ISSN: 2643-4059

Brooks et al. Int J Depress Anxiety 2023, 6:040
DOI: 10.23937/2643-4059/1710040
Volume 6 | Issue 1
Open Access

International Journal of
Depression and Anxiety

PROJECT REPORT

Implementing the Patient Health Questionnaire-9 (PHQ-9) to Identify and Refer Adults with Depression

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Abstract

Depression, if left untreated, may lead to an unhealthy physiological and psychological state. At the project site, there was no current assessment for depressive symptoms or subsequent referral of patients for depression, so an evidence-based solution was sought. The purpose of this quality improvement project was to determine if the translation of Patel, et al.'s research utilizing the Patient Health Questionaire-9 (PHQ-9) depression severity tool would impact the number of referrals to a mental health provider for depression among adult patients. The project was piloted over eight weeks in a primary care clinic in rural Arkansas. Jean Watson's theory of human caring and Kurt Lewin's change model provided the scientific underpinnings for the project. Data on referrals to a mental health provider were obtained from the electronic medical record. The total sample size was 73, with n = 40 in the comparative group and n = 33 in the implementation group. A Pearson chi-square test showed no statistically significant difference in the number of referrals between the comparison group and the implementation group χ^2 (N = 73) = 3.69, p = 0.055. Clinical significance was demonstrated by increasing referrals from 10% to 27% after implementing the PHQ-9. Based on the results, the translation of Patel, et al.'s research utilizing the PHQ-9 may increase referrals to a mental health provider in this population. Recommendations include sustaining the project for a longer period of time with a larger sample, and disseminating the results.

Keywords

Depression, Mental health, Patel, et al.'s research using the patient health questionnaire-9, PHQ-9, Depression severity, Primary care clinic, Mental health referral, Jean Watson's theory of human caring, Kurt Lewin's change model, Evidence-based

Chapter 1: Introduction to the Project

Depression is one of the most common mental disorders in the United States [1]. This commonality has extended to the primary care setting, presenting as a disabling and chronic mental health problem [2]. In addition, the recent COVID-19 pandemic resulted in increased signs of depressive disorders in the general population [1]. Ettman, et al. [3] noted that the prevalence of depressive symptoms in the United States increased more than 3-fold during the COVID-19 pandemic, with a significant increase of 8.5% before COVID-19 to 27.8% during COVID-19. The United States Preventive Services Task Force (USPSTF) and the American Academy of Family Physicians (AAFP) recommend annual screening for depression in the general adult population [4,5]. The Centers for Medicare & Medicaid Services (CMS) endorse annual screening for depression in adults, citing this as reasonable and necessary for preventing or early detection of illness or disability [6]. According to the National Institute of Mental Health [7], depressive disorders are common and treatable but must be diagnosed to treat. Screening and early detection of depression and depressive disorders are essential in the primary care setting.

Depression is a common disorder identified in the primary care setting, but detection remains inconsistent [8]. According to the World Health Organization (WHO), untreated depression may evolve into more serious health conditions. At its worst, depression can lead to suicide. Over 700,000 people die due to suicide every year, and suicide is the fourth leading cause of death among 15-29 year-olds [9]. Pompili [10] states that depression can result in the wish to die, and clinicians

Citation: Brooks SM (2023) Implementing the Patient Health Questionnaire-9 (PHQ-9) to Identify and Refer Adults with Depression. Int J Depress Anxiety 6:040. doi.org/10.23937/2643-4059/1710040

Accepted: July 19, 2023: **Published:** July 21, 2023

are often inclined to include suicidal ideations and suicidal crises into the category of major depression. An individual who is depressed may have insomnia, hopelessness about the future, acing dysphoria, impaired ability to concentrate, lack of joy and pleasure, and feelings of guilt and worthiness. All these symptoms can result in the wish to die [10]. Detecting depression at an early stage may improve patient outcomes [2]; thus, implementation of depression screening at the project site is vital for identifying and treating depression as well as reducing the risk of depression-related complications.

The translation of research on the Patient Health Questionnaire-9 (PHQ-9) was implemented for this project. This form consists of nine questions about a person's mental health over the past two weeks [11]. The PHQ-9, a universal community screening tool for depression, is more likely to be used to measure the severity of depression in patients in primary care and community settings [12]. The PHQ-9 is the most frequently used screening tool for depression and is adaptable, simple, rapid, and effective for screening and evaluating depression [11]. In addition, the validity and reliability of the PHQ-9 have been established in many studies [2,11,12]. The PHQ-9 form was implemented in all adult patients who presented for an annual examination at the project site. Based on the patient's PHQ-9 score results, the healthcare provider discussed the score and the treatment of depression to reduce the risk of depression-related complications, including suicide. Depending on the patient's PHQ-9 score and assessment, the healthcare provider would implement appropriate treatment and referral to a mental health provider.

This chapter discusses the definition of depression and the PHQ-9 depressive screening scale. The signs and symptoms of depression and the prevalence of depressive symptoms were also discussed. Various researches revealed that early detection and treatment of depression could improve patient outcomes and was recommended as an annual screening in the adult population. The PHQ-9 is a valid, reliable, quick, and effective depressive screening tool.

Background of the project

In 2021, the Center for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System (BRFSS) annual data CDC, estimated that a mental health professional had told 19.5% of all adults in the United States that they had a depressive disorder. In Arkansas, this percentage was higher than the national average at 23.5%, rating Arkansas as one of the worst states in the nation for depressive disorders [13]. The prevalence of documented cases of depression at the project site, a family practice clinic in central Arkansas, is less than 20% of all adult patients. Since the project site currently lacks a process or tool to screen for depression in patients, it was assumed that many patients with symptoms of depression are under or undiagnosed, especially compared to state and national averages.

The project site was a family practice clinic in central Arkansas. The clinic has been in business for over twenty-five years and is firmly established in this urban community. The clinic has a single medical doctor as the provider. It is staffed with one registered nurse (RN), two medical assistants, a front desk receptionist, a business manager, and a billing manager. There was no screening tool at the clinic to screen for depression or determine its severity in adults. Without a routine screening process or assessment tool, the clinic risked surveillance and missed diagnoses of patients with depression. The WHO states that undiagnosed and untreated depression may become a severe health condition, including suicide [9]. The CDC notes that suicide is a troubling public health issue and is often preventable [13]. Arkansas has the 14th highest rate of suicides of all states [13]. The United States Department of Health and Human Services (HHS) reveals that 7% of men with a history of depression will die from suicide, and 1% of women with a history of depression will die from suicide [14]. Recent studies have shown that COVID-19 had a local, national, and global effect on mental health outcomes such as anxiety, depression, and post-traumatic stress syndrome [15]. Pathirathna, et al. [16] studied the mental health impact of social distancing, the COVID-19 quarantine, and financial crises due to loss of employment. They found these were associated with an increased risk for suicide and suicidal attempts during the COVID-19 pandemic. During the COVID-19 pandemic, the office had limited contact with patients. With the reopening of healthcare clinics and patients seen in the office, mental health providers are bringing attention to the need for universal depression screening, noting the negative mental health impact of the pandemic on many people globally [15].

The project site had many patients with multiple comorbidities and other physical diseases associated with underlying depression. The CDC notes that Arkansas has a high prevalence of persons with multiple chronic conditions [13]. Molebatsi, et al. [2] found that depression is higher in people with other medical conditions, such as diabetes and cardiovascular disease. Further research indicates that 55% of nurses have encountered patients who may further go on to commit suicide; therefore, assessing all patients for depression and depressive disorders is considered essential to clinical nursing practice [17]. According to Santomauro [1] the burden of depression, one of many mental health disorders, is high across the entire lifespan for both sexes and across many geographic locations. There has been no reduction in the global prevalence or burden of depression since 1990, despite compelling evidence of interventions that reduce their impact [1]. Research reveals that the earlier symptoms of depression are treated with medication and other therapies, the

better the patient outcome and a reduction in serious depression-associated complications [18]. The aim of the implementation of the PHQ-9 depression screening at the project site is to aid in the diagnosis and treatment of depression, to assist patients in finding relief for symptoms of depression, and to improve their quality of life.

Organizational needs assessment

An organizational needs assessment assesses the gap between an organization's desired and current state [19]. It is the desire for every organization to be effective and efficient in their area of business. In a family practice clinic, this would include screening all patients appropriately for potential health-related issues. Mental health disorders are prevalent, especially following the COVID-19 pandemic, and treatment is necessary once identified [15,16]. Due to social stigma barriers and service scarcity, psychiatrists and mental health services are difficult to obtain [20]. According to Mental Health America (2022), Arkansas is ranked 47 out of the 50 states and Washington D.C. for providing access to mental health services [21]. Primary care physicians deliver mental health care to more than 60% of patients with depression or other psychiatric disorders [22]. There was no screening tool at the clinic to screen for depression or determine its severity in adults. The clinic risks under diagnosing depression without a routine screening process and assessment tool.

A Strength, Weakness, Opportunities Threat (SWOT) analysis assessed how the organization compared using evidence-based interventions or practices [23]. Strengths are advantages, weaknesses are disadvantages, and opportunities are evidence-based practices that can benefit the organization. Threats may create organizational difficulties [23]. The SWOT analysis aimed to reveal the pros and cons of implementing the PHQ-9 to screen for depression and depression severity. An inquiry of three primary clinical sites revealed that routine depression screening did not occur. Two of the three sites did not have a current practice to detect depression in their patients.

SWOT analysis

The SWOT analysis was presented to the stakeholder. The stakeholders agreed with the plan and were eager to implement the plan. A round table discussion identified areas in the clinical setting that could be benefited from the project and obstacles to implementing the PHQ-9 depression screening scale.

Strengths: The primary care clinic was in an urban area in central Arkansas that is easily accessible from the interstate for patients travelling from suburban or rural areas. Public transportation is available in the community through a bus and streetcar system with 15 routes. The clinic is accessible by the bus and streetcar system. The physician provider of the clinic has been in practice for over twenty-five years. He is well-known and respected in the community. The clinic sees approximately 25 patients each day and is open Monday through Friday each week.

The primary care physician was the main stakeholder. The clinic is staffed with one RN, two medical assistants, a front desk receptionist, a business manager, and a billing manager. The clinic has employed the staff for an average of three years each. The small number of staff and the same team ensure continuity of care for patients. Continuous training is related to current practices, new medications, and procedures to remain compliant. All payment sources are accepted at the clinic, including private pay, various private insurance plans, Medicare, and Medicaid. Depression screening is recommended for all adults by the USPSTF, the AAFP, and CMS [4-6]. Therefore, it is appropriate and expected that a primary care clinic screen and assesses for depression in the adult patient population.

A PHQ-9 screening tool is an evidence-based tool that is a valid and reliable predictor of depression and depression severity [24]. The PHQ-9 is the most frequently used screening tool for depression and is adaptable, simple, rapid, and effective for screening and evaluating depression [11]. The PHQ-9 is a short nine-item screening tool that can be self-administered. It takes the patient approximately three minutes to complete [25]. The RN in this primary care setting will screen the patient and be responsible for reviewing and presenting the information to the physician for discussion with the patient. The implementation, evaluation, and continuation after that were feasible.

Weaknesses: The obstacles to using the PHQ-9 tool are that only an RN or an advanced degree medical staff can assess and implement the PHQ-9. The RN may feel it is additional work to administer the PHQ-9 screening with patients. The nurse may feel that she has no extra time due to the busy patient load, providing care, and documentation. However, the PHQ-9 is simple and can be given to the patient for self-administration. The PCP also needed instruction on the tool's scoring. Since the PHQ-9 is numerically scored, this removes any subjectivity in scoring. The nurse can rapidly add the scores to provide for the physician.

The staff was in-serviced on the proper use of the PHQ-9 and its effectiveness as a screening tool for depression. The implementation process included adding the PHQ-9 with annual examinations in the office. One weakness may be the nurses comfort with discussing depression or depressive symptoms with patients. This barrier was addressed by providing all staff with information and literature on depression signs and symptoms. Another potential barrier could be the physician's time discussing the results and any treatment or referral of patients for additional care.

