Improving Depression Management Referral Rates in the ED Utilizing a Nurse-Driven Depression Screening Protocol

Sharon Appia

Touro University, Nevada

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DNP Project Team: Denise Zabriskie DNP, RN, ACUE, WCC

Dr. Judith Carrion EdD, MSN, RN, ACUE

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Abstract

The proposed quality improvement project was intended to increase depression screenings and improve mental health referral rates in the ED of a local city hospital by utilizing a nurse-driven depression screening protocol. In this QI measure, we integrated depression screening questionnaires/tools (PHQ-2 and PHQ-9) into the ED practice setting. The QI project assessed ED nurses, and provider's, knowledge of depression by utilizing a pre and post educational intervention to test for change in knowledge level due to the educational training. The paired t-test analysis was performed to assess the education intervention and the knowledge of 110 participants pre and post samples at the $\alpha = 0.05$ level. There was a significant difference in the pre-test scores for knowledge (M=65.91, SD=7.70) and post-test scores (M=100.00, SD=0); $t(109) = 46.45$, $d = 4.43$, $p < 0.001$. It showed a statistically significant change in staff knowledge at baseline compared to posttest. This supports the assertion that the education intervention increased staff knowledge.

The effectiveness of the intervention was further assessed by evaluating staff compliance in utilizing the depression screening protocol in the ED. Implementation of the depression screening protocol, resulted in increased screening, identification, and referrals to mental health services. The implementation of this evidenced-based approach has shown significant increase in documentation of depression screening and mental health referrals of patients seen in the ED. Our finding indicates that by utilizing a depression screening protocol in the ED setting, it will capture patients at risk for depression and those in imminent danger for suicide.

Keywords: Depression screening tools, suicide risk assessment, depression screening guidelines

Improving Depression Management Referral Rates in the ED Utilizing a Nurse-Driven Depression Screening Protocol

According to the National Alliance of Mental Disorders [NAMI] (2020), depression is when a person experiences recurrent periods of low mood, negative thoughts, hopelessness, and loss of interest in activities they once enjoyed for a period of at least two weeks. According to the Centers for Disease Control and Prevention [CDC] (2020), depression is also defined as a mood disorder that is often characterized by a persistent feeling of sadness. Depression is not just a national problem it is a global problem. The World Health Organization [WHO] (2020) revealed that depression affects more than 265 million people worldwide, and when it is not diagnosed and treated it could lead to suicide. Suicide has become the second largest cause of death among 15-29 \year old's. Each year over 800,000 persons commit suicide (WHO, 2020). Depression that is treated early can prevent suicides.

Depression is one of the most common psychiatric disorders globally (Global Burden of Disease [GBD], 2018). In the United States (US), depression is among the top ten causes of death (CDC, 2020). The GBD (2018) reported that depression ranks as one of the top eight diseases of a global concern due to prevalence and incidence. Depression affects people of all ages, genders, education level, and socio-economic levels. Therefore, to promote early identification and management of depression, the federal government has implemented depression screening initiatives in many healthcare settings.

The problem under study is the lack of consistency in depression screening in the Emergency Department (Ed). Currently depression screenings are performed at the practice site when an individual is admitted to the hospital, but not through the emergency department (ED). There is no formal policy in place for ED nurse to screen for depression during triage. This

practice initiative does not capture the individuals treated and discharged from the Emergency Department (ED). Due to a gap in ED triage practice, screening for depression can go undetected (Mulvaney-Day et al., 2018). This can lead to legal liability on behalf of the ED and more importantly loss of life, which could have been prevented (Mulvaney-Day et al., 2018). By employing proper depression screening protocols such as the Patient Health Questionnaire nine question (PHQ-9) and the Beck Depression Inventory in emergency departments of hospitals, adults with a score of moderate to severe depression can be readily and easily identified and be provided with the appropriate referrals (Williams & Nieuwsman, 2020).

