale, from 0 (not at all) to 3 (nearly every day). Scores are added to form a total score ranging 0–27. In the general population, PHQ-9 scores are interpreted as follows:[42]

- 0–4 indicates no depressive symptoms (or a minimal level)
- 5–9 indicates mild depressive symptoms; these people will benefit from watchful waiting
- and 10–27 indicates moderate-to-severe depressive symptoms; these people will benefit from a more active method of intervention.

Asking the person to complete the PHQ-9 can be a useful way to start a dialogue about depressive symptoms and the effect they may have on the person's life and/or diabetes management. It can also be useful for systematically monitoring depressive symptoms (e.g., whether the symptoms are constant or changing over a period of time).

A PHQ-9 total score of 10 or more must be followed by a clinical interview using DSM-5[3] or ICD-11[4] criteria to confirm depression.

You may have access to other validated questionnaires, such as the Beck Depression Inventory,[43] Hospital Anxiety and Depression Scale,[44] Centre for Epidemiologic Studies Depression Scale,[45] or Hamilton Depression Scale.[46] While all of these tools are suitable for assessing depressive symptoms, they each have their own strengths and weaknesses. Summaries of these questionnaires can be accessed elsewhere.[47,48]

Additional Considerations

Is this individual at risk of suicide? It is essential that you conduct a suicide risk assessment if you identify a person as having depressive symptoms or thoughts about self-harm or ending their life. Most depression questionnaires include an item about self-harm, suicidal ideation, or suicide (e.g., PHQ-9, item 9). If the person with diabetes endorses that item, further investigation and support is necessary (see Box 6.3), regardless of whether the total score indicates depressive symptoms.

What is the context of the depressive symptoms? Are there any (temporary or ongoing) life circumstances that may be underlying the depressive symptoms[49] (e.g., a bereavement, chronic stress, changing/loss of employment, financial concerns, giving birth, or menopause)? What social support do they have? What role do diabetes-specific factors play (e.g., a lack of support for diabetes self-care, severe hypoglycemia, or burdensome complications)?

Are there any factors (physiological, psychological, or behavioral) that are co-existing or may be causing/contributing to the depressive symptoms? This may involve taking a detailed medical history, for example:

- Do they have a history (or family history) of depression or another psychological problem, such as an anxiety disorder (see Chapter 7), diabetes distress (see Box 6.2 and Chapter 3), personality disorder, post-traumatic stress disorder, dementia, or eating disorder (see Chapter 8)? These conditions must also be considered and discussed where applicable (e.g., when and how was it treated, whether they thought this treatment was effective, and how long it took them to recover).[49]
- Do they have any underlying medical conditions that may be contributing to the symptoms?
- What medications (including any complementary therapies) are they currently using?
- How frequently do they use alcohol and/or illicit drugs?

No depressive symptoms—what else might be going on? If the person's responses to the questionnaire do not indicate the presence of depressive symptoms they may be reluctant to open up or may feel uncomfortable disclosing to you that they are feeling depressed, so consider whether the person may be experiencing diabetes distress (see Box 6.2 and Chapter 3), elevated anxiety symptoms (see Chapter 7), or another psychological problem.

If any of these assessments are outside your expertise, you need to refer the person to another health professional (see **ASSIGN**).

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BOX 6.3 Suicide

Whenever you suspect that a person is experiencing depression, or they appear to be feeling despair, unbearable pain, hopeless, trapped, or like they are a burden on others or don't belong, it is very important that you have a conversation about it and assess their risk of suicide. Making direct enquiries about suicide does not prompt a person to start to think about harming themselves.[50] Instead, addressing the issue is much more likely to enhance their safety and prevent an attempt.[51]

The procedures used to assess risk of suicide or self-harm are no different than those used for medical crises. The key is to know the steps and have the resources in place when the need arises.

Suicidality fluctuates and is influenced by such things as:[50]

- static risk factors, which are fixed and historical in nature (e.g., family history of depression, a history of self-harm or suicide attempts, or previous experience of abuse)
- and dynamic risk factors, which fluctuate in duration and intensity (e.g., substance use, psychosocial stress, or suicidal ideation/communication/intent).

Policies and procedures for conducting a suicide risk assessment vary between settings, but this is a general guide:[50,52]

1. Assess and ensure safety (the person with diabetes, yourself, and others).
2. Establish rapport (non-judgmental, professionally empathetic, compassionate, open body language, and active listening).
3. Assess the suicide risk, including factors such as:
   - any history of suicide attempts
   - any history of mental disorders
   - the existence of a suicide plan
   - access to the means to complete the plan
   - duration and intensity of the suicidal ideation
   - hopelessness or feeling trapped
   - lack of belonging, feeling alone, or alienated
   - feeling like a burden on others
   - alcohol/substance use
   - intention/desire to die
   - family history of suicide
   - protective factors
   - or recent help-seeking behaviors.

There are several questionnaires for assessing suicide risk.[53–55] These can be useful for directing the conversation systematically but there is a lack of evidence for their diagnostic accuracy.[51] **These questionnaires cannot replace clinical interview.**

4. Collect and document relevant information (e.g., the person's medical history, current physical and mental state, and evidence of a suicide risk assessment).
5. Arrange additional psychosocial and psychiatric assessments, or referral to a specialist, if required.
6. Develop a safety plan with the person[56] (i.e., a written list of coping strategies and support services to which the person can refer when they are having suicidal thoughts).
7. Reassess as necessary and ensure that follow-up care is provided. For people who are at high risk, reassess within 24 hours; for moderate risk, reassess within one week; and low risk, reassess within one month.[52]

If a person is actively suicidal: provide or arrange continuous supervision.