Unfortunately, the physician will need to spend the time needed to discuss the concern of the patient, who will return to the clinic with additional problems, go to another physician, or become more depressed, leading to self-harm. The discussion may increase the length of some appointments for the physician. Another weakness could be that patients may associate depression with a negative stigma and not understand or agree to treatment. This barrier was addressed by thoroughly discussing the definition of depression and the stigmas associated with depression and assuring the patient of the confidentiality of all results. A final weakness could be access to mental health services in the community for patients rated as more severely depressed. This weakness was addressed by the clinic having a positive rapport with a mental health provider recommended and referred by the primary care physician.

Opportunities: The opportunities at the clinic were to include more holistic care of the patient in assessing mental as well as physical well-being. Patients may feel comfortable expressing their depression if the clinical site is known to offer the depression screening scale as a service routinely. Using the PHQ-9 and depression screening and treatment will fulfil the clinic's obligations for preventative screening services recommended by the USPSTF, the AAFP, and CMS [4-6].

Educating medical staff on the importance and rationale for the PHQ-9 ensured the effective use of the tool. Staff and providers collaborated and networked with other mental health providers and services in the community. This collaboration helped to develop good working relationships and referral processes for patients with mental health concerns that are clients of the clinic.

The primary care clinic is in an underserved area of a low socioeconomic population that may have adult patients that are candidates for mental health treatment due to poverty, safety concerns, and depression. The low socioeconomic class populations, such as minorities, people experiencing homelessness, and Lesbian, Gay, Bisexual Transgender Queer (LQBTQ), are at greater risk for depression [22]. This population needs supportive care, a right to be seen and treated, and all other candidates and participants. The clinic can be the healthcare provider for these vulnerable populations and does not discriminate against race, gender, or socioeconomic status. This inclusiveness allowed the clinic to practice diversity, equity, and inclusion.

Threats: Threats include patients viewing depression as a stigma. Therefore, they may not be as transparent and answer the questions truthfully. Patients may not be able to read or understand what a question is asking, so the nurse may have to assist the patient in completing the PHQ-9. It is crucial that the patient trusts and feels comfortable being transparent while discussing personal issues with nursing staff and the provider at the clinical site. Some patients have transportation and access to care issues despite public transportation options. The office scheduler contacted the patient twenty-four hours before the appointment to ensure the patient had a reliable way to get to the clinic. Appointments were rescheduled to secure transportation for patients.

The PHQ-9 was administered in English. Most clinic patients spoke English during this project. If future demographic trending shows an increased number of non-English speaking patients visiting the clinic, provisions for translation or administration of the PHQ-9 in other languages will be required. The PHQ-9 is available in over 30 languages [24].

In addition to language, other cultural issues and stigma related to depression and mental illness could prove a threat. Approximately 50% of the clinic patients were African American. According to the National Alliance of Mental Illness (NAMI), the Black community in the United States is known for negative attitudes and beliefs towards people who have mental health conditions [26]. Although beliefs and attitudes vary among African Americans, many African American adults - especially older adults - think of depression and other mental health conditions due to a personal weakness. Because of this, they may experience shame regarding a mental health assessment or diagnosis and worry that they may experience discrimination due to their condition [26]. Therefore, the clinic needed to practice culturally sensitive care with all patients, especially African American patients. The clinic could also stock culturally sensitive mental health resources from NAMI [26].

Problem description

It was not known if the translation of Patel, et al.'s research utilizing the Patient Health Questionnaire-9 screening tool would impact the number of referrals to a mental health provider for depression among adult patients. Depression is the most common mental health condition in the general population, characterized by feelings of low self-worth, disturbed sleep or appetite, tiredness and poor concentration, sadness, and loss of interest or pleasure [27]. Depression's most severe form can lead to suicide and an increased risk of mortality [27]. The focus of this project was to detect depression in the adult population using the PHQ-9 depression scale. Each patient received treatment from the project site clinic's primary provider or a mental health referral for treatment of depression. The primary care clinic has seen increased patient volume since the COVID-19 pandemic receded. Patients were diagnosed with hypertension, diabetes, depression, and insomnia related to readjusting to the post-COVID era. Many lacked healthcare or preventative healthcare during the pandemic [1,3,16]. The project site had no standardized practice or tool to screen for depression or depressive conditions.

The PHQ-9 questionnaire is used to make a depression diagnosis according to the Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-5) based on the patient report over the previous two-week period [24]. The PHQ-9 depression screening scale will assist the provider in detecting depression by having the patient complete a self-evaluation which includes answering nine closed-ended questions related to personal feelings related to signs and symptoms of depression. This scale not only can screen for depression but can indicate the severity of depression [24].

The primary care clinic must implement routine screening for depression as recommended by the USPSTF, the AAFP, and CMS [4-6]. Undiagnosed and untreated depression may become a more serious health condition [9]. According to the CDC, suicide is often preventable [13]. The project site was in Arkansas, which has a higher than national average of persons with depression, rating Arkansas as one of the worst states in the nation for depressive disorders. Arkansas also has the 14th highest rate of suicides of all states [13]. The United States Department of Health and Human Services (HHS) states that 7% of men with a history of depression will die from suicide, and 1% of women with a history of depression will die from suicide [14]. Other studies have shown that COVID-19 had a local, national, and global effect on mental health outcomes such as anxiety, depression, and post-traumatic stress syndrome [15,16]. Therefore, now that the project site clinic sees patients in the clinic post-pandemic, routine preventative screening for depression must be implemented with all annual examinations of adult patients.

Definition of terms

The mental health terminology associated with this project was provided to operationalize the terms used. There are six main terms: Depression, depression symptom/severity, mental disorder, Patient Health Questionnaire-9, referral to mental health, and suicide. Each term was defined as used in this project.

Depression: Depression is a common but serious mood disorder that can cause severe symptoms and affect how one feels, thinks, and handles daily activities, such as sleeping, eating, and working [7]. An individual who is depressed may experience insomnia, hopelessness about the future, dysphoria so painful that it hurts, impaired ability to concentrate, lack of joy and pleasure, and feelings of guilt and worthiness. These symptoms may further result in the wish to die [10].

Depression screening tools: Depression cannot be measured with lab or diagnostic testing; the only way to assess for depression is to screen patients by asking questions. Ideally, tools used in the primary care setting should be brief, accurate, easy to read and use, self-evaluating, free access availability, and easily integrated into daily practice [28]. A depression screening tool is an evidence-based tool that is expected to assist in identifying those at risk for depression. Using a reliable, evidence-based screening instrument such as the PHQ-9 is useful to quickly screen depressive symptoms in the primary care setting [28]. Consequently, screening tools that are 15 questions or longer, with complex scoring methods or tools considered more challenging to understand, may limit their utility in primary care settings by adding to the burden of administration [29].

Evidence-based: Evidence based practice is integrating individual clinical expertise with the best available external clinical evidence from systemic research [30].

Mental disorder: A mental disorder is a syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behaviour [31]. Mental disorders are usually associated with significant distress or disability in social, occupational, or important activities [32]. Depressive disorders, bipolar disorders, schizophrenia, autism spectrum disorders, conduct disorders, eating disorders, and attention-deficit hyperactivity disorders are examples of mental disorders [33].

Mental health referral: A mental health referral is the handing over of care from one caregiver to another to ensure a high-quality treatment process [34]. This letter of referral should contain all necessary information in a context of shared understanding among all parties involved. A mental health referral represents the opportunity of a referral to lead to a relevant diagnostic or management decision [34].

Patient Health Questionnaire-9: The PHQ-9 questionnaire consists of nine questions about a person's mental health over the past two weeks [12]. The provider using the PHQ-9 results can diagnose and determine the severity of depression [25]. Each question is rated on a four-point response option checked by asking about noticing behaviour changes over the past two weeks. The standard screening cut-off score for identifying major depression is ten or above [35].

Primary care clinic: A clinic that provides health care aimed to enhance patient experience, improve population health, reduce costs, and decrease burnout of providers. Improving population health requires consideration of factors generally viewed as external to the healthcare system, necessitating systems that integrate health care services and coordinate across organizations [36]. The clinical staff's goal is to provide the highest level of health and well-being by focusing on people's needs as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care, and as close as feasible to peoples everyday environment [37].

Severity: The severity of depression can be determined by interpreting the depression screening scale provided [25]. The PHQ-9 assesses how often the subjects had been disturbed by nine items during the past two weeks. Each item was scored on a scale of 0 =, not at all, 1 = several days, 2 = more than a week, and 3 = nearly every day. The total score of the nine questions ranges from 0-27. Scores of 5-9 = are classified as mild depression, 10-14 as moderate depression, 15-19 as moderately severe depression, and anything 20 or greater= as severe depression [12].

Suicide: Suicide is defined as the taking of one's own life. Major depression can lead to suicide. Suicide is a significant health problem and a leading cause of death worldwide. Suicide is unbearable mental pain that is a highly complex and multifaceted phenomenon, with many contributing and facilitating variables [38].

Summary

Untreated depression can affect one's physiological as well as psychological well-being. If left untreated, depression may lead to suicide. Therefore, screening for depression is the cornerstone for early recognition, diagnosis, and management [39]. The USPSTF [40] recommends that outpatient healthcare settings initiate depressive screenings to detect untreated depression. Implementing the PHQ-9 questionnaire at a local primary care clinic may help identify and treat depression sooner. The low detection of depression in primary healthcare settings seriously threatens mental health. While depression is one of the most common mental health disorders, it is often poorly identified and under diagnosed [41].

Chapter 1 discussed the public health problem of depression, signs and symptoms of depression, the prevalence of depression at the project site, locally and nationally, the gap that exists in screening for depression, the PHQ-9 as a valid and reliable screening tool for depression and the effectiveness of the screening tool in identifying depression and the severity of depression. Chapter 2 provides a synthesis of evidence-based literature validating the validity and reliability of the PHQ-9 depression screening questionnaire. Jean Watson's human caring theory highlights how the environment and the medical staff play a vital role in a patient's perception of the clinical experience. Kurt Lewin's change theory guides the changes associated with the project implementation. Chapter 3 discusses the purpose, plan, all data considerations, biases, and mitigation of these, and finally, ethical considerations. Chapter 4 describes data and results, including a detailed description of data analysis. The concluding chapter discusses and represents the project manager's contribution to the body of knowledge, the major findings/outcome, interpretations of the findings/outcomes, strengths and limitations, and the implications and recommendations of the full project.

Chapter 2: Scientific Underpinnings

Depression is one of the most common mental disorders in the United States and has increased in prevalence since the COVID-19 pandemic [1]. Depression is often under and undiagnosed [42]. The project site does not have a routine process and assessment for screening and detecting depression in adult patients. Depression is associated with lower quality of life, a higher risk for suicide, disability, and loss of productivity [42]. The literature review aims to present an in-depth, current state of knowledge related to the PHQ-9 questionnaire and provide reliable and valid evidence that the PHQ-9 depression screening scale is appropriate to screen for and detect the severity of depression in adults.

Literature search strategy

Various strategies were used to select and gather information to support the PHQ-9 depression screening tool at the primary care clinic. Academic databases include the Grand Canyon Library resources, the University of Arkansas Little Rock Library resources, the Cumulative Index to Nursing and Applied Health Literature (CINAHL), Cochrane Review, Google Scholar, and the National Library of Medicine (NLM) including Medline, PubMed, and PubMed Central. From these databases, scholarly research studies, empirical research studies, and peer-reviewed articles were retrieved. Keywords and combinations of the following keywords were used in the search. These keywords included depression, anxiety, suicide and suicidal ideations, screening tools, mental health, depression screening tools, primary care setting, and adult population. Inclusion criteria included a publication date range of the last three years of 2019 to 2022, the English language, and full-text publications. Excluded from the search criteria are publications older than seven years, non-English publications, blogs, opinion papers that did not provide research references, non-full text publications, and content that appeared to promote or endorse specific products. There were over 25 articles reviewed, with 15 studies chosen to support this project. These 15 articles are included in the evidence table (see Appendix A). Additional peer-reviewed articles, scholarly research studies, and empirical research studies from the literature reviews were used as secondary evidence to support the project objectives and goals but were not included in the evidence table. The research for this project focused on the impact of the health issue of depression, various screening tools used to screen for and detect depression, and treatments for depression.