The proposed quality improvement project is intended to increase depression screenings and improve mental health referral rates in the ED of a local city hospital by utilizing a nurse-driven depression screening protocol. The Doctor of Nursing Practice (DNP) project discussed here will introduce a nurse-driven protocol in the ED to improve identification and promote evidence-based interventions to address depression during the triage process.

Background

Depression impacts quality of life in a negative way (Jia et al., 2015). People who are suffering from depression often have other symptoms such as headache, chronic pain, or back pain, making detection and diagnosis more difficult (Jia et al., 2015). Signs and symptoms of depression include loss of appetite, loss of interest in activities that were once pleasurable, insomnia, feelings of hopelessness and problems concentrating (CDC, 2020). Risk factors include having a family history of depression, alcohol use and abuse, major changes in life events such as death or divorce (CDC, 2020).

The United States Preventive Services Task Force [USPSTF] (2020) recommends that all adults be screened for depression. Some screening tools include PHQ-2 and PHQ-9, the Hospital

Anxiety and Depression Scales in adults, and the Geriatric Depression Scale (USPSTF, 2020). Furthermore, screening should result in additional assessment, alternate diagnoses, and referrals (USPSTF, 2020). Based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-5, 2013), depression is categorized under major depressive disorder. Depression can be further categorized as mild, moderate, or severe. Regardless of its severity, depression has serious consequences if left undiagnosed and treated. Depression results in a significant loss of manpower in the workforce, stress for the individual and their family, suicide, and suicide ideation on a global scale (WHO, 2020).

Despite depression being a common disease, patients are seldom screened for depression in the ED. Suicides accounted for more than 42,000 deaths in 2014 and suicide is the tenth leading cause of death (King et al., 2018). In the ED it is unclear why suicide risk screening is not a priority. However, most patients will not volunteer this information, unless asked (Betz & Boudreaux, 2016). Nearly thirty percent of persons who committed suicide had been to an emergency department for a depression symptom (King et al., 2018).

One way to improve ED visits for depression is to implement universal screenings in all clinical settings inclusive of EDs. The USPSTF (2020) recommends depression screenings for adults as well as relevant referrals and follow up. In one study, forty-two percent of the patients in the ED who were screened were positive for depression (Abar et al., 2017). The Centers for Medicare and Medicaid Services [CMS] (2020), believes that adults should be screened for depression by the USPSTF. In most instances, depression screening is associated with primary care settings; since EDs are not considered primary care settings, CMS would not reimburse hospitals.

According to Mulvaney-Day et al. (2018), there are many sources ranging from government agencies such as the USPSTF and Healthy People 2020, to National Family, internal medicine, and pediatric organizations that provide recommendations for mental health screenings in hospitals and in primary care settings. However, despite these recommendations, screening for depression in the ED is still an ongoing challenge. Presently, the practice site does not have a depression screening protocol in the ED, despite recommendations to that effect (Mulvaney-Day et al., 2018). Depression screening in the ED will bring standardization to the organization.

Problem Statement

Almost eight percent of all adult patients seen in the ED setting irrespective of their chief complaint have had recent suicidal ideations or depressive symptoms (Betz & Boudreaux, 2016). Many of these people may go undiagnosed and untreated for depression as they will not disclose unless asked (Betz & Boudreaux, 2016). It has also been noted in literature that depression is a precursor to suicide ideations and suicide, therefore, by implementing this depression screening protocol, it will help reduce the number of suicides (King et al., 2018). Currently, there is no depression screening protocol in the ED at the practice site. Since the staff does not screen for depression when patients come into the ED seeking care, a crucial opportunity is being missed. Due to the gap in the triage practice in the ED, and the lack of evidence of a depression screening protocol in place, this DNP quality improvement project is geared toward closing this practice gap by performing a depression screening protocol for all adult patients entering the ED.

Project Question

Will a nurse-driven depression screening protocol improve depression identification and management compared to non-screening protocols over an implementation time of four to five weeks?