If a person is in immediate danger: follow your workplace's emergency procedure or contact 911.

Keep in mind that some individuals may decide not to share their suicide plans and deny they have suicidal thoughts.

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HOW CAN I SUPPORT A PERSON with Depression?

ADVISE

Now that you have identified that the person is experiencing depressive symptoms, you can advise them on the options for next steps and then, together, decide what to do next.

- Explain that their responses to the PHQ-9 indicate they are experiencing depressive symptoms, and also that:
  - they may have major depression, which will need to be confirmed with a clinical interview
  - and that depressive symptoms fluctuate dependent on life stressors and that it may be necessary to reassess later (e.g., once the stressor has passed or is less intense).
- Elicit feedback from the person about their score (i.e., whether the score represents their current mood).
- Explain what major depression is, and how it might affect their life overall, as well as on their diabetes management.
- Advise that depression is common, and that help and support are available; depression is treatable and can be managed effectively.
- Recognize that identification and advice alone are not enough; explain that treatment will be necessary and can help to improve their life overall, as well as their diabetes management.
- Offer the person opportunities to ask questions.
- Make a joint plan about the "next steps" (e.g., what needs to be achieved to reduce depressive symptoms and the support they may need).

If the depression is clearly related to a particular stressor (e.g., financial or relationship problems), take into account the severity and likely duration of the problem, as this will help to inform the action plan.

NEXT STEPS: ASSIST OR ASSIGN?

- The decision about whether you support the person yourself or involve other health professionals will depend on:
  - the severity of the depressive symptoms, and the context of the problem(s)
  - your scope of practice, and whether you have the time and resources to offer an appropriate level of support
  - your qualifications, knowledge, skills, and confidence to address depressive symptoms
  - whether other psychological problems are also present, such as diabetes distress (see Chapter 3) or an anxiety disorder (see Chapter 7)
  - and the needs and preferences of the person with diabetes.
- If you believe referral to another health professional is needed:
  - explain your reasons for the referral (e.g., what the other health professional can offer that you cannot)
  - ask the person how they feel about your suggestion
  - and discuss what they want to gain from the referral, as this will influence to whom the referral would be made.

ASSIST

Neither mild nor major depression is likely to improve spontaneously,[57] so intervention is important. The stepped care approach provides guidance on how to address depressive symptoms and depression in clinical practice.[58,59]

Once depression has been confirmed by a clinical interview, and if you believe that you can assist the person:

- Explain the appropriate treatment options (see Box 6.4), discussing the pros and cons for each option, taking into account:
  - the context and severity of the depression
  - the most recent evidence about effective treatments (e.g., a collaborative and/or a stepped care approach)

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BOX 6.4 Treating Depression

It is not within the scope of this guide to recommend specific pharmacological or psychological treatments for depression in people with diabetes. Here are some general considerations based on the evidence availablef at the time this guide was published:

- A combination of psychological intervention and pharmacological treatment is recommended for people with recurrent depression and major depression.[58]
- Psychological intervention and/or pharmacological treatment should be implemented through stepped care and/or collaborative care approaches.[58,60]
- Cognitive behavioral therapy (CBT) is the most effective psychological intervention.[58]
- Antidepressant medications are only effective for people with moderate-to-severe depression, not mild depression.[61]
- Selective serotonin re-uptake inhibitors (SSRIs) are the most effective pharmacological treatment for depression in people with diabetes.[58]
- When combined with diabetes self-management education, psychotherapy is most effective for reducing depressive symptoms and A1C.[62]
- Some antidepressant medications can have adverse side effects (e.g., weight gain and metabolic abnormalities) and are associated with insulin resistance.[5] Consider the risks and benefits before prescribing these medications, as they may not be appropriate for some people with diabetes.[5,61]

  - and the person's knowledge about, motivation, and preferences for, each option.
- Offer them opportunities to ask questions.
- Agree on an action plan together and set achievable goals for managing their depression and their diabetes. This may include adapting the diabetes management plan if the depression has impeded their self-care.
- Provide support and treatment appropriate to your qualifications, knowledge, skills and confidence. For example, you may be able to prescribe medication but not undertake psychological intervention or vice versa.
- Make sure the person is comfortable with this approach.
- At the end of the conversation, consider giving them some information to read at home. At the end of this chapter (see page 107), there are resources that may be helpful for a person with diabetes who is experiencing depression or depressive symptoms. Select one or two of these that are most relevant for the person. It is best not to overwhelm them with too much information.

Some people will not want to proceed with treatment, at first. For these people, provide ongoing support and counselling about depression, to keep it on their agenda. This will reinforce the message that support is available and will allow them to make an informed decision to start treatment in their own time.

ASSIGN

If a decision is made to refer, consider the following health professionals:

- **A primary care physician (PCP)** to undertake a clinical interview and diagnose major depression, make a referral to an appropriate mental health professional, and prescribe and monitor medications. An extended appointment is recommended.
- **A psychologist** to undertake a clinical interview and provide psychological therapy (e.g., CBT or interpersonal therapy).
- **A psychiatrist** to undertake a clinical interview, provide psychological therapy (e.g., CBT), and prescribe and monitor medications. A PCP referral may be required to access a psychiatrist. Referral to a psychiatrist may be necessary for complex presentations (e.g., if you suspect severe psychiatric conditions, such as bipolar disorder or schizophrenia, or complex co-morbid medical conditions).
- **A mental health social worker** to help the person find ways to effectively manage situations that are contributing to their depression or inhibiting their treatment (e.g., trauma or life stresses), using psychologically based therapies and skills training (e.g., problem solving and stress management).
- **An occupational therapist specializing in mental health** for therapy to increase independence and functioning (e.g., self-care, work and home roles, socialization, and coping), which may be impaired by depression.