Synthesis of literature

Research reveals that major depression affects over 300 million people worldwide and has become one of the leading causes of loss of work disability, quality of life, and premature mortality [43]. Depression is one of

the most frequent mental health disorders in adults and is associated with poorer physical health, limitations in social functioning, increased suicide risk, and higher overall mortality [44]. Depression is a disabling health concern markedly more serious in people with medical conditions such as diabetes, heart disease, and other debilitating diseases [2]. The prevalence of depression may affect the changes in psychiatric practices and online mental health information available in the past two decades [27]. Research findings reveal an estimated 350 million people of all ages are affected by depression worldwide. It has significantly increased from 8.7% in 2017-2018 to 10% in March 2020 and 14.4% in April 2020, with 14.6% and 5.5% in high-income countries and 11.1% and 5.9% in low-to middle-income countries [27,45]. Ruckert-Eheberg, et al. revealed that 12% of patients seen by primary care providers had thoughts of being better off dead or hurting themselves [46]. Sundeen, et al.'s [5] research data coincided with Rukert-Eheberg's in that depression is a significant problem seen in primary healthcare clinics, where depression can be detected and treated if screened adequately.

Depression is associated with poorer physical health and can lead to other health complications [44]. Unfortunately, depression is often under-recognized due to clinical indicators associated with normal expressions of the aging process. Therefore, the following symptoms are overlooked and under diagnosed: sadness, tiredness, poor concentration and memory, tiredness, insomnia, hypochondriasis, more frequent hospital visits, hospitalizations, suicide, loss of interest in activities, feelings of guilt, feelings of unworthiness, abdominal pain, back pain, headaches, change in weight, somatic symptoms, constipation, fatigue, joint pain, neck pain weakness, and all-cause mortality [44,47,48]. Patel, et al. revealed comparable results, with the symptoms of depression being concentration problems, psychomotor disturbances, appetite changes, low self-esteem, and concentration problems. Stevens, et al. [49] research stated that depression independently impacts physical health conditions, and disease prognosis of cancer, stroke, and heart disease increases the risk for mortality. Kondo, et al. [49] validated the kidney failure incidence and prevalence have increased steadily over decades by revealing those patients with kidney failure experience major depression at three to six times the rate of the general population.

Early detection of depression is vital to one's quality of life and the economy. The annual cost of depression increased from $83 billion (about $260 per person in the US) (about $260 per person in the US (United States) in 2000 to $210 billion (about $650 per person in the US) (about $650 per person in the US) in 2010 [4]. The debilitating effects of COVID-19 add to the extensive list of reasons and conditions to be depressed. The USPSTF, AAFP, and CMS recommend depression screening in the general adult population [4-6]. A patient visits their primary care provider, hopefully, will be required to be screened for depression and to implement a treatment plan. The alarming observations of the totality and fatality of depression have motivated efforts to improve the detection and management of depression by routinely administering screenings [4]. Most patients, while visiting with a primary care physician, fail to discuss current life issues and instead focus on the focused concern of the visit. This delays the diagnosis of depression. Other potential delays in diagnosing depression include provider discomfort and lack of systematic management approaches, and patients are not transparent in communicating their feelings of being depressed [50].

Incorporating the PHQ-9 depression screening tool as a routine part of all annual examinations will prompt physicians and patients to discuss mental health concerns. If the PHQ-9 scores are over a specific number, this will further require the healthcare provider to open the lines of communication about the patient's mental health treatment needs.

The literature discusses various depression measuring scales used to detect depression in adults. EuroQol-5 dimension (EQ-5D) is a short self-evaluation questionnaire used to subjectively describe, profile, and evaluate one's quality of life using an analog scale. The EQ-5D-3L is comprised of five dimensions of mobility, self-care, usual activities, pain/discomfort, and anxiety/depression, each rated on a scale of 1 = no problems, 2 = some-moderate problems, or 3 = extreme problems [11,51]. Sun, et al. [12] discussed the Hamilton Depression Rating Scale (HAMD-17) as a depression screening assessment comprising 17 questions scored on a scale of 0-4, with 0 representing asymptomatic and 1-4 representing symptomatic behaviours of depression. The totality of scores ranges from 0-52: 0-7 = normal, 17-23 = moderate depression, 24 and greater = major depression. The Centre for Epidemiologic Studies Depression Scale (CES-D) is a 20-item questionnaire to screen for the frequency of feelings and behaviour over the past seven days, with scores ranging from 0-60. A few items are questions regarding the validity and psychometric properties of the CES-D tool due to the unequally negative versus positively worded items that lead to disproportionately weighting the depression end of the continuum [52]. Molebatsi, et al. [2] compare the PHQ-9 screening scale to the Mini International Neuropsychiatric Interview (MINI), which is a short diagnostic structured interview developed in Europe and the United States to explore 17 psychiatric disorders and the World Health Quality of Life scale Brief Version (WHOQOL-BREF) this instrument is used to assess the cross-cultural quality of life across four domains: Physical health, psychological health, social relationships, and environmental health. A Cronbach alpha of more than 0.7 for all domains. Depression screening tools can assist healthcare providers in accurately identifying patients

with depressive disorders and initiating appropriate management of symptoms, but they can be limited due to cost and time [2]. The quality improvement project focused on the Patient Health Questionnaire-9 (PHQ-9) depression screening scale/tool scale due to occurring no cost, quick and easy for participants to understand and complete form, reliable, and was developed for primary care settings [2].

Of the various depression detection scales reported in the literature, the PHQ-9 is the most frequently used screening tool for depression and is adaptable, simple, rapid, and effective for screening and evaluating depression [11,12]. The PHQ-9 depression scale is an approved, validated, evidence-based tool used to detect depression and the severity of depression. The screening tool can be completed within minutes and quickly scored by a licensed professional. The PHQ-9 is a simple nine-item questionnaire used to detect early depression in primary care and other medical settings, and permission is not required for use [35]. The validity and reliability of the PHQ-9 have been firmly established. Patel, et al. [4] assessed the measurement of the PHQ-9 scale across major U.S. socio demographic groups and found acceptance, reliability, and validity. Shin, et al. [51] supported the positive validity and reliability of the PHQ-9 scale in the adult Korean population. Cronbach's score for the PHQ-9 was 0.79. Dadfar, et al. [47] study revealed a Cronbach alpha score of 0.88 and good construct and criterion-related validity. Psychometric studies of the PHQ-9 supported solid reliability and validity findings, including with various chronic diseases and demographic characteristics [2,12,48,50,53]. When Shin, et al. and Molebatsi, et al. [2] compared the correlated results of the MINI and the EQ-5D screening tool with the PHQ-9 depression screening tool, the scores correlated strongly ($p < 0.001$). The Cronbach alpha was found to be 0.799, which indicated that the PHQ-9 depression screening scale has acceptable predictive performance. Aslan, et al. [44] research with the PHQ-9 depression screening scale revealed an acceptable internal consistency; confirmatory factor analysis demonstrated a good fit for both1- and 2- factor solutions, and the correlation between somatic and the cognitive effective latent factors were extremely high ($r = 0.97$, $p < 0.001$).

A literature review supports nurse-driven, evidence-based interventions to assist the primary care provider in detecting and treating depression [54]. Utilizing the PHQ-9 depression screening tool during a primary care appointment is a proactive intervention to provide early detection in reducing the signs and symptoms of depression, anxiety, and suicidal ideation [47]. This tool comprises nine questions and is used to screen, monitor, and measure the severity of depression [51]. Each question is rated on a four-point response option checked by asking of noticing behaviour changes over the past two weeks of results of the following responses: "0 = not at all, 1 = several days, 2 = more than half the days and 3 = nearly every day" to the following questions: 1) Little interest or pleasure in doing things? 2) Feeling down, depressed, or helpless? 3) Trouble falling, staying asleep, or sleeping too much? 4) Feeling tired or having little energy? 5) Poor appetite or overeating? 6) Feeling bad about yourself or that you are a failure or have let yourself or your family down? 7) Trouble concentrating on reading the newspaper or watching television? 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? 9) Thoughts that you would be better off dead or hurting yourself somehow? The sum of the scores can range from 0-27. Shin, et al.'s research also revealed that the PHQ-9 cut-off score of 10 or more has a sensitivity of 80-90% and indicates major depression. Levis, et al. [35] suggest that a cut-off point of 10 or greater would maximize the likelihood of a successful referral to assist with mental health treatment. In contrast, Udedi, et al. [55] suggest a cut-off point of anything greater than six of a positive screening for major depression. Several researchers found identifying a cut off point as utilized in the PHQ-9 for major depression when screening beneficial and helped diagnose depression in the elderly population [11,44]. Odds ratios and confidence intervals were reported for the PHQ9 threshold of ≥ 20. This relationship was strongly associated with pain interference symptoms (OR 21.6, 95% CI 17.5-26.7) and anxiety (OR 72.1, 95% CI 52.8-99.0). A PHQ-9 score of ≥ 10 still showed significant associations with pain interference symptoms (OR 6.1, 95% CI 5.4-6.9) and symptoms of anxiety (OR 11.3, 95% CI 9.7-13.1. These results suggest that the PHQ-9 depression screening scale provides substantial information regarding the likelihood of pain interference symptoms and anxiety and should trigger diagnostic assessments for these and other conditions [49]. For this reason, the PHQ-9 was implemented at an annual examination visit and not for acute or chronic medical condition visits.

The literature discusses treatments for depression depending on the severity of the depression. When treating depression, the patient's personal and family history of medication response, side effects, patient response, drug preference, cost, and accessibility are all factors in a successful treatment plan [56]. A combined diagnostic approach can assist in finding a more effective and individual choice of treatment per patient affected [49]. Treatment involves medication and psychotherapy [7]. Research reveals that receiving at least eight psychotherapy visits and four medication monitoring visits within a year is considered adequate mental health treatment [57]. Psychotherapy is the informed and intentional application of clinical methods and interpersonal stances derived from established psychological principles to assist people in modifying their behaviours, cognitions, emotions, and other

personal characteristics in directions that participants deem desirable [18]. The NIMH [7] and Cuijpers, et al. [18] discuss and agree on some of the same therapies shown to be successful in the primary care setting. Cuijpers, et al. [18] establish that 75% of patients prefer psychotherapy over drug treatment. Several types of psychotherapy are beneficial in treating depression. The following psychotherapy has been tested and approved in primary care settings: Cognitive behavioural therapy (CBT) focuses on the impact that a patient's present dysfunctional thoughts have on current behaviour and future functioning; behavioural activation therapy (BAT)- the patient registers pleasant routine and essential activities, interpersonal psychotherapy (IPT), problem-solving therapy and non-directive counselling [18]. Pharmacotherapy and psychotherapy will increase the quality of life by increasing sleep quality, cognitive function, and emotional responsiveness [31]. Based on the scoring of the patient PHQ-9 questionnaire and physician assessment, the patient will be prescribed the appropriate, individualized treatment for depression. The primary care physician can prescribe medication or pharmacological treatment. For psychotherapy, the patient must be referred to a mental health provider, and the number of referrals tracked as an outcome of this project.

In conclusion, research validates that depression is a major public health issue and that screening the adult population for depression benefits the adult population. Initiating treatment for depression may increase the rate of an improved self-image and may reduce the risk of chronic disease. The PHQ-9 depression screening tool has revealed reliability and validity in numerous research studies. The USPSTF recommends that the PHQ-9 tool be used in all primary care settings [50]. The choice of initiating the PHQ-9 questionnaire at the primary care clinic for this project was supported by research obtained and discussed in this literature review.

Evidence-based practice questions

Depression remains under diagnosed and is treatable. Therefore, improved screening and treatment could reduce the burden of disease due to depression [57]. The clinical question guiding this project was: To what degree will the translation of Patel, et al.'s research utilizing the Patient Health Questionnaire-9 depression severity tool would impact the number of referrals to a mental health provider for depression among adult patients in a primary care clinic in central Arkansas?

Signs and symptoms of depression can affect a person's quality of life, ability to function well in society, and building interpersonal relationships [40]. Depression can also negatively affect economics due to functional impairment of patients and increased medical expenditure [51]. The project site primary care clinic may benefit from using the PHQ-9 depression scale. The adult population may benefit by assisting with treating signs and symptoms of depression highly prevalent among patients suffering from various chronic conditions. Also, can recover without much clinical assistance or primary care interventions [24]. The PHQ-9 represents a useful screening tool to detect early signs of depression in students at risk of developing depressive disorders. Moreover, the symptoms assessed by the PHQ-9 scale are equivalent across different age groups and are relevant as they compare male and female scores and results from groups of different ages. Initiating this screening scale will allow clinicians to develop preventive and treatment programs for depression for adult patients of the clinic [58].