Search Methods

A literature search was conducted to find relevant studies on the project topic. A systematic review method was explored during the search process to find appropriate articles. Existing articles that relate to the project topic are reviewed by conducting extensive research on existing studies. Reputable search databases were used, and articles were screened and analyzed.

During the search process, Cochrane Library, PubMed, Google Scholar, EBSCO, Medline, Touro University Library and CINAHL were used to search for relevant articles. Search terms or keywords were used to retrieve articles from reputable databases. These keywords include mental health disorders, depression, depression screening, Patient Health Questionnaires, emergency department, acute care, primary care, and depressive symptoms. Boolean operators 'AND' and 'OR' were used to formulate researchable keywords. The operators were used to combine the search terms that helped in retrieving relevant articles.

Other searches included government websites such as the CDC, USPST), the American Psychiatric Association (APA), and the Joint Commission, National Institute of Health (NICE) Department of Health and Human Services (HHS), Centers for Medicare and Medicaid, New York City Department of Health, and Agency for Healthcare Research and Quality (AHRQ).

Data Extraction and Eligible Studies

Studies that were retrieved from the databases were screened by reading the abstracts. The screening process helped in determining whether the article had -sufficient and relevant information to discuss the project topic. The screening process also helped in identifying the articles to be reviewed and those that needed to be eliminated. Based on the screening process, out of 1700 articles, the total number of articles found to be eligible or met inclusion criteria was 50. These articles were further screened to determine their eligibility based on inclusion and

exclusion criteria. Five articles were eliminated because they were not peer-reviewed articles. Three articles were dissertations and two were research papers. The remaining 45 articles were further screened, and 20 articles were excluded because they lacked sufficient relevant information on the topic. Twenty-five articles were selected for the review.

Inclusion Criteria

During the literature search process, inclusion criteria were based on project guidelines and articles that are applicable to a nurse-led protocol. This included primary care clinics, emergency departments, acute unit mental health clinics and other healthcare facilities. National guidelines which included the CDC and CMS, the USPSTF, the HHS were also included. Only peer-reviewed articles, which consisted of randomized controlled studies, quasi-experimental studies, cross-sectional, observational studies, meta-analyses, qualitative and quantitative designs, and cohort studies, were included. Inclusion criteria entailed discussion articles in the United States, studies published or written in the English language, and those published within the past five years. Articles that involved both males and females aged 18 years and older were also included for review.

Exclusion Criteria

Non-peer reviewed articles, non-published articles, such as research projects or research papers, duplicated articles that were written by the same authors and found on multiple data bases, dissertations, blogs, conference proceedings, and web articles, were excluded. Also excluded in the review are articles that were gender specific to females during pregnancy or postpartum depression, articles published in different languages other than the English language, and articles not published within the past five years, except in the case of seminal work were excluded. Studies that included children 18 years of age and under were excluded.

Review of Study Methods

According to Lou et al., (2020), each form of literature review and appraisal provides reliability and validity pertaining to the topic. That was significant for this particular project. Meta-analyses were also selected because of the logical framework they present through summaries of similar research. This makes it easier for researchers to locate similar data in a shorter time. In addition, meta-analyses allow for integration of findings which creates consistency of relationships and help identify best evidence-based practices (Luo et al., 2020). Randomized controlled trials are often referred to as the gold standard for effectiveness in research, as they provide strong pieces of evidence that help reduce biases and support the need for this research inquiry (Hariton & Locascio, 2018).

The reviewed studies used different research methods that included randomized controlled trials, retrospective studies, cohort observational study, quasi-experimental studies, quantitative and qualitative studies, systematic reviews, and cross-sectional studies. The studies yielded significant information on depression and depression screening protocols based on national guidelines. The studies were peer-reviewed, hence were suitable to address the project topic because they are known to provide a high level of clinical evidence (Kelly et al., 2014). The study methods used provided the basis to collect relevant information using various techniques, including questionnaires on depression symptoms. These questionnaires were mainly PHQ-2s and PHQ-9s, which were found to provide accurate data on depression symptoms because of high sensitivity and high specificity.