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See Chapter 9 for guidance about preparing mental health referrals and what to say to the person with diabetes about why you are making the referral.

If possible, consider referring the person to health professionals who have knowledge about, or experience in, diabetes. For example, if their diabetes management is affected by their depression, they may need a new diabetes management plan that is better suited to their needs and circumstances at the time. This might require collaboration with a PCP or diabetes specialist (e.g., an endocrinologist, diabetes educator, and/or dietitian).

If you refer the person to another health professional, it is important:

- that you continue to see them after they have been referred so they are assured that you remain interested in their ongoing care
- and to maintain ongoing communication with the health professional to ensure a coordinated approach.

ARRANGE

If there is need and scope, consider including more frequent follow-up visits or extended appointments in the action plan. Encourage the person to book a follow-up appointment with you within an agreed timeframe to monitor progress and address any issues arising. Telephone/ video conferencing may be a practical and useful way to provide support in addition to face-to-face appointments.

Mental health is important in its own right, but it is also likely to affect the person's diabetes self-management and their physical health. Therefore, it is important to follow up to check that they have engaged with the agreed treatment.

At the follow-up appointment, revisit the plan and discuss any progress that has been made. For example, you might say something like, *"When I saw you last, you were feeling depressed. We made a plan together to help you with that and agreed that [you would make an appointment to see Shirley, a psychologist, and I wrote a referral to her]. Have you had an opportunity to [see her]? How has this worked out for you?"*

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CASE STUDY

Julie

65-year-old woman living alone

Type 2 diabetes, managed with diet and exercise; history of depression

Health professional: Dr. Robert Stevens (PCP)

Be AWARE

When Julie arrives for her routine check-up, Dr. Stevens notices signs that she isn't her usual self—she is not wearing make-up, has dark circles under her eyes, and she doesn't greet him with her usual cheerfulness. He asks her how she has been, and she shrugs her shoulders replying, *"You know how it is, just a bit tired. I need a vacation I think."* As the discussion moves on to her general physical health and diabetes management, Dr. Stevens notes that Julie mentions again that she is tired, which has prevented her from exercising, and as a result her blood glucose has been a bit higher than usual and she has gained 10 lbs.

ASK

When Dr. Stevens enquires further using open-ended questions, Julie confides that in the past she had enjoyed exercising with a friend, but over the past month she has found herself making excuses not to leave the house. *"I just can't get motivated to exercise at the moment. I feel awful when I cancel my walks with Fran, but I'm just too tired these days—it feels like a chore. And I tell myself, 'just do it, it's not that hard, you'll enjoy it once you're outside.' But then I can't bring myself to leave the house."* Julie says she feels guilty for not exercising and has begun eating late at night, which she is ashamed about. She worries about her weight but when she feels down, she eats more. She feels unsure about how to break herself out of this cycle.

Dr. Stevens is concerned about Julie's struggles with motivation and about the impact her recent changes in behavior and thought patterns will have on her diabetes if they continue in the longer term.

ASSESS

Dr. Stevens knows that Julie has a history of depression and wonders whether her negative thoughts about herself, her low mood, the changes in her eating and exercise patterns, and her tiredness might be linked. He invites Julie to complete the PHQ-9. Julie's score of 18 suggests she is experiencing moderately severe depressive symptoms. Because of her high PHQ-9 score, he also conducts a suicide risk assessment, and finds Julie to be at low risk of suicide.

ADVISE

Dr. Stevens explains the PHQ-9 score to Julie and asks her if this fits with how she has been feeling lately. Julie says that she recognizes the symptoms she has been experiencing from a couple of years ago when she was depressed after separating from her husband. Dr. Stevens asks Julie whether she had sought help for the depression at the time and whether she had needed antidepressants. Julie says she had consulted a psychologist who had been able to help her without antidepressants. He asks Julie whether this would be a good option for her this time. They agree that it will be the best course of action for Julie to return to the same psychologist, as they have a previously established rapport. The psychologist will conduct a formal assessment and discuss a treatment plan with Julie.

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DEPRESSION

ASSIGN

Dr. Stevens encourages Julie to make an appointment with the psychologist. Dr. Stevens makes a comment in his EHR note to follow-up with Julie at her next visit to inquire about her status with her psychologist and her level of satisfaction with that portion of her care.

ARRANGE

Dr. Stevens encourages Julie to make another appointment to see him after she has met the psychologist to update him on her progress and assess whether there is a need for antidepressants at that stage. He also invites her to see him sooner if she needs to.

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CASE STUDY

Luke

24-year-old man living with his older brother

Type 1 diabetes (diagnosed 23 years ago)

Health professionals: Dr. Glenn Jin (endocrinologist) and Thomas Mitchell (diabetes nurse)

Be **AWARE**

Dr. Jin is aware that people with diabetes are at a higher risk of emotional problems. He has decided to add a mental health questionnaire to the annual review process at his diabetes clinic. The questionnaire includes the Diabetes Distress Scale-17 (DDS-17; see page 46) to assess diabetes distress and the PHQ-2.

Thomas is a diabetes nurse working at the clinic who assists with some of the physical health checks. He has been given the task of explaining the purpose of the questionnaire and encouraging people to complete it on a tablet computer in the waiting room while awaiting their appointment. The person's questionnaire responses are automatically saved in their chart, for discussion during the appointment.