Implementing the PHQ-9 depression screening tool at this local primary care clinic will assist the patient in receiving relief from depression and depression-related anxiety, two of the most disabling mental disorders among the top 25 leading causes of burden worldwide in 2019 [1]. The efforts to implement the PHQ-9 depression screening tool will bring awareness to primary care providers and assist in reducing the lack of community-based interventions, unequal access to evidence-based practices, and lack of resources to fund health services [22].

Change recommendation: Validation of the patient health questionnaire-9

The PHQ-9 depression screening tool is evidence-based on strong reliability and validity. The practice change recommendation to implement the PHQ-9 tool is appropriate and necessary in primary care settings. Treating depression improves physical, social, and mental functioning and reduces healthcare expenses [41].

This project's focus was to detect depression in the adult population by using a recommended universal tool. The primary care site's goal was to increase the recognition of depression to assist in providing the adult population with a better quality of life by detecting, treating, and referring to a mental health care provider. The PHQ-9 screening scale is widely used in community-based settings, the general population, and among people with physical diseases [11]. The PHQ-9 is a rapid, reliable, valid, and effective tool for detecting and monitoring depression severity. Excluded criteria for the PHQ-9 are patients with organic brain disease, unstable physically diseased patients with severe drug side effects, patients with serious suicidal attempts, and pregnant women [12]. The recommendation for practice change was based on the USPSTF, AAFP, and CMS recommendations suggesting that all primary care clinics initiate depression screening as part of routine preventative care in adult patients [4-6].

Theoretical framework

Jean Watson's human caring was the nursing theory

chosen to support this project. Jean Watson's theory coincides with this project as the theory discusses in-depth the importance of the nurse emotionally connecting with each patient. Nurses must connect with all patients, especially vulnerable populations served by the clinic, to ensure that all patients receive compassionate care. Some patients may have negative attitudes and beliefs toward persons with mental health issues. Although beliefs and attitudes vary, some patients and cultures may think of depression and other mental health conditions as personal weaknesses [26]. Because of this, they may experience shame regarding a mental health assessment or diagnosis and worry that they may be discriminated against due to their condition [26]. Therefore, it was imperative for the clinic to practice culturally sensitive care using Watson's theory as foundational for this. Watson defines nursing care as helping people give meaning to their existence, suffering, and disharmony through a transpersonal caring relationship [59]. Watson's theory aims to move toward cooperation, harmony, and caring for each other in all relationships [60]. Watson believed that holistic health care is central to caring in nursing [60] and incorporating mental health with physical health care is a holistic practice. Watson's theory supports being authentically present and practicing love and kindness in all encounters [61]. This can yield a positive report with the patient and may allow them to feel more comfortable and share more of their personal thoughts and concerns and answer questions on the PHQ-9 accurately and honestly.

Kurt Lewin's change model aligned with implementing a practice change at the project site clinic. Each stage of Lewin's change model represented a stage in the change process. The gap at the primary care clinic is identified: the lack of a process and evidence-based tool to screen for depression. With the implementation of this project, the change occurred, and maintaining the change was a priority. Strong leadership, management, and organizational skills are imperative to complete a successful project. Lewin's process of change was initiated by the implementation of a step-by-step phase of unfreezing, moving, and freezing group standards [62]. Lewin's first step is to unfreeze the organization. Lewin indicated that to break complacency and self-righteousness, an emotional stir-up was sometimes necessary [62].

Lewin's change model consists of three steps: Unfreeze- the organization's space has been upset to create the necessary change. Moving is when the change has been identified and now moving in the direction of changing the atmosphere within the organization, and refreezing is to bring about the permanence of the new situation. Research revealed that Lewin believed that group decision-making should be a part of all three aspects of the new change, and the employees will be more committed to the change [63]. This concept was included in this project. The stakeholder and the medical staff played an integrated part in each process. The unfreeze phase was identified as the gap within the primary health care site. No recent or current depression screening tool was in use to detect depression. The moving phase consists of the provider and nursing staff being thoroughly informed of all expectations and goals related to the project. The clinical staff received a variety of educational training about the information on the PHQ-9 depression screening scale and agreed to use it on patients. The refreezing phase consists of maintaining the success of the continuation of the PHQ-9 depression screening scale over the next three years. The results of the patient's PHQ-9 became a part of the patient's permanent record and can only be assessed in the secured patient record.

Nursing theory

Jean Watson's human caring theory developed curative factors in 1979 and was revised in 1985 and 1988. Watson revealed that the word "carnitas'' is a Greek word meaning to cherish and to give special loving attention. The curative factors are ten elements that attempt to bring light and honour to how nurses care and serve others from a clinical perspective. The ten elements are 1) Practice loving-kindness; 2) Be authentically present of self and one being cared for; 3) Cultivation of one's spiritual practices; 4) Developing and sustaining a trusting, authentic caring relationship; 5) Being present to and supportive of; 6) Creative use of self and ways of knowing as part of the caring process; 7) Engaging in genuine teaching-learning experiences; 8) Creating a healing environment at all levels; 9) Assisting with basic needs, and 10) Opening and attending to spiritual mysteries and dimensions of one's life-death [64].

Taking the time out to discuss a patient's well-being can be beneficial. Taking time to show a patient special attention may have saved a life. We never know what a patient's lifestyle with family and living conditions could be. Nurses do more than check boxes, even during their busiest days, and constantly use nursing theories to guide care. Nurses synthesize a broad range of knowledge, research, and critical thinking to address the needs of patients [65].

When and only when a nurse dissects their nursing mission and philosophy can they truly assist with purpose and assist in the discipline of nursing to advance as a professional practice [65]. To help with the needs of patients, one must be true to self and realize that nurses meet people from all diverse levels of society. Nurses may not always agree with the decisions and choices made by patients, but they need to remain professional and caring. This is their mission and practice. Nurses that extend kindness, patience, and respect to all patients reveal the true essence of nursing. Taylor and Watson [60] stress the importance of first taking care of self to care for the needs of others.

Connecting to a group of patients with depressive symptoms will allow each patient to be transparent, comfortable, and at ease discussing the rationale for being depressed. Initiating the PHQ-9 depression screening tool will detect and confirm depression, allowing the primary care physician to further discuss the concerns and treat or refer them to a mental health provider. The plan was for the patient to have a positive mental health outcome and improve daily life activities. Caring for patients promotes growth; a caring environment accepts a person as they are and looks to what they may become [66].

Synthesis of nursing theory

Kandula [67] described Watson as an American theorist who refers to a human being as valued, respected, cared for, nurtured, understood, and assisted. Barnes [68] agrees and connects the discussion of Watson's human caring theory of seeing patients as who they are and how nurses must demonstrate respect, care, nurture, assist and understand from a holistic perspective. Wei and Watson indicated that the human caring theory enhances the nurse-patient relationship.

Watson's human caring theory coincides with patients visiting primary care settings with symptoms of depression by nursing staff demonstrating caring and sensitivity toward the needs of the patients. Patients are more apt to discuss individual experiences and show more transparency when feeling valued and safe. Jackson and Machen [50] revealed in a study that only 1% of patients report having symptoms of depression. Previous research indicates that Watson's human caring theory can be used as an underlying guide to building faith and trust with each other as teammates as well as performing loving-kindness to patients, each other, and self [69].

Delmas, et al. reveals the impact of Watson's human caring theory in the discussion of uncaring practices that contribute to patients feeling humiliated, frightened, powerless, and vulnerable. Uncaring practices can, for nurses themselves, lead to burn out and depression. The intervention was implemented in two pilot studies, first, in Quebec with a qualitative population of rehabilitation nurses, then with a mixed method with hemodialysis nurses. The two populations rested on the fact that a nurse's presence and interaction play a positive impact on a patient's quality of care. Both studies showed that educational interventions played a high acceptability, feasibility level, and benefits of the nursing practice.

Another study revealed the impact of nursing staff providing feedback to reduce incivility and increase caring consistent with Watson's theory of human caring, which validates the need for a professional change in hospital culture [70]. A descriptive, qualitative design was used to respond to two qualitative items on a survey: 1) Describe your personal experience of disrespect or not being valued in your work area. 2) What is needed to create a safe work environment? This study revealed that incivility is common in the work environment of nurses. The participants offered recommendations consistent with Watson's theory-guided caring practice model, which can reduce episodes of incivility and bullying so staff can benefit from improved mental health, job satisfaction, fulfilment of personal needs, and be role models for new nurses entering the field. Watson's human caring theory provided a structured framework guiding staff to work through uncivil behaviours with love, kindness, and compassion for self and others [70].

Evidence-based change model

Kurt Lewin [62] revealed that a successful change consists of three aspects: unfreezing the present level, moving to the new level, and freezing group life on the new level. The unfreezing process detects an organization's gap that will benefit the organization if successfully conquered. This is a difficult initial step. The leader or organizer would need to execute a plan, present the plan, and encourage buy-in on the plan. Some colleagues will not take much persuasion to use the new policies and procedures; however, there will always be a few who are adamant about not going along with the new plan. Unfreezing allows the fluidity necessary for change [63]. The unfreezing level is the phase to break open the shell of complacency and self-righteousness that is sometimes necessary to bring about deliberate emotional stir-up [62]. The moving process of Lewin's theory occurs when pressing for change. Last but certainly not least: The Freezing process. The freezing process seeks to stabilize behaviour at a new quasi-stationary equilibrium, requiring new behaviour to be congruent with and reinforced by the remainder of the behaviour, personality, and environment of those concerned to prevent regression [63].

Lewin's theory came to be based on his many bodies of works with other theorists and his wanting to develop a better understanding of group dynamics and human behaviours. Lewin, over the years, worked at many universities and believed that two forces affect human behaviour and cause behaviour change. Lewin's undying dedication to understanding how change occurs led him to propose a model for implementing change.

Using Lewin's three-step process coincides perfectly with the PHQ-9 project. The unfreezing action was the gap identified in care. The primary care clinic does not have a current process in place to detect depression in the clinic's adult population. Most are recovering from COVID-19, the lockdown, and lifestyle shake-up and need some intervention to get back on track. In other words, the project site was getting used to the new normal. The moving phase consists of actively moving in the right direction of changing attitudes by providing

evidence-based research, in-service, and relevant data to assist the nursing staff with the buy-in. The freezing phase was maintaining what was implemented by routine systematic audits to ensure ongoing monitoring [63].

Synthesis of change model

Kurt Lewin's change model has been used to implement several organizational management plans. Simmons [71] implemented Lewin's change theory in a mental health unit on patients with burns. The provider only used the PHQ-9 scale only when the provider deemed it necessary. Lewin's change theory was implemented to be used at all initial and follow-up appointments at the clinic. Throughout the process, feedback from the staff was encouraged.

Rosenbaum, et al. [72] implemented Lewin's three-step process. The studies revealed relevant changes in 13 different organizational management teams. Lewin's change theory had a high linkage with the success of the management team's change process and will continue to be used on additional projects. Using Lewin's three-step process, many organizations have seen positive change and growth [72].

Grabau [73] implemented Lewin's change model in a DNP project with college students that are at substantial risk for depression and using the PHQ-9 screening scale. The organization managed and sustained change by using Lewin's three-step process to guide improvement in stakeholders, engaging behaviours, and fostering accepted and lasting change. Lewin's change theory has been adopted in many organizations and has successfully maintained the change through continuous monitoring, early detection, and prevention of potential barriers and obstacles [63].

Lewin's [62] change theory of unfreezing, moving, and refreezing perfectly coincides with the project. The first phase was to unfreeze: The primary care clinic currently did not have a proactive intervention to detect depression in the adult population. No depression screening tool was in use. The second phase was the moving phase: The Patient Health Questionnaire-9 (PHQ-9) depression screening scale was introduced to and approved by the stakeholder, administrators, and clinical staff. Information, in-services, and presentations were presented regarding the PHQ-9 depression screening scale. Meetings were scheduled to discuss the policy and procedures for implementing the PHQ-9 screening. The third and final phase was the freezing phase, which was to maintain the policy and procedures implemented in the moving phase. Lewin [62] links motivation to action to keep an effective project outcome.