The above mentioned were reviewed and analyzed and the main themes that emerged from these articles, supports screening for early detection and treatment of depression. Several other studies also indicated the importance of utilizing valid and reliable screening protocol to

identify depression in the general population. The authors concluded that when depression remains undiagnosed and untreated, it can lead to increased morbidity and mortality worldwide (Akincigil & Matthews, 2017; Aunskul et al., 2018; Whooley, 2016). Therefore, early detection through the screening process is crucial to improve health status, economic status, and quality of life in the affected population (Aunskul et al., 2018; Loeb et al., 2016; Williams et al., 2017.

Review Synthesis

The current literature indicates that depression is a significant problem impacting the American population (CDC, 2020). This has resulted in an increase of different types of negative outcomes, including death by suicide (Roca, et al., 2019). In response, researchers have suggested the importance of addressing depression using tools such as the PHQ-2 and PHQ-9 (APA, 2020). These tools can support diagnosis, which can lead to treatment rather than allowing depression to worsen over time.

Diagnosing depression is important because depression is a national burden that negatively impacts the well-being of individuals (Akincigil & Matthews, 2017) as well as impact society at large by reducing worker efficiency and damaging organizational performance (Aunskul et al., 2018; Loeb et al., 2016; Williams et al., 2016). Despite the economic burden of depression, and the prevalence of individuals presenting with depression in emergency departments (Beiser et al., 2019), the disease continues to go undiagnosed even under such medical care.

Best Practice Standards Relevant to Quality Gap

The screening processing tools such as the PHQ-2 and PHQ-9 provides accurate information for early and timely diagnosis of depression. The existing clinical evidence indicates that PHQ provides accurate information on depression symptoms that guide health care providers

in evaluating whether the patient is depressed (Bélanger et al., 2019; Patel et al., 2019; Willborn et al., 2019). The use of PHQ helps to screen for minor and major depressive episodes, and this is clinically beneficial in detecting minor or major depression based on the Diagnostic Statistics Manual (DSM-5) criteria.

Several studies supported the clinical efficacy of depression screening questionnaires for early and timely diagnosis (Maurer et al., 2018; O'Byrne & Jacob, 2018; O'Connor et al., 2016; Olfson et al., 2016). According to Williams and Nieuwsman (2018), depression screening with PHQ-9 and the Beck Depression Inventory provides total scores that indicate moderate to severe depression. This identification helps to initiate appropriate care and treatment for better clinical outcomes and achieve a better quality of life.

Three retrospective studies that examined the clinical efficacy of PHQ-2 and PHQ-9 showed that the questionnaire is a valid and promising screening tool for depression because it has high sensitivity and high specificity of 88% and 97%, respectively (Bélanger et al., 2019; Loeb et al., 2016). Similarly, a retrospective study by Sidebottom et al. (2020) indicated that national guidelines on screening procedures for depression with either PHQ-2 or PHQ-9 improve the quality of life for the affected population.

Literature Theme Development

Relevant Background

Depression is a serious public health concern that has reached pandemic proportions. However, despite the USPSTF recommendations for screening of patients for depression in locations where there is availability of staff to diagnose and support patients that screen positive, there is still a lack of depression outside of primary care settings. Several studies found that even though screening for depression has been recommended for more than a decade; depression

screening rates are still low and represent a missed opportunity to identify those at risk. In the US alone, patients seen in the ED for depression rose 25.9% between 2006 and 2014, but most of those seen were in an acute state that warranted admission (Ballou, et al., 2019).

Currently Understood

A strong body of evidence supports that screening should be implemented with adequate systems in place to ensure accurate diagnosis, effective treatment, and appropriate follow-up (Whooley, 2016). However, despite this knowledge, many physicians working in the ED are not consistent in completing depression screening. They fail to recognize depression in as many as half of all patients that presents to the ED, and as such these patients may remain undiagnosed (Pillaveetil, et al., 2018); Betz & Boudreaux, 2016).