ASK

During Luke's annual visit, the check-in staff at the clinic ask Luke, *"We've added something new to our annual assessments. Dr. Jin has put together a brief set of questions about how living with diabetes affects your life and well-being. The questionnaire takes about 10 minutes, there's no writing—you just have to tick the boxes. You can do it now while you're waiting to see Dr. Jin. Will you fill in the questionnaire?"* Luke agrees. When Thomas meets with Luke, he asks him some general questions about his health and well-being, but Luke does not seem to be in the mood for talking.

ASSESS

At the appointment, Dr. Jin quickly looks over the questionnaire responses. Luke's DDS-17 score does not indicate a problem that needs immediate attention and he confirms this with Luke. However, Luke's PHQ-2 score indicates that he is likely to be experiencing depression.

Dr. Jin asks Luke about how he felt completing the questionnaire, and Luke replies, *"It was OK, y'know, a bit different, but OK."* Dr. Jin says to Luke, *"Looking at your responses, it looks like you've been feeling down over the past two weeks and not very interested in things. What's going on Luke?"* Luke tells him that he lost his job about six months ago, and he couldn't find work, which has affected his moods and relationships. *"I can't do anything right y'know; can't find a job… then my girlfriend left me… and I'm sleeping on my brother's couch because I couldn't pay the rent… I can't catch a break. I'm such a loser, I'm nothing."*

Dr. Jin acknowledges that Luke seems to have had a tough time lately, and that it is understandable that he has been feeling down. He explains to Luke that he may be experiencing depression and that help is available. Dr. Jin asks Luke whether he has been diagnosed with depression before; Luke has not. Dr. Jin then asks Luke to complete a few more questions to help him to be sure. Luke agrees, so Dr. Jin gives him a copy of the PHQ-9. Luke's PHQ-9 score is 23, indicating severe depressive symptoms. As Luke's score on item 9—"Thoughts that you would be better off dead or of hurting yourself in some way"—was 2 ("More than half the days"), Dr. Jin also conducts a suicide risk assessment and finds Luke to be at moderate risk.

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DEPRESSION

ADVISE

Dr. Jin explains the scores to Luke and gives him some information about depression, including the phone number for the National Suicide Prevention Lifeline: (800) 273-8255. Dr. Jin tells Luke that depression is treatable and explains the various options available. He advises Luke to visit a PCP and the reasons for this—the PCP will help him to access the most appropriate treatment. He invites Luke to ask questions.

ASSIST

Dr. Jin checks whether Luke has a PCP that he would be comfortable to speak with, and whether he is OK to do so. Luke agrees to both queries. Dr. Jin also asks Luke if there is someone in his life (e.g., a friend or family member) that he can talk to if he has thoughts about ending his life. Luke says that he has a good relationship with his brother who is very understanding and supportive. He will talk with him or call the Lifeline about how he is feeling if things get too much. Dr. Jin discusses other suicide risk mitigation strategies with Luke; together they develop a safety plan.

ASSIGN

Dr. Jin writes a letter of referral to a mental health professional and sends a note to Luke's PCP. In the referral, Dr. Jin includes a copy of his PHQ-9 score and interpretation with the letter.

Luke's situation also prompts Dr. Jin to refer Luke to an onsite social worker who can assess any potential food insecurity issues and help Luke identify community resources and benefits he may need while unemployed.

ARRANGE

Dr. Jin asks Luke to come back to see him next month, so he can see how he is getting on with his PCP. They will also continue with his annual diabetes visit and consider whether any changes are needed to his diabetes management plan while Luke is receiving support for the depressive symptoms.

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Questionnaire: Patient Health Questionnaire Nine (PHQ-9)

Instructions: For each statement, please tick the box below that best corresponds to your experience in the last two weeks.

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1 Little interest or pleasure in doing things	☐ 0	☐ 1	☐ 2	☐ 3
2 Feeling down, depressed, or hopeless	☐ 0	☐ 1	☐ 2	☐ 3
3 Trouble falling or staying asleep, or sleeping too much	☐ 0	☐ 1	☐ 2	☐ 3
4 Feeling tired or having little energy	☐ 0	☐ 1	☐ 2	☐ 3
5 Poor appetite or overeating	☐ 0	☐ 1	☐ 2	☐ 3
6 Feeling bad about yourself—or that you are a failure or have let yourself or your family down	☐ 0	☐ 1	☐ 2	☐ 3
7 Trouble concentrating on things, such as reading the newspaper or watching television	☐ 0	☐ 1	☐ 2	☐ 3
8 Moving or speaking so slowly that other people could have noticed? Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	☐ 0	☐ 1	☐ 2	☐ 3
9 Thoughts that you would be better off dead or of hurting yourself in some way	☐ 0	☐ 1	☐ 2	☐ 3

(Office use only) Total score =

	Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	☐ 0	☐ 1	☐ 2	☐ 3

Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke, and colleagues, with an educational grant from Pfizer, Inc. No permission is required to reproduce, translate, display, or distribute. See: www.phqscreeners.com

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Background

The PHQ-9 is a nine-item questionnaire for assessing depressive symptoms and their severity.[41,63] It has been validated for use with people with diabetes.[64] Each of the nine items corresponds with a DSM-5[3] criterion for depression.

It is freely available online in more than 40 languages, quick to administer, and easy to score and interpret. Many of the translations are linguistically valid, but not all have been psychometrically validated against a diagnostic interview for depression[63] and few have been validated in people with diabetes.[47]

How to Use the PHQ-9 in Clinical Practice

Respondents are asked to indicate how frequently they are bothered by each of the nine items (each describing a different symptom of depression).[41,65] Items are scored on a scale from 0 (not at all) to 3 (nearly every day).[65]

An additional supplementary item (which does not contribute to the total score) can also be asked to evaluate the level of social or occupational difficulty caused by the depressive symptoms. This question appears in the version on the website,[63] and has been included in the questionnaire.