Integration of the Christian Worldview

Religiosity is a multidimensional construct that refers to variability in people's commitment to some transcendental entity and related practice [74]. There is some evidence to suggest that involvement in religious life may provide an important social setting for adherents to develop coping strategies and worldviews, which lend themselves to better mental wellbeing, while increased religious doubt was, in turn, found to be related to greater depressive symptoms [74]. Spirituality and religiosity are positive predictors of subjective well-being due to feelings of being involved with a higher power tend to give a more positive appraisal of their lives [75].

Research also revealed that religious doubt could mediate direct relationships, especially in African American communities [76]. Religious doubt is an unsettling feeling like cognitive dissonance, where the religious person wrestles with two competing worldviews [76]. Religious doubt is also described as one's struggle with their faith, religious teachings, and religious beliefs and may impact the link of depressive symptoms. Research revealed that racial minority communities are more religious than their Caucasian counterparts. Religious beliefs and connection with a higher power provide support and comfort to cope with oppression and lack of resources [76]. Results of the survey suggest that religious doubt can serve as a mediator in the direct relationship, especially in the African American communities, and will provide clinicians with a better understanding of predictors of depressive symptoms that may inform future clinical assessment and treatment [76]. It is important to recognize that each human has the dignity of being made in God's image. It is essential to recognize that people are part of a community that shares a connection and depends on one another to assist when needed, not only because of the relationship as neighbours but to show self-respect, worth, and dignity [77].

Summary

This chapter described the process of searching, evaluating, and choosing appropriate scholarly research to translate existing research into practice at the project site to improve patient care. The literature reviewed was on the global burden of depression, on the health of patients as well as the importance of appropriate screening and treatment of depression. Various evidence-based screening tools for depression were analyzed and described, and the PHQ-9 was chosen as the most appropriate tool for use at the primary care project site. The validity and reliability of the PHQ-9 were supported by evidence and the most current and appropriate treatments for depression. Evidence-based questions that guided this project were presented. The nursing theory providing the framework for this project was Jean Watson's theory on human caring. Watson's theory and the ten curative factors or ten elements that attempt to bring light and honour applying how nurses

care and serve others from a clinical perspective were discussed with specific application to this project. The change model guiding the change process for this project was Lewin's change model. A discussion of this change model and the application of the three components of this model were applied to the project. Finally, the perspective of this project and the care of the patients and staff in this project were discussed from the lens of a Christian worldview.

Chapter 3 revealed the actual steps to implement the project plan. This chapter will discuss the project design and methodology. The purpose, the project plan, feasibility, the setting and population, data collection, data integrity, and storage are discussed. In addition, ethical considerations that are essential for compliance and the importance of following the guidelines of the Health Insurance Portability and Accountability Act (HIPAA) and the Belmont Report for this quality improvement project are discussed.

Chapter 3: Project Design and Methodology

More than 350 million people have depression worldwide [24]. Depression is a debilitating psychiatric disorder with mood disorders that not only has psychological effects on humans but can also trigger somatic symptoms that have a negative impact on daily work and life, including basic activities of daily living [24]. Using the PHQ-9 depression screening tool will improve the number of adult patients screened for and treated for depression at a primary care clinic in central Arkansas. Several organizations, such as the USPSTF, AAFP, and the CMS, endorse annual screening for depression in adults, citing this as reasonable and necessary for preventing or early detection of illness or disability [4-6]. According to the NIMH, depressive disorders are common and treatable but must be diagnosed to treat them. Screening and early detection of depression and depressive disorders were essential in the primary care setting to provide treatment or referral to a mental health provider.

Research, evidence-based practices (EBP), and quality improvement are separate entities that coincided well and were used for this project. Research was used to generate new knowledge or to validate existing knowledge about best practices for depression screening and treatment. This evidence-based practice project translated the research or evidence and applied the information to clinical decision-making to improve patient care [78]. This quality improvement project focused on improving patient outcomes at the primary care clinic. This chapter reveals the steps to implement the project plan, design, and methodology. The purpose, the project plan, feasibility, the setting and population, data collection, data integrity, and storage are discussed. Ethical considerations that are essential for compliance will be discussed, as well as the importance of following the guidelines of the Health Insurance Portability and Accountability Act (HIPAA) and the Belmont Report for this quality improvement project.

Purpose

The purpose of this quality improvement project was to determine if the translation of Patel, et al.'s research utilizing the Patient Health Questionaire-9 (PHQ-9) depression severity tool would impact the number of referrals to a mental health provider for depression among adult patients. The project was piloted over eight weeks in a primary care clinic in central Arkansas. The primary care clinic caters to a low socioeconomic class of patients and is in the heart of the largest urban city in Arkansas. Many of the clinic patients are African American. Many of the clinic patients have multiple comorbidities and other physical diseases that can be associated with underlying depression. The CDC reports Arkansas, with a high prevalence of persons with multiple chronic conditions, is one of the worst states for depressive disorders and has the 14th highest suicide rate in the nation [13]. Depression is of the most diagnosed mental disorders worldwide that cause clinical morbidity with critical outcomes of increased mortality from chronic illness and suicidal behaviour [51]. An adequate evaluation of depression and the provision of solutions for managing the disorder was crucial for promoting public mental health in this Arkansas community.

The PHQ-9, the self-report depression screening questionnaire, was clinically effective and cost-effective [51]. Primary care is the appropriate place to screen for depression in adults. Approximately 50% of patients suffering from depression in primary care settings go unrecognized and undertreated, which can cause emotional suffering, reduced productivity, lost wages, impaired relationships, and increased comorbidity, and are linked to serious chronic disease [51].

The quality improvement project assisted a primary care clinic in complying with USPSTF, AAFP, and CMS recommendations for routine depression screening [4-6]. The project site implemented the PHQ-9 depression screening questionnaire for the adult population who presented to the clinic for an annual examination. Utilizing the PHQ-9 depression screening questionnaire improved the early detection and management of depression in the adult population at the primary care clinic and increased awareness of the medical staff and employees regarding depression. Prior to the implementation of the project, detailed information was provided to all staff on the impact of depression on health, signs of depression, implementation and scoring of the questionnaire, and treatments, including the referral process to mental health providers for those patients who screen positive for depression.

Project planning and procedures: This project was initiated due to the need for depression screening

to become a routine part of annual health care as recommended by the USPSTF, the AAFP, and the CMS [4-6] planning was initiated since the PHQ-9 depression screening questionnaire had not been used previously by the clinic staff. The primary care physician was familiar with the PHQ-9 but has not initiated use in his current practice. The PHQ-9 screening questionnaire and scoring scale questions were discussed extensively, and examples were provided. Staff who participated in the tool scoring were provided additional information specific to scoring the tool, and examples were provided.

Inter professional collaboration: Historically inter professional collaboration was not a part of the traditional healthcare system as each discipline in healthcare attended school for their specific specialties, such as nursing, medicine, or pharmacy. In 1972, the Institute of Medicine began conversations about the benefits of team-based care and inter professional collaboration in improving patient outcomes and quality of care by having all disciples work together with one common goal focusing on the patient [79]. The value of inter professional collaboration must come from the top, especially in a small organization such as a primary care clinic. To have a successful business that focuses on person- centered care, the main stakeholder must see the value and invest in the human capital or employees of the organization. The main expense in most companies is the employees, and the most successful companies manage human capital most effectively by investing in their employees, encouraging workers to invest in themselves, and providing learning environments [80]. Learning how to maintain a favourable relationship, motivate, be dedicated to the employees, and increase organizational performance are critical for an organization [80].

To plan, implement, evaluate, and sustain a practice improvement that benefits the patients, all employees within the primary care clinic need to work together as a team. Each employee and discipline are essential in the change process. The rationale for the change was discussed with the physician, as the main stakeholder of the practice, and his support was obtained. From here, all employees were involved in all parts of the project planning and implementation regarding the value of the overall comprehensive care to patients served at this primary care clinic. All clinical staff participated in the quality improvement project, sharing information and brainstorming ideas for the project. This inter professional collaboration involved a holistic view of the patient's process and care.

The primary care provider was also one of the stakeholders of this primary care private practice. The other stakeholders of the primary care clinic consisted of the additional staff, including a receptionist, a business office manager, a billing manager, one RN, and two medical assistants. Since the PHQ-9 is a patient self-administered questionnaire, any staff member can provide this to the patient to complete before seeing the physician. The role of the RN was to interview, discuss and summarize the PHQ-9 results from the patient before the primary care provider assessed and discussed the results with the patient.

The project manager's responsibilities were to ensure the organization had appropriate supplies and tools to maintain a successful project outcome. The project was designed to significantly benefit an organization [81]. The project manager measured the project outcomes. Previous project managers have shown genuine care and concern for all parties involved by being more of a listener and not a dictator. Characteristics of a project manager are self-monitoring, risk-takers, and authoritarianism [80].

Project management plan

The project was initiated after receiving approval from Grand Canyon University's Institutional Review Board. The quality improvement plan was to continue to provide educational sessions related to the signs and symptoms, treatment interventions, and referrals related to depression, anxiety, and suicide. A PowerPoint presentation and information on signs and symptoms of depression, the PHQ-9 tool, scoring of the PHQ-9 tool, and treatments that may occur based on the PHQ-9 results and physician assessment were reviewed with all stakeholders. The goal was to increase all clinic staff's knowledge and awareness before initiating communication with patients. An example form of the PHQ-9 depression screening tool sample was provided to medical staff. The nurse reviewed the document and explained the document results in detail. The clinic nurse explained the rationale for initiating the PHQ-9 and informed the patient of its confidentiality. The information was part of confidential electronic medical records and under double lock and key to prevent. The adult patient completed the PHQ-9 form. The nurse called the patient into a secluded setting to discuss the PHQ-9 information results. During that time, the nurse and patient relationship should transform into a healthy dialogue regarding the shared information from the PHQ-9 depression screening scale. The nurse spoke with the primary care physician regarding the patients who completed the PHQ-9 form results. At that point, the physician discussed the results with the patient and provided counselling, mental health, psychotherapy, or pharmacotherapy options.

The project manager was qualified to conduct a successful quality improvement project. The project manager holds a master's degree in nursing education and has served as a charge nurse, medical-surgical nurse, and director of nurses at a local 139-bed skilled nursing facility. In addition, the project manager has experience with testing cognitive and mental capacity, using a Mini-Mental State Exam (MMSE), and assessing for depression utilizing the Minimum Data Set (MDS).

Feasibility: For this project to be successful, all parties must have buy-in on the implementation of the project. An adequate and educated staff is necessary for successful implementation. The project manager presented all the training for the project. Before initiating the project, all languages, staff verbiage, and attitudes must be unified. There was a weekly meeting as needed to discuss the progression of the project, any concerns, or missing data.

The timeline and budget remained close to the expected time and budget. The budget for this project was low. Supplies included clipboards, highlighters, a pen, a flash drive, and a computer already present at the project site. The clinic has a single medical doctor as the provider and is staffed with one RN, two medical assistants, a front desk receptionist, a business manager, and a billing manager. The paper documentation of the PHQ-9 results was safely secured under double lock and key in the business office manager's office. Screening with collaborative care for depression in the clinical setting appeared to be significantly less expensive than most clinical preventive interventions, such as HIV patients in high-risk patients [57]. See Appendix F for a timeline and budget.

Setting and sample population

The project was implemented in a primary care clinic in an urban intercity area in central Arkansas. The clinic provides primary care for 120 to 150 adult patients weekly. The clinic did not have an intervention in place to screen for depression. The main stakeholder is the clinic's physician, owner, and staff. They were familiar with screening tools and were eager to implement the PHQ-9 depression screening scale into their daily routine. It was essential for the clinic staff to feel a sense of involvement and be personally engaged in the change for the implementation and sustainment of the PHQ-9 depression screening.