Addressing the Problem with Current Evidence

According to the CDC (2020), suicide has been in the top ten causes of death from 2008-2020. Therefore, any methodology or procedures that can reduce the number of suicide deaths should be praised and supported. Tools and protocols currently being utilized in clinical settings nationally include the Becker Depression Scale and the PHQ-2 (two item questionnaire) or the PHQ-9 (nine item questionnaire). Based on information from the American Psychological Association [APA] (2020), depression is common among adults, and screening protocols that promote the use of screening tools may help identify depression among this population when presented in the ED.

National Guidelines

Several national guidelines recommend screening for depression in different health care settings. The USPSTF (2016), recommends screen for depression in the general adult population.

They further expounded that screening patients for depression can be done in any locations where there is staff who can further diagnose and support patients who screen positive**.**

The Veterans Affairs and Department of Defense (VA/DoD) Clinical Practice (2016) recommended that in addition to screening with the PHQ-2 in the general population, and several high-risk subpopulations may require a more frequent or rigorous screening. Although the PHQ-2 and PHQ-9 are widely used and recommended within the VA Guidelines for the Management of Major Depressive Disorder, it is also suggested that any valid instrument should be use in the appropriate populations (VA, 2016). The Joint Commission (JC, 2019) National Patient Safety Goals recommend depression screening for the general population, pregnant women, and postpartum women (Joint Commission 2019).

Impact of the Problem

Depression is a major health care burden that affects society, families, individuals, and the health care industry. According to the CDC (2020), suicide has been the in the top ten causes of death from 2008 to 2020. Many may not consider depression to be a debilitating disease that is multifaceted. However, a compelling body of evidence identifies concomitant diseases in many patients with depressions (Peterson, et al., 2019). According to Beiser et al. (2019), depression impacts many people and there is increased prevalence of this disease among persons of low socioeconomic status who often have to seek care in the ED.

Individual

In terms of health burden, a secondary analysis from the National Ambulatory Medical Care Survey by Akincigil and Matthews (2017) that was conducted between 2012 and 2013 showed that depression is the primary cause of disability. This analysis revealed that depression predisposes an individual to adverse health impacts, including premature deaths, self-harm, and

the development of health comorbidities. The research evidence showed that between 4% and 8% of people with depression develop health problems, including heart diseases, stroke, obesity, and related health morbidities. A randomized controlled trial of 78 patients found that type 2 diabetes and other related chronic illnesses were more common in depressed patients, which was attributed to poor medication and treatment adherence and unhealthy dietary intake (De Vries McClintock et al., 2016).

Individuals that suffer from depression experience a reduction in level of functioning and poor quality of life (Peterson, et al., 2019). An individual that is depressed has little or no interest in pleasurable activities, may experience chronic fatigue resulting in frequent workplace absenteeism or unemployment. Family members may experience caregiver burdens that are both financial and psychological (Reynolds & Frank, 2016).

Societal Burden

Depression remains a major societal burden and when left undiagnosed and untreated can lead to increased morbidity and mortality worldwide (Akincigil & Matthews, 2017; Aunskul et al., 2018; Whooley, 2016). Workplace-absenteeism increase in unemployment and lack of health care insurance are the primary drivers of overall economic costs to society. Consequently, early detection through the screening process is crucial to improve health status, economic status, and quality of life in the affected population (Aunskul et al., 2018; Loeb et al., 2016; Williams et al., 2017).

Health Care

The prevalence of depression and related health consequences pose an economic burden that requires support from various agencies, including government entities to curb the disease. Depression is also costly on the government budget due to the cost to care for persons with

mental health issues such as depression. Greenberg et al., (2015) in their study noted that there was a significant increase of 21.5 percent in health care cost of depression in 2015 and 2010 from $173.2 billion to $210.5 billion per year, which indicated a cost burden of the condition to the patient and the health care system (Greenberg