For tips about using questionnaires, see "Using Questionnaires to Inform Appointments" (pages 10 and 11).

Interpretation of Scores

The scores for each item are summed to generate a total score (range: 0–27).[65] Depressive symptom severity is indicated by the PHQ-9 total score.[42] Generally, a PHQ-9 total score of 10 or more is an indicator of likely depression,[41] and needs to be followed up with a clinical interview.

If the person scores 1 or more on item 9 (referring to suicidal ideation), further assessment for risk of suicide or self-harm is required, irrespective of the total score.[41]

PHQ-9 total score	Depressive symptom severity	Proposed treatment actions
0–4	None – minimal	None
5–9	Mild	Watchful waiting; repeat PHQ-9 at follow-up
10–14	Moderate	Treatment plan, consider counselling, follow-up, and/or pharmacotherapy
15–19	Moderately severe	Active treatment with pharmacotherapy and/or psychotherapy
20–27	Severe	Immediate initiation of pharmacotherapy and, if severe impairment or limited response to therapy, expedited referral to a mental health specialist for psychotherapy and/or collaborative management

Additional Information

Alternative cut-off values: For people with diabetes in specialty clinics (usually those with severe complications), a cut-off value of 12 or more has been recommended due to the overlap between symptoms of depression and diabetes.[66] For older people with diabetes in general practice, a cut-off of 7 or more has been recommended.[67]

Short Form—PHQ-2

- The PHQ-2[68] consists of two items from the PHQ-9: item 1, "Little interest or pleasure in doing things," and item 2, "Feeling down, depressed, or hopeless."
- The timeframe and response options are the same as for the PHQ-9.
- The two item scores are summed to form a total score. Total scores of 3 or more warrant further assessment for depression.[65]

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Resources

For Health Professionals

Peer-Reviewed Literature

- **Depression and diabetes: treatment and health-care delivery**

  Description: This paper makes recommendations for clinical practice for addressing depression and diabetes.

  Source: Petrak F, Baumeister H, et al. The Lancet Diabetes & Endocrinology. 2015;3:472-485.

- **The confusing tale of depression and distress in patients with diabetes**

  Description: A commentary on diabetes distress and depression, and recommendations for clinical practice.

  Source: Fisher L, Gonzalez JS, et al. Diabetic Medicine. 2014;31:764-772.

- **Depression in diabetes mellitus: to screen or not to screen? A patient-centred approach**

  Description: A review article discussing methods for routinely screening for depression in people with diabetes.

  Source: Van der Feltz-Cornelis CM. British Journal of Diabetes & Vascular Disease. 2011;11:276-281.

- **Safety planning intervention: a brief intervention to mitigate suicide risk**

  Description: This paper describes how to develop a safety plan to mitigate suicide risk.

  Source: Stanley B, Brown GK. Cognitive and Behavioral Practice. 2012;19(2):256-264.

  Additional information: Information about safety planning from the same authors can also be accessed at www.suicidesafetyplan.com

Guidelines and Recommendations

- **American Psychological Association Clinical Practice Guidelines for the Treatment of Depressions**

  Description: Developed for psychiatrists, psychologists, physicians, and other health professionals with an interest in mental health, these evidence-based guidelines cover the management of depressive disorders.

  Source: Gelenberg AJ, Freeman MP, et al. American Psychiatric Association practice guidelines for the treatment of patients with major depressive disorder. Am J Psychiatry, 167(Suppl 10), 9-118.

  URL: www.apa.org/depression-guideline/guideline.pdf

Books

- ***Treatments that Work (Series)***

  The *Treatments that Work* book series describes evidence-based psychological interventions for a variety of mental health conditions. They have a wide array of therapist guides with accompanying patient workbooks.

  Source: Oxford University Press

  URL: www.oxfordclinicalpsych.com/page/ttwseries/treatments-that-work-series

- ***Management of Mental Disorders,* 5th edition**

  Description: A book that provides practical guidance for clinicians in recognizing and treating mental health problems, including depression. The book also includes worksheets and information pamphlets for people experiencing these problems and their families.

  Source: Andrews G, Dean K, et al. Clinical Research Unit for Anxiety and Depression (CRUfAD). 2014.

  Additional information: Sections of this book (e.g., treatment manuals and worksheets) are freely available to download from the "Support for clinicians" section on the CRUfAD website at www.crufad.org

Websites

- **American Diabetes Association (ADA)**

  Description: ADA and the American Psychological Association partnered to create an educational program for mental health professionals interested in emotional issues specific to people with type 1 and type 2 diabetes. Clinicians who have completed this training can be found on the ADA website in their Mental Health Provider Directory Listing.

  URL: professional.diabetes.org/mhp_listing

For People with Diabetes

Select one or two resources that are most relevant and appropriate for the person. Providing the full list is more likely to overwhelm than to help.

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Support

- **National Suicide Prevention Lifeline**

  Description: Confidential telephone and online crisis support service for people experiencing a personal crisis or thinking about suicide.

  Phone: 800-273-8255 (24 hours a day, seven days a week)

  URL: www.suicidepreventionlifeline.org online crisis support chat 24/7

- **Mental Health America**

  Description: A good resource for finding peer support. Also includes access to screeners for anxiety and depression, which can then help connect patients with an appropriate referral. Individuals who indicate they have diabetes will also be routed through to the ADA Mental Health Provider Directory.

  URL: https://mhanational.org/finding-help

- **Local State Psychological Associations**

  Description: Most states have a local directory for mental health professionals, and many have a phone number for more information.

Information

- **Diabetes and Depression**

  Description: A handout for people with diabetes about depression designed along with this practical guide.