Setting: The project site was a private family practice in an urban intercity with many foot traffic and transient citizens. This family practice clinic was founded in 2009 by the owner and physician. Appointments and walk-ins are all accepted. The waiting area of the project site was full of colourful African American art by local artists. The site consists of a front desk receptionist, a business manager, a billing manager, one RN, and two medical assistants who comprise the clinic staff. The intake area was an opening inside the medical area, away from the waiting room. The intake nurse initiated the visit by adding and updating the patient's information to the electronic medical records. The room consisted of two chairs, a scale, manual and electronic blood pressure, a thermometer, and information pamphlets on diverse types of smoking cessation, heart disease, and diabetes. Eight private patient rooms consisted of medical supplies, a sink, one chair, an examining table, a computer, and a monitor.

Population and sample: The project site is in an urban intercity area of central Arkansas with a transient population and many walk-in patients. Most patients visiting the clinical site were from the immediate surrounding area. The clinic provides primary care for 120 to 150 adult patients weekly. The clinic provides care to about 3000 patients annually. The ethnic demographics of patients who visit the clinic are 57.1% African American, 40% Caucasian, and 2.9% other. The gender distribution is approximately 50% male and 50% female patients. The median patient age is 37.5, 38.8 for women and 36.4 for men. The comparative data were from patients seen at the site before the implementation of the PHQ-9 and were retrieved from the electronic medical record (EMR) of patients referred to a mental health provider for diagnoses of depression. This data was considered the current practice or comparative data. The implementation data for the project was drawn from those patients who had the PHQ-9 initiated and completed and with a score that indicated a potential need for a follow-up for a diagnosis of depression. The inclusion criteria were all patients that presented for an annual examination, had not had a PHQ-9 screening within the past year, could read and speak English, and did not have a diagnosis of depression. Exclusion criteria were patients 17 and younger, who could not read or speak English, had a diagnosis of depression, and had been screened with PHQ-9 at another facility and the results are on the project site's file. The patient's data were identified and collected for analysis by using the inclusion and exclusion criteria. Only data was used from patients seen in the clinic for a visit prior to implementation, and those after the PHQ-9 were used as an improved assessment for depression.

The population consisted of adults 18 and older who met inclusion criteria during the project's duration. The sample was a group of individuals chosen for the project to measure the impact of the new practice using the PHQ-9. The G power analysis used an effect size of .05, a power of 0.80, and a significance level of 0.05. The suggested minimum sample size was 32.

Initiating the PHQ-9 depression scale will detect early depression in the adult population whose score is five or greater. The primary care physician (PCP) initiated a treatment plan at the site and scheduled a follow-up or referral for the patient to a mental health provider. Either way, a treatment plan was documented and initiated to assist the patient with their symptoms of depression. Patients were scheduled for a follow-up visit as deemed necessary by the primary care physician/stakeholder.

Data collection procedures

The Grand Canyon University's institutional review board (IRB) granted permission to implement the project (See Appendix E). The project site granted permission and a letter to implement the project. Upon receiving

the letter of permission to implement the project, the project manager set up a meeting with the primary care physician, nurses, and medical staff to discuss the project and detailed information on utilizing the PHQ-9 depression screening tool. The purpose of the project was to screen for depression in patients using the PHQ-9 and increase referrals to a mental health provider for further evaluation. The detailed information included the purpose of the project, who would be designated to initiate it, where the screening would occur, how to utilize the PHQ-9 tool, and the interpretation of each scoring category and the results. The project manager met with the medical staff weekly to educate them and answer questions on the PHQ-9 tool. The project manager also shared Kurt Lewin's change theory and Jean Watson's human caring theory to assist the medical staff with seeing.

The minimum sample size was estimated using a power analysis. A G*Power analysis determined a minimum sample for Pearson's chi-square test. Using a power of 0.8, a significance level of 0.05, and an effect size of 0.5, a minimum sample of 32 patients was recommended.

Patient demographic information was collected from the EMR and consisted of the age, ethnicity, gender, and the number of mental health referrals of each patient in both groups. This data was collected and tabulated on a Microsoft Excel data collection sheet for use with statistical SPSS software. This comparative group consisted of 40 patients. Feelings of hopelessness, despair, trouble sleeping, and loss of interest in activities are symptoms of depression screened using the PHQ-9 [44]. There was no tool at the primary care clinic to rate depression effectively. Patients identified by the primary care physician to have major depression were referred to a mental health provider strictly based on personal decision and patient's approval.

Upon implementing the PHQ-9 depression screening scale, each patient who checked in for an annual check-up was provided with the PHQ-9 depression screening scale to complete with check-in forms. The licensed nurse discussed each question and answered that provided by the patient. Upon completion of the nurse's interaction with the patient, the nurse discussed the information and score of the PHQ-9 scale with the primary care provider (PCP) prior to PCP entering the room to interview and examines the patient. The PCP recommended treatment or a mental health referral based on the total number received from the PHQ-9 depression screening scale. A score of 10 or greater was referred to a mental health provider.

The data was reported in aggregate and de-identified. The data was collected and transformed into numerical values. A data dictionary or code book was created and contained the information on each variable and how it was coded. For example, nominal-level data were collected on age, gender, and referrals. Gender was collected as 1 = male and 2 = female. Data were checked for any missing data or errors. All nominal data were analyzed using frequencies and percentages. All outcome data on referrals was analyzed with a Pearson chi-square test with statistical significance indicated with a p-level less than 0.05.

Instrumentation and data sources: The PHQ-9 is a 9-item Likert scale used to screen for depression. The PHQ-9 form is a self-administered paper form presented to each patient upon check-in (Appendix G). Patients indicated the frequency of depression symptoms within the last two weeks on a 4-point Likert scale [2]. The scores range from zero = never to three = every day for a total score ranging from zero to 27 points. The higher the score, the higher the likelihood of major depression. The scores 0-4 = minimal depression, 5-9 = mild depression, 10-14 = moderate depression, 15-20 = severe depression, and 21-27 = major depression. Any score of five or greater will be considered positive for a treatment plan for this project. A score of 10 or greater predicts a depressive disorder at a sensitivity of 88% and specificity of 88%. Molebatsi, et al. revealed in a study that the PHQ-9 depression screening scale demonstrates excellent internal reliability with a Cronbach's alpha of 0.89.

The PHQ-9 screening tool was utilized in a local primary care clinic by clinic staff for patients who met the criteria for the project. The data was collected and stored on a private lab top in a locked designed area. All data were de-identified and stored on a password-protected laptop. The nurse performed all PHQ-9 assessments. The data collected from each patient completing the PHQ-9 from the original paper form was scanned and embedded into each patient's electronic medical record (EMR). See Appendix H for details about using the PHQ-9 depression screening scale. No additional screening tools were used.

The mental health referrals were accessed using the project site's EMR using diagnostic codes entered for referrals. The clinic's EMR provided the data source for this project's outcome. Electronic health records and medical records have been shown through research to be both valid and reliable sources of data. Chan, et al. [82] completed a comprehensive literature review examining the validity and reliability of data obtained from the EMR. Findings from several studies reviewed highlighted both the validity and reliability of data obtained from EMRs [83]. Mahmoudi, et al. [83] found no statistically significant difference between EMR data and those collected using administrative data. Most of the studies examined lacked the inclusion of socio-demographic factors and failed to calibrate or conduct rigorous diagnostic testing. Further studies did not discuss the clinical impact of the EHR. In a validation study about the documentation of blood transfusions in

the EMR, van Hoeven, et al. [84] found the data in the EMR to be equal to that of simultaneously documented bedside paper documentation.

Variables: The independent variable was the PHQ-9 depression screening questionnaire which was compared to patients receiving current practice. The PHQ-9 is a free screening tool that assesses the presence and severity of depressive symptoms [4]. The PHQ-9 has a high screening capacity and is sensitive to changes in monitoring the patient's treatment response [44]. The impact of the PHQ-9 was measured in referrals to behavioural health. The dependent variable was the number of referrals to mental health specialists. The referrals were identified prior to implementation in the EHR for the comparative group using EHR documentation. The referrals were also identified in the EHR as above but were among adult patients who were assessed using the PHQ-9. After implementation, all annual wellness check-up patients and new patient appointments received the PHQ-9 form to complete. It was beneficial for each patient to be transparent when completing the PHQ-9 form.

The patients were screened with the PHQ-9 depression screening scale during the eight-week project. The PHQ-9 data was collected from the patient on a paper PHQ-9 scoring sheet. The information from the paper PHQ-9 form was scanned and embedded into the electronic medical records as a part of the file.

Data integrity and storage: Data was downloaded from the electronic record and imported into a Microsoft Excel file. All data was received from the site without personal identifiers. The delimited data was entered into SPSS version 28 for statistical analysis. Data were transformed to numerical values described in the data management, collection, and analysis sections. All numerical data were stored on a password-protected computer locked in an office at the project site. The data will be stored per the office's data management policies for three years or until results are disseminated and shared with stakeholders. Any identifiable data will be destroyed per the data management policy.

Data management: The data collected and secured for this project consisted of the demographic data and referral rate outcomes from the EMRs of the patients in the comparative and implementation group. After IRB approval, the initial information on the PHQ-9 was provided to patients during the check-in procedure. The patient's PHQ-9 scores were scanned into the patient's EMR and used by practitioners to make clinical decisions if needed. The paper copies remained a part of the quality improvement project for eight weeks and a permanent part of each participant's electronic health records. The actual PHQ-9 completed form was embedded into the patient's EMR.

The business office manager organized the raw data into a Microsoft Excel datasheet. Data was not downloaded in the line of observation by other patients and staff. All information was collected at the project site and placed in a Microsoft Excel spreadsheet. The paper form was scanned and embedded into the patient's EMR. Demographic information collected from the EMR was the age, ethnicity, and gender of each participant. Patient names were not identified. Each participant was assigned a three-digit number to maintain confidentiality and privacy. Data on referrals was collected from the EHR using applicable ICD-10 diagnostic codes. All patient information was de-identified using numbers instead of names and stored on a password-protected laptop that was kept under double lock and key in the business administrator's office. After completion of the quality improvement project, the information was archived for three years per clinic policy and destroyed per clinic policy. The PHQ-9 information was scanned and embedded into each patient's EMR. All raw data collected by the office manager was provided to the project investigator. This was then placed in a Microsoft Excel spreadsheet, transferred, and analyzed into IBM's Statistical Package for Social Sciences (SPSS) version 28 software. Descriptive statistics using counts and percentages involving age and gender were used to describe the sample. Pearson's chi-square was a valid statistic enabling the results to be used to answer the clinical question when measured at a nominal level. It is frequently used in small-sample quantitative research. Research shows that this statistical test was appropriate for variables measured based on categorical and non-categorical data [85].

Potential bias and mitigation

One potential area of bias was that of sampling. This project utilized a convenience sample of those patients presenting for an annual examination or wellness examination. Patients with a payor source, such as private insurance, Medicare, or Medicaid, may be more likely to participate in annual examinations since these are financially covered [86]. Patients of lower socio-economic status who are private pay may not be represented in the sample. Gender may be another source of bias, as women are more likely than men to seek care and value preventative medical care [87]. Men are less likely to report depressive symptoms when they do seek care [87]. Implicitly, healthcare providers receive young adults as an age group that has difficulty interpreting and evaluating symptoms and are reluctant to wait and take responsibility for managing symptoms by themselves [88]. Ethnicity may be another bias. There is a much greater percentage of African Americans than other ethnicities in the United States who are uninsured, and more African American adults report skipping needed care because of costs [89]. In addition, although beliefs and attitudes vary among African Americans, many African American adults - especially older adults - think of depression and other mental health conditions because of personal weakness and may not be as apt to report this [26].

Convenience sampling may add to these sampling biases. These could be reduced or mitigated with random sampling, but this is not possible since this is a quality improvement project, and this care was provided to all who meet inclusion criteria. Non-judgmental care by the healthcare staff could make the environment more comfortable for patients to be transparent with their responses. By allowing the patients to self-administer the questionnaire, they also may be more apt to be truthful with their answers.

Ethical considerations

The key ethical issues were confidentiality and privacy of the patient's medical records and staff reviewing a patient's PHQ-9 results and commenting on or sharing the patient's data with someone else. All clinical staff was in-serviced on the meaning/definition of depression, how the PHQ-9 screening tool detects depression, and interventions that the primary care provider can initiate. All patient information was de-identified using numbers instead of names and stored on a password-protected laptop kept under double lock and key in the business administrator's office. The project manager completed certificate training for Health Insurance Portability and Accountability Act (HIPAA) and Collaborative Institutional Training Initiative (CITI).