  Source: National Diabetes Services Scheme and the American Diabetes Association, 2021.

  URL: https://professional.diabetes.org/meetings/mentalhealthworkbook

- **Breaking Free from Depression and Diabetes**

  Description: An information leaflet for people with diabetes about depression from the Behavioral Diabetes Institute that covers a broad range of topics related to depression and diabetes, including ways to get support.

  Source: Behavioral Diabetes Institute, 2014.

  URL: https://behavioraldiabetes.org/xwp/wp-content/uploads/2015/12/BDIDepressionBookletFINAL.pdf

References

1. American Psychological Association. Clinical practice guideline for the treatment of depression across three age cohorts. Washington, D.C.: American Psychological Association: 2019.
2. Australian Psychological Society. Understanding and managing depression, 2014. [cited 27 February 2014]. Available from: www.psychology.org.au/publications/tip_sheets/depression
3. American Psychiatric Association. Diagnostic and statistical manual of mental disorders (DSM-5). 5th ed. Arlington, VA: American Psychiatric Association; 2013.
4. World Health Organization (WHO). International Statistical Classification of Diseases and Related Health Problems (ICD-11). 11th Revision: Version 2018 ed. Geneva: WHO; 2018.
5. Bystritsky A, Danial J, et al. Interactions between diabetes and anxiety and depression: implications for treatment. Endocrinology and Metabolism Clinics of North America. 2014;43(1):269-83.
6. Hood KK, Naranjo DM, et al. Chapter 6: measuring depression in children and young people. In: Lloyd CE, Pouwer F, et al., editors. Screening for depression and other psychological problems in diabetes: a practical guide. London: Springer; 2013. p. 110-38.
7. Mezuk B, Eaton WW, et al. Depression and type 2 diabetes over the lifespan: a meta-analysis. Diabetes Care. 2008;31(12):2383-90.
8. Roy T, Lloyd CE. Epidemiology of depression and diabetes: a systematic review. Journal of Affective Disorders. 2012;142:S8-21.
9. Nouwen A, Adriaanse MC, et al.; European Depression in Diabetes Research Consortium. Longitudinal associations between depression and diabetes complications: a systematic review and meta-analysis. Diabetic Medicine. 2019;36(12):1562-72.
10. Nefs G, Pouwer F, et al. The course of depressive symptoms in primary care patients with type 2 diabetes: results from the Diabetes, Depression, Type D Personality Zuidoost-Brabant (DiaDDZoB) Study. Diabetologia. 2012;55(3):608-16.
11. Moulton CD, Pickup JC, et al. The link between depression and diabetes: the search for shared mechanisms. The Lancet Diabetes & Endocrinology. 2015;3(6):461-71.
12. beyondblue. What causes depression? 2015 [cited 28 July 2015]. Available from: www.beyondblue.org.au/the-facts/depression/what-causes-depression.
13. Renn BN, Feliciano L, et al. The bidirectional relationship of depression and diabetes: a systematic review. Clinical Psychology Review. 2011;31(8):1239-46.
14. Holt RIG, de Groot M, et al. Diabetes and depression. Current Diabetes Reports. 2014;14(6):196.
15. Egede LE, Ellis C, et al. The effect of depression on self-care behaviours and quality of care in a national sample of adults. General Hospital Psychiatry. 2009;31(5):422-7.
16. Ciechanowski P, Katon W, et al. The relationship of depressive symptoms to symptom reporting, self-care and glucose control in diabetes. General Hospital Psychiatry. 2003;25(4):246-52.

DocuSign Envelope ID: 2C30DCFB-1829-4FAF-A35C-BFA1FAB7D047

17. Ciechanowski PS, Katon WJ, et al. Depression and diabetes: impact of depressive symptoms on adherence, function, and costs. Archives of Internal Medicine. 2000;160(21):3278-85.
18. DiMatteo MR, Lepper HS, et al. Depression is a risk factor for noncompliance with medical treatment: meta-analysis of the effects of anxiety and depression on patient adherence. Archives of Internal Medicine. 2000;160(14):2101-77.
19. Gonzalez JS, Safren SA, et al. Depression, self-care, and medication adherence in type 2 diabetes: relationships across the full range of symptom severity. Diabetes Care. 2007;30(9):2222-7.
20. Lustman PJ, Anderson RJ, et al. Depression and poor glycemic control: a meta-analytic review of the literature. Diabetes Care. 2000;23(7):934-42.
21. Black SA, Markides KS, et al. Depression predicts increased incidence of adverse health outcomes in older Mexican Americans with type 2 diabetes. Diabetes Care. 2003;26(10):2822-8.
22. de Groot M, Anderson RJ, et al. Association of depression and diabetes complications: a meta-analysis. Psychosomatic Medicine. 2001;63(4):619-30.
23. Lloyd CE, Nouwen A, et al. Prevalence and correlates of depressive disorders in people with Type 2 diabetes: results from the International Prevalence and Treatment of Diabetes and Depression (INTERPRET-DD) study, a collaborative study carried out in 14 countries. Diabetic Medicine. 2018;35(6):760-769.
24. Burns R, Deschênes S, et al. Cyclical relationship between depressive symptoms and diabetes distress in people with type 2 diabetes mellitus: results from the Montreal Evaluation of Diabetes Treatment Cohort Study. Diabetic Medicine. 2015;32(10):1272-8.
25. Ehrmann D, Kulzer B, et al. Longitudinal relationship of diabetes- related distress and depressive symptoms: analysing incidence and persistence. Diabetic Medicine. 2015;32(10):1264-71.
26. Kokoszka A, Pouwer F, et al. Serious diabetes-specific emotional problems in patients with type 2 diabetes who have different levels of comorbid depression: a Polish study from the European Depression In Diabetes (EDID) Research Consortium. European Psychiatry. 2009;24(7):425-30.
27. Wilhelm K, Reddy J, et al. The importance of screening for mild depression within a diabetes service. Paper presented at: The Annual Scientific Meeting of the Australian Diabetes Society and Australian Diabetes Educators Association; August 27-29; Melbourne, Australia. 2014.
28. Schram MT, Baan CA, et al. Depression and quality of life in patients with diabetes: a systematic review from the European Depression In Diabetes (EDID) Research Consortium. Current Diabetes Reviews. 2009;5(2):112-19.
29. Goldney RD, Phillips PJ, et al. Diabetes, depression, and quality of life: a population study. Diabetes Care. 2004;27(5):1066-70.
30. Egede LE, Zheng D, et al. Comorbid depression is associated with increased health care use and expenditures in individuals with diabetes. Diabetes Care. 2002;25:464-70.
31. Park M, Katon WJ, et al. Depression and risk of mortality in individuals with diabetes: a meta-analysis and systematic review. General Hospital Psychiatry. 2013;35(3):217-25.
32. Ismail K, Winkley K, et al. A cohort study of people with diabetes and their first foot ulcer: the role of depression on mortality. Diabetes Care. 2007;30(6):1473-9.
33. Baldwin DS, Anderson IM, et al. Evidence-based pharmacological treatment of anxiety disorders, post-traumatic stress disorder and obsessive-compulsive disorder: a revision of the 2005 guidelines from the British Association for Psychopharmacology. Journal of Psychopharmacology. 2014;28(5):403-39.
34. Nefs G, Hendrieckx C, et al. Comorbid elevated symptoms of anxiety and depression in adults with type 1 or type 2 diabetes: Results from the International Diabetes MILES Study. Journal of Diabetes and Its Complications. 2019;33(8):523-29.
35. beyondblue. Depression: signs and symptoms. 2014 [cited 21 March 2014]. Available from: www.beyondblue.org.au/the-facts/depression/signs-and-symptoms.
36. Pouwer F, Beekman AT, et al. Nurses' recognition and registration of depression, anxiety and diabetes-specific emotional problems in outpatients with diabetes mellitus. Patient Education and Counseling. 2006;60(2):235-40.
37. Fisher L, Gonzalez J, et al. The confusing tale of depression and distress in patients with diabetes: a call for greater clarity and precision. Diabetic Medicine. 2014;31(7):764-72.
38. Hessler D, Fisher L, et al. Causal and bidirectional linkages over time between depression and diabetes regimen distress in adults with type 2 diabetes. Diabetes Research and Clinical Practice. 2015;108(2):360-6.
39. Skinner JP. Twenty-five years of diabetes research. Diabetic Medicine. 2020;37:193-400.
40. Kroenke K, Spitzer R, et al. The Patient Health Questionnaire-2: validity of a two-item depression screener. Medical Care. 2003;41(11):1284-92.
41. Kroenke K, Spitzer RL, et al. The PHQ-9: validity of a brief depression severity measure. Journal of General Internal Medicine. 2001;16(9):606-13.
42. Kroenke K, Spitzer RL. The PHQ-9: a new depression diagnostic and severity measure. Psychiatric Annals. 2002;32(9):1-7.
43. Beck AT, Ward CH, et al. An inventory for measuring depression. Archives of General Psychiatry. 1961;4(6):561-71.
44. Zigmond AS, Snaith RP. The Hospital Anxiety and Depression Scale. Acta Psychiatrica Scandinavica. 1983;67(6):361-70.
45. Radloff LS. The CES-D scale: a self-report depression scale for research in the general population. Applied

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Psychological Measurement. 1977;1(3):385-401.