The Belmont Report guided this project using basic ethical research principles involving human participants [90]. Ethical principles of human subjects weigh heavily on respect for persons by respecting autonomy or those with diminished autonomy; beneficence- to do no harm, maximize benefits, and minimize potential harm; and justice- fair procedures and outcomes in the selection of research subjects [90]. The Belmont Report was discussed with medical staff to ensure the quality improvement team was transparent and shared information with colleagues. It provided the utmost respect and privacy for each participant. Each patient was treated with respect and assured by the medical staff that sharing their personal information was optional, all information shared was confidential, and mental health referrals were optional.

Summary

The quantitative methodology for this quality improvement project was discussed in this chapter. The purpose of this quality improvement project was to determine if the translation of Patel, et al.'s research utilizing the PHQ-9 screening tool would impact the identification of depressive symptoms and subsequent referral to mental health among adult patients at this project site clinic. Variables for the project were identified. The project plan was discussed in detail with the project setting and sample population to be included in this project. All data collection procedures were discussed, including data management, integrity, and storage. Potential biases and ways to mitigate these were discussed as ethical considerations for this project.

The next chapter, Chapter 4, explores the data analysis, describes the sample, and reports the results. Chapter 4 identifies how the project was conducted to answer the clinical questions. Data presented in Chapter 4 will validate the need to implement the PHQ-9 depression screening scale in a primary care setting to increase awareness of mental illness and increase the number of mental health referrals.

Chapter 4: Data Analysis and Results

The purpose of this quality improvement project was to determine if the translation of Patel, et al.'s research utilizing the Patient Health Questionaire-9 (PHQ-9) depression severity tool would impact the number of referrals to a mental health provider for depression among adult patients. The project was piloted over eight weeks in a primary care clinic in rural central Arkansas. The gap in practice at the Arkansas clinic was the absence of a valid and reliable assessment for depression screening. This assessment was a necessary practice improvement to ensure patients were identified and referred for symptoms. Comparative data were collected for eight weeks before implementing the PHQ-9 depression screening tool to assess its effectiveness.

The clinical question that guided this quality improvement project was as follows: To what degree will the translation of Patel, et al.'s research utilizing the Patient Health Questionnaire-9 screening tool impact the number of referrals to a mental health provider for depression among adult patients in central Arkansas? To answer the clinical question, a quasi-experimental approach with data collection was implemented. There were a total of 40 participants in the comparative data collection and 33 in the implementation data collection.

The remainder of the chapter provides the analysis procedures for the descriptive and comparative results. The descriptive data was used to describe the sample and population of the Arkansas clinic. The results of the comparative analysis, including statistical significance, were presented to answer the clinical questions. The chapter summary and introduction to Chapter 5 follow the results of the data analysis.

The sample demographic and outcome data were obtained from 73 patients. Forty patients were in the comparative group, and 33 were in the implementation group. The independent variable or quality improvement was implementing the PHQ-9 screening tool for providers to use with clinic patients. There was no current tool for this purpose. The dependent variable was referrals to a mental health provider. The number of referrals was collected before and after the implementation of the PHQ-9 from the electronic health record. The PHQ-9 was added to the electronic medical records of patients when used by the providers.

Data analysis procedures

The data collected for this quality improvement project were divided into two individual sets of data. The data was collected and organized in a Microsoft spreadsheet. Demographic data were collected to describe the sample data. The age, race, and gender were summarized using counts and percentages. The descriptive data was displayed using tables. Using a sample of patients from the clinic's electronic medical record (EMR) database, the frequencies of patients with referrals to a mental health provider were collected before the implementation of the quality improvement involving the PHQ-9. These frequencies were compared to those with subsequent referrals to mental health after the PHQ-9 was implemented. These two sets of data were identified as comparison and implementation data. These groups established the independent variable involving the PHQ9 and current practice. The dependent variable was the number of referrals for further consultation from the comparative and implementation data sets. Patients referred for depression symptoms were counted using numerical values of 1 = referred and 0 = not referred. The referrals were a nominal level dependent variable. Pearson's chi-square was the appropriate statistical test for comparing the two sets of comparison and implementation data for differences in counts or frequencies. A significance level of $p < 0.05$ was used to determine the significance of the referrals among the comparison and implementation data. Data and statistical analysis provide the tools for performing quantitative analyses for quality improvement projects and further determination of clinical significance [91]. Statistical significance was indicated by the probability value or p-value associated with Pearson's chi-square. If the p-value is < 0.05, the results are statistically significant [92]. An increase in the referral of patients with depression determined clinical significance.

Descriptive data of sample population

The descriptive variables of age, race, and gender were reported for the sample (N = 73) in Table 1. As noted in Table 1, the rates or frequencies for age, gender, and race were reported in counts and percentages for each variable. Thirty percent (n = 12) of the patients were between 18-40 years in the comparison group and 36% (n = 12) in the implementation group. Thirty-three percent (n = 13) of patients were 41-60 in the comparison group and 52% in the implementation (n = 17). Thirty-five percent (n = 14) of patients were 61-80 in the comparison group and 12% in the implementation group (n = 4). Less than 2% of patients were older than 81 (see Table 1).

Fifty-three percent (n = 21) of the comparative group were female, with 85% (n = 28) female in the implementation group. Forty-seven (n = 19) of the comparative group were male, with 15% (n = 5) male in the implementation group. Most of the patients (n = 36) in the comparative group and implementation groups were African American, with 90% in the comparative (n = 36) and 70% (n = 23) in the implementation group.

Table 1: Sociodemographic Characteristics of Comparison Patients (N = 73).

Baseline characteristic	Comparative		Implementation	
	N	%	*n*	%
Age				
18-40	12	30%	12	36%
41-60	13	33%	17	52%
61-80	14	35%	4	12%
>81	1	2%	0	0%
Gender				
Female	21	53%	28	85%
Male	19	47%	5	15%
Race				
Black or African American	36	90%	23	70%
Caucasian/White	2	5%	7	21%
Other	2	5%	3	9%

Table 2: Chi-square test of referrals by group.

Measure	Comparison (*N* =40)		Implementation (*N* =33)			
	N	%	*N*	%	X^2	*p*
Referrals	4	10%	9	27%	3.69	0.055

Note: $^{***}p < 0.05$. *N* =,X^2 -Pearson chi-square test

There were 5% (n = 2) Caucasian in the comparative group while 21% (n = 7) in the implementation group. There were 5% (n = 2) for Other in the comparative group and 9% (n = 3) for Other in the implementation group.

Results

The values for the comparison and implementation data on the rates or frequencies for referrals for depression were set up for Pearson chi-square tests. The rates or frequencies of referrals were reported for each group. Data from a sample of N = 73 patients were analyzed for the impact of the QI project on the frequency of referral to mental health. The comparison group data was from (n = 40) patients seen before the implementation of the QI project. The implementation group (n = 33) was patients seen in the clinic after implementing the QI project with the PHQ-9. These frequencies were analyzed for a statistically significant difference.

A Pearson's chi-square test was performed on the difference in the number of referrals according to the comparison and implementation groups (see Table 2). A significance level of p less than 0.05 was used to determine the statistical significance of the chi-square test. If the p-level of the chi-square is less than 0.05, a statistically significant difference in the frequencies between the comparison and implementation groups would be found.

There was no statistically significant difference observed between the comparison (n = 4, 10%) and implementation referral rates after implementing the PHQ-9 (n = 9, 27%) [χ^2 (n = 73) = 3.69, p = 0.055] despite a strong trend in the desired direction. The trend was clinically significant, with five more (27%) referrals after implementing the PHQ9.

Summary

This quality improvement project increased the number of mental health referrals for those identified with depressive symptoms after implementing the PHQ-9 screening tool. While there was no statistically significant difference observed between the comparison (n = 4, 10%) and implementation referral rates after implementing the PHQ-9 (n = 9, 27%) [χ^2 (N = 73) = 3.69, p = 0.055], the project demonstrated clinical significance by implementing a reliable instrument, increasing identification of depressive symptoms that led to increased referrals for treatment. Clinical significance was shown with five more referrals after implementing the PHQ-9. This increased referrals from 10% to 27% after implementing the PHQ-9. Chapter 5 includes all the project dimensions together to analyze and summarize the project. This chapter discusses the conclusion and summary of the results, implications, and recommendations for future practice.

Chapter 5: Implications in Practice and Conclusions

Depression is a major determinant of quality of life and is associated with greater fatigue levels and reduced adherence to disease-modifying therapy [93]. The primary care clinic did not have a screening tool in place to detect and/or treat depression. This quality improvement project was to increase mental health awareness by implementing a depression screening tool, identifying depression, and referring patients with depression to a mental health provider.

Depression remains a major concern in all communities, especially the African American community. While encouraging mental health awareness is important, there are challenges in the African American community. It can be challenging to discuss the topic of mental health due to concerns about how they may be perceived by others. Many people choose to seek support from their faith community rather than seeking a medical diagnosis. According to recent research, 67% of those who identified as white answered "strongly agree" or "agree" compared to only 12.55 of those who identified as African American [26]. While the experience of being African American varies tremendously, there are shared cultural factors that play a role in assisting with defining mental health and supporting well-being, resiliency, and healing [26]. Implementing the PHQ-9 depression screening tool has significantly improved mental health awareness and mental health referrals, leading to participants moving in a positive direction with their quality of life.

Summary of the project

This quality improvement project assessed the symptoms of depression by implementing the PHQ-9 depression tool. The quantitative quasi-experimental clinical question that guided this quality improvement project was to what degree did the translation of Patel, et al.'s research utilizing the Patient Health Questionnaire-9 screening tool impact the rate of referrals to a mental health provider for depression among adult patients in a primary care clinic in central Arkansas? This project allowed the primary investigator and clinical staff to appraise the potential to increase detection and referrals for depression in the adult population.

Before the implementation of the PHQ-9 depression screening scale, there was no depression screening being utilized. Many patients were being seen only for their chief complaint for the day. The primary care provider/stakeholder has been a well-known and respected practicing physician in the community for over 25 years. Utilizing the PHQ-9 depression screening scale was beneficial to the mental health of this clinic's population. The data indicated that after the medical staff reviewed and discussed the PHQ-9 findings

with the patient, over half of the patients revealed depression symptoms. Many of the patients were able to answer the PHQ-9 depression scale's questions rapidly and appropriately; however, there were some patients that needed clarification of what was being asked. Extra time with patients was allotted to clarify some if not all, questions being asked. Allowing the patient time to be honest and transparent revealed a lot of personal problems that a primary care provider would not necessarily have known about a patient's life. Depending on the patient's depression severity, either a mental health regimen was started with the primary care provider/stakeholder, or the patient was referred to a mental health provider.

The summary of findings and conclusions, the theoretical and nursing practice implications, and recommendations are discussed in this chapter. The recommendations for future projects and sustainability are also discussed in this chapter. The location plan for dissemination, audience style, and types of journals appropriate for inclusion of the valuable information revealed for mental health awareness.

Major findings

The chi-square test did not reveal a statistically significant increase in mental health referrals after implementing the PHQ-9. However, a clinically significant increase in referrals was measured with five more referrals after implementing the PHQ-9. The total sample size was N = 73. The comparative group of n = 40 had a total of four mental health referrals. The PHQ-9 was implemented in 33 with a total of 9 mental health referrals. These findings answered the question as to what degree would the PHQ-9 depression screening tool impact mental health referrals. While there was no statistical significance to the differences in the referral rates, there was a clinically significant increase in mental health referrals from 10% (n = 4) in the comparison group to 27% (n = 9) in the implementation group. Five more referrals occurred after implementation and screening with the PHQ-9.

The findings align perfectly with various original research. Implementing the PHQ-9 depression screening tool in the primary care clinic brought mental health awareness, highlighting how patients are suppressing their feelings and becoming familiar with depression symptoms. The findings of this quality improvement project revealed that the implementation of the PHQ-9 in a primary clinic increased the assessment of depression and mental health referrals.