46. Hamilton M. A rating scale for depression. Journal of Neurology, Neurosurgery, and Psychiatry. 1960;23(1):56-62.
47. Roy T, Lloyd C, et al. Screening tools used for measuring depression among people with type 1 and type 2 diabetes: a systematic review. Diabetic Medicine. 2012;29(2):164-75.
48. Lloyd CE, Roy T. Top ten screening tools for measuring depression in people with diabetes. In Lloyd CE, Pouwer F, et al., eds. Screening for depression and other psychological problems in diabetes: a practical guide. London: Springer; 2013.
49. Clarke D. beyondblue guide to the management of depression in primary care: a guide for health professionals. Victoria: 2009.
50. Victorian Department of Health. Working with the suicidal person: clinical practice guidelines for emergency departments and mental health services. Melbourne: 2010.
51. O'Connor E, Gaynes BN, et al. Screening for and treatment of suicide risk relevant to primary care: a systematic review for the US Preventive Services Task Force. Annals of Internal Medicine. 2013;158(10):741-54.
52. Substance Abuse and Mental Health Services Administration. SAFE-T: Suicide Assessment Five-Step Evaluation and Triage. Washington, D.C.: US Department and Health and Human Services: 2009.
53. Broadbent M, Moxham L, et al. The development and use of mental health triage scales in Australia. International Journal of Mental Health Nursing. 2007;16(6):413-21.
54. Beck AT, Kovacs M, et al. Assessment of suicidal intention: the Scale for Suicide Ideation. Journal of Consulting and Clinical Psychology. 1979;47(2):343-52.
55. Nimeus A, Alsen M, et al. The Suicide Assessment Scale: an instrument assessing suicide risk of suicide attempters. European Psychiatry. 2000;15(7):416-23.
56. Stanley B, Brown GK. Safety planning intervention: a brief intervention to mitigate suicide risk. Cognitive and Behavioral Practice. 2012;19(2):256-64.
57. Hegel MT, Oxman TE, et al. Watchful waiting for minor depression in primary care: remission rates and predictors of improvement. General Hospital Psychiatry. 2006;28(3):205-12.
58. Petrak F, Baumeister H, et al. Depression and diabetes: treatment and health-care delivery. The Lancet Diabetes & Endocrinology. 2015;3(6):472-85.
59. Hermanns N, Caputo S, et al. Screening, evaluation and management of depression in people with diabetes in primary care. Primary Care Diabetes. 2013;7(1):1-10.
60. Atlantis E, Fahey P, et al. Collaborative care for comorbid depression and diabetes: a systematic review and meta-analysis. BMJ Open. 2014;4(4):e004706.
61. Jorm AF, Allen NB, et al. A guide to what works for depression. Melbourne: beyondblue; 2009.
62. Van der Feltz-Cornelis CM, Nuyen J, et al. Effect of interventions for major depressive disorder and significant depressive symptoms in patients with diabetes mellitus: a systematic review and meta-analysis. General Hospital Psychiatry. 2010;32(4):380-95.
63. Pfizer. Patient Health Questionnaire (PHQ) Screeners [cited 15 May 2014]. Available from: www.phqscreeners.com.
64. de Joode, J.W., van Dijk SEM, et al. Diagnostic accuracy of depression questionnaires in adult patients with diabetes: a systematic review and meta-analysis. PLOS ONE. 2019;14(6):e0218512.
65. Spitzer RL, Williams JBW, et al. Instruction manual: instructions for Patient Health Questionnaire (PHQ) and GAD-7 measures. [cited 5 February 2015]. Available from: www.phqscreeners.com.
66. van Steenbergen-Weijenburg KM, de Vroege L, et al. Validation of the PHQ-9 as a screening instrument for depression in diabetes patients in specialized outpatient clinics. BioMed Central Health Devices Research. 2010;10(1):235.
67. Lamers F, Jonkers C, et al. Summed score of the Patient Health Questionnaire-9 was a reliable and valid method for depression screening in chronically ill elderly patients. Journal of Clinical Epidemiology. 2008;61(7):679-87.
68. Kroenke K, Spitzer RL, et al. An ultra-brief screening scale for anxiety and depression: the PHQ-4. Psychosomatics. 2009;50(6):613-21.

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Appendix 9: Letter of Support

VA | U.S. Department of Veterans Affairs
Veterans Health Administration
Eastern Colorado Health Care System

1700 N. Wheeling St.
Aurora, CO 80045
303-399-8020

Date: 6/14/2023
Dana Sherman, DNP, APRN, ANP-BC, FNP-BC
Clinical Associate Professor
Nicole Wertheim College of Nursing and Health Sciences
Florida International University

Dear Dr. Sherman,

Thank you for inviting the Eastern Colorado Health Care System: Denver VA Medical Center to participate in the DNP project of Erita Snyder. It is understood that Ms. Snyder will be conducting this quality improvement project as part of the requirements for the Doctor of Nursing Practice at Florida International University. After reviewing the project titled, "*An Educational Intervention to Increase Telemedicine Nurses' Knowledge in Screening, Identifying, and Coordinating Care for Depression in the Veteran Population with Diabetes: A Quality Improvement Project*", she has been granted permission to conduct her project at this organization.

It is understood that this project will take place from July 1st, 2023, to December 31st, 2023. Ms. Snyder will recruit up to twenty-five nurses and conduct a video-assisted educational presentation on screening, identifying, and coordinating for depression associated by diabetes. This educational presentation will be made available through a video-based platform through a link shared with the nurses via email. Pre and posttest surveys will be utilized to assess impact. The main goal of the project is to improve awareness, knowledge, and screening for depression among nurses caring for Veteran patients with diabetes and help narrow the care gaps that currently exist for those patients that are affected.

We look forward to participating in this DNP project and contribute to this important work.

Sincerely,

Sarah Moscatel, PhD
Associate Chief of Nursing Research and Education
Eastern Colorado Health Care System: Denver VA Medical Center
1700 N Wheeling St,
Aurora, CO 80045

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Appendix 10: IRB Approval Letter

FIU | FLORIDA INTERNATIONAL UNIVERSITY

Office of Research Integrity
Research Compliance, MARC 430

MEMORANDUM

To:	Dr. Dana Sherman
CC:	Erita Snyder
From:	Kourtney Wilson, MS, IRB Coordinator KMW
Date:	June 30, 2023
Protocol Title:	**"**An Educational Intervention to Increase Telemedicine Nurses' Knowledge in Screening, Identifying, and Coordinating Care for Depression in the Veteran Population with Diabetes: A Quality Improvement Project**"**

The Florida International University Office of Research Integrity has reviewed your research study for the use of human subjects and deemed it Exempt via the **Exempt Review** process.

IRB Protocol Exemption #:	IRB-23-0354	**IRB Exemption Date:**	06/30/23
TOPAZ Reference #:	113328		

As a requirement of IRB Exemption you are required to:

1) Submit an IRB Exempt Amendment Form for all proposed additions or changes in the procedures involving human subjects. All additions and changes must be reviewed and approved prior to implementation.
2) Promptly submit an IRB Exempt Event Report Form for every serious or unusual or unanticipated adverse event, problems with the rights or welfare of the human subjects, and/or deviations from the approved protocol.
3) Submit an IRB Exempt Project Completion Report Form when the study is finished or discontinued.

Special Conditions: N/A

For further information, you may visit the IRB website at http://research.fiu.edu/irb.

KMW