Interpretations of findings

The project findings align with the work of Molebatsi, et al. [2] and Furukawa, et al. [11] in revealing the reliability and validity of the PHQ-9 depression screening scale. The PHQ-9 was effective and essential to increase screening and combat the mental health crisis in our country. The implementation of this tool can save lives.

The project did not achieve statistical significance but was characterized by clinical significance by implementing the PHQ-9 depression screening too land increasing mental health referrals from 10% to 27% after implementing the PHQ-9. Upon implementation of the PHQ-9 depression screening tool, there was an increase in mental health referrals. The clinic positively impacted mental health awareness by acknowledging and providing treatment or a mental health referral.

Strengths and limitations

The USPSTF [40] recommended that primary care clinics have a depression screening tool in place. There was no prior depression screening tool in place at this primary care clinic. The primary care provider/stakeholder and medical staff understood the need within the community to assist with the mental health crisis. The tool is a quick, 9-question, easy to read and understand tool that allows the patient to reflect on the past two weeks of their life. The answer to each question determined the severity of the symptoms of depression.

The strength of this project was bringing the actual implantation of the PHQ-9 depression screening tool to life since no tool was active for the screening of depression. The stakeholders/physician and clinical staff were allowed to see firsthand the importance of screening for depression. This project enabled the clinical staff to learn more about depression and realize that it can look and present differently depending on each patient.

The project's limitations were that some patients still felt uncomfortable with sharing their stories or being transparent with clinical staff. Patients in a hurry to be seen declined to complete the form. Some days the shortage of clinical staff prohibited some patients from being screened.

Another concern noted was when patients were accompanied by another person, the interviewer notified the patient the information was confidential and requested to interview only the patient. At least two of the patients allowed their accompanied person to stay for the interview. Each patient had to have an additional conversation to explain their answers to feeling helpless, sad, and alone. One of the patients did honestly answer that they wanted to harm themselves at times. Additional time to address family dynamics that should have been a part of the clinic visit.

Implications

The implications of this quality improvement project included a successful implementation of a practice change project using the PHQ-9 depression screening tool. There was no standardized depression screening tool being used at the project site to recognize and treat depression. If the project is sustained at the project site,

it could provide additional mental health awareness. This quality improvement project will increase the awareness and rate of mental disorder symptoms, disorders, screenings, and referrals. This clinical site will assist in providing mental illness awareness and increased referrals to mental health providers.

Theoretical implications: Jean Watson's human caring theory and curative factors play a significant role in a patient's attitude and trust factor. Being made to feel important enough for someone to listen and react positively can be the start of healing. It was imperative that clinical staff were in a good headspace with their own personal feelings and relationships to discuss and assist patients with their personal problems. Looking at the glass half full versus half empty, patients get to live today versus saying that patients are alive today are some uplifting words to encourage depressed patients during a clinical visit. People who suffer from depression should surround themselves with people that are positive, uplifting, and those who have their best interests at heart. Although one can assume that a patient is depressed based on common signs and symptoms discussed by the patient is not evident enough. The PHQ-9 depression screening tool contains questions that reflect how a patient feels daily. This depression screening tool assisted healthcare professionals in gaining detailed information on a patient's thoughts and feelings.

Kurt Lewin's change theory has been referred to as the best-known and arguably the most influential approach to organizational change as a means of resolving social conflict [63]. Lewin's first step of a three-step process consisting of unfreezing- a quasi-stationary equilibrium of driving and restraining forces within a life space, which are usually difficult to change [63]. The second step is moving, and this occurs when the forces pressing for change are greater than those resisting change [63]. The third and final step was freezing- to bring permanence to the new situation [63].

Lewin's change theory coincides with the project by breaking down each step as follows. Lewin's unfreezing stage was first implemented when discovering the gap of no current depression screening tool not being used to identify depression. Introducing and in-servicing the primary care physician and medical staff with evidenced-based practice information on the validity and reliability of the PHQ-9 depression screening scale was welcomed by most of the medical staff. There were a few employees that had used the PHQ-9 in a previous medical clinic. No resistance or pushback was received from medical staff to use the PHQ-9 tool. The second step of moving forward with using the PHQ-9 was not always consistent due to staffing shortages or forgetting to use the PHQ-9 form upon checking a patient in prior to the patient being seen by the primary care physician (PCP). The third step of freezing the implementation of the PHQ-9 depression screening scale as a permanent regimen went well. Once the PHQ-9 depression screening scale was included in the check-in paperwork, the screenings became a regular part of the patient check-in process.

Most depressed patients are treated in primary care, and only a small portion of these are referred to mental health services [18]. There was not any type of depression screening tool being used prior to implementing the PHQ-9 depression screening scale tool. The project's results revealed that implementing the PHQ-9 depression screening tool was relevant and beneficial to patients that suffered from depression.

Nursing practice implications: Depression is the most common mental health condition in the general population [27]. Implementing the PHQ-9 depression screening tool will impact the local community by addressing mental health disorders, highlighting the importance of screening and referring to mental health providers for assistance in maintaining a patient's mental health and reducing the among of untreated patients that have mental health disorders.

Mental illness can run in families, and the younger generation may not have any information on a family history of mental illness due to family embarrassment. The PHQ-9 depression screening tool or other depression screening tools based on provider preference should become a routine regimen in primary care settings. Symptoms and diagnoses of depression, among other mental illnesses, can lead to a depth evaluation to provide a patient with a better quality of life. Early detection is essential.

Recommendations

Based on this quality improvement project's findings, mental health awareness should be highlighted in primary care clinics. In addition to the mental health disorder depression, initiating a screening for mental disorders such as anxiety, schizophrenia, and other mental disorders can increase awareness and avenues for treatment and follow-up. If no one talks about mental health disorders, they are under diagnosed in primary care clinics. Arkansas will continue to have a high rate of mental health and suicide concerns.

Recommendations for future projects and researchers: Implementing the PHQ-9 depression screening scale is a great start to bringing awareness to mental health disorders. In many cases, the PHQ-9 was deployed in response to patients expressing resistance to treatment due to the uncertainty of having a diagnosis of depression [25]. There were other gaps and concerns identified that could bring awareness of depression using the PHQ-9 depression screening scale. Implementing additional regimens to highlight depression will assist local communities in reducing crime, violence, and suicide.

A study longer than eight weeks is recommended to show how well the PHQ-9 can positively impact the adult population. A suggestion of implementing a study of the PHQ-9 within the adult population that will last over six months will reveal an increased awareness of the adult population related to depression and referrals. Data collected over at least an eight-month period could reduce the inconsistency of staff utilizing the PHQ-9 depression screening scale, increase mental health awareness and increase mental health treatment and referrals.

The PHQ-9 depression screening scale can be administered by a medical assistant and reviewed by a registered nurse. This will keep the medical assistant involved with patient care, which could increase self-belonging and their worth and bring mental health awareness to more than licensed staff. As primary care continues to evolve into team-based practice, the role of a medical assistant has rapidly transformed to assist with patient management, documentation in the EMRs, order entry, and pre-visit planning [94]. The PHQ-9 depression screening scale can be electronically sent to the patient and request completion of the form before a scheduled appointment. The patient completing the form prior to the appointment can decrease wait time.

Another recommendation would be to use the PHQ-9 depression screening scale within the teenage population. The prevalence of major unipolar depression in children and adolescents is rising in the United States [95]. The USPSTF recommends screening for major depressive disorder in children and adolescents 12 to 18 to ensure an adequate diagnosis, effective treatment, and follow-up [95].

All of these studies could use a qualitative methodology and quasi-experimental design to identify depressive symptoms for improved better mental health outcomes. This design would also possibly impact each gap and concern at the project site. A follow up after one year for future investigation to check for mental health improvements in patients with depression.

Recommendations for sustainability: This quality improvement project increased the primary care clinic's awareness of the importance of using an instrument to detect depression and follow up with treatment and a mental health referral. The USPSTF [40] committee recommends that all outpatient care clinics should initiate a depression screening tool to increase depression awareness. Three recommendations are imperative to initiate and resume a continuous project using the PHQ-9 tool consists of 1) Ensuring all clinical staff was familiar with the PHQ-9 depression tool, the importance of the screening tool, and how the screening tool works. 2) A detailed policy and procedure should be implemented to ensure all patients are screened upon check-in. 3) All patients with moderate to severe depression will be addressed, treated, and referred to a mental health provider.

Sufficient time allotted for each patient in a busy primary care clinic is unheard of. Usually, the nurse will come in, a general “How are you today?” and a general response of “I’m fine” is returned by the patient. The patient, not to mention the stress of caring for an ill parent, going through a divorce, or recently losing a spouse and in a monetary crisis. Other than the primary reason behind the visit, such as a complaint of severe headaches or neck pain, the question of “How are you actually doing and what’s going on in your life?” are questions seldom asked. This project revealed and further validated that due to the shame and taboo associated with depression and anxiety, most suffer in silence if the time is not set aside to ask specific questions about one’s actual well-being. Upon discovering a patient’s moderate to severe depression when using the PHQ-9 depression screening scale, a mental health referral is essential. The stakeholder/primary care physician and the referred local mental health organization will work closely to ensure that each referral will be monitored by both facilities to enhance the probability of a successful treatment for depression.

Plan for dissemination

This quality improvement project will be disseminated to other healthcare professionals by providing significantly improved results by detecting depression and increasing referrals from the PHQ-9 depression screening tool. The results can create professional resources that can assist in providing paths to improve depression screening practices in primary care settings. The entire project, including the project's background, methodology, and findings, will be presented to learners and professors in the Doctor of Nursing Practice program at Grand Canyon University in Phoenix, Arizona. An informal oral presentation can be presented to peers of the Chi Eta Phi Nursing Sorority, Incorporated, the local University, in an informal psychiatric clinical rotation, and a formal presentation can be presented at The National League of Nursing annual conference.

A poster will be presented at local seminars and conferences. Zoom presentations are also an option. The audience for this project is suitable for all healthcare professionals and all ages of patients curious, experiencing, or interested in the mental health profession for depression and other mental health illnesses.

The *Journal of Mental Health* and the *Journal of Anxiety and Depression* are appropriate peer-reviewed journals for publication. The requirements and guidelines to submit are listed in each journal publication. Both peer-reviewed journals are well known, with high approval ratings.

Conclusion and contributions to the profession of nursing practice

Depression does not have a particular look. One can

appear happy and jovial in their outward appearance but fight a battle with depression and self-love within. The entire world has learned recently from social media and life in general that depression does not have a particular look. The late actor Robin Williams, singer Naomi Judd, and dancer Stephen Boss all committed suicide. These people brought joy and laughter to the world, but their souls were filled with sadness. Sad enough that they saw no way out but to end their own lives.

Increasing awareness and asking questions at the primary care clinic upon check-in can at least get the patients to discuss their fears and concerns instead of being too embarrassed or insensitive to their own need to discuss an issue as small as noticing being restless, increased agitation, or insomnia. The PHQ-9 depression screening tool should be actively incorporated into health care clinics to improve patient outcomes in mental illness.

Acknowledgments

Dear Heavenly Father, I want to thank you for your blessings, grace and mercy. You are an AMAZING God! Thank you for giving me the strength and courage to continue on when my light was very dim. Lord, you are my light and my salvation. I will continue to follow and trust in you. Without you, I am nothing. Thank you for loving me unconditionally. “Let all that I am praise the Lord. May I never forget the good things he does for me”. -Psalm 103: 2 (NLT).

Thank you, Dr. Lee Nayles and Lana for allowing me to initiate my project at Nayles Medical Clinic. You both are amazing souls. Your contribution to the community does not go unnoticed. We are grateful to have a caring and witty physician within the community that will advocate for patients and families.

Dr. Cartwright, my awesome chair: Thank you for the countless number of hours spent giving feedback on assignments, returning emails, phone calls, texts, and zoom meetings with your 2022-2023 assigned cohort of DNP learners. Your professionalism and support are very much appreciated. You have assisted in making this a pleasurable experience. Your next assigned cohorts are blessed to have you.

To Dr. Sloan Davidson, Director of the University of Arkansas at Little Rock School of Nursing and faculty-thank you for your kindness and support with any assistance given towards my nursing career and doctorate project. I am grateful for the countless opportunities and experiences as a nurse educator.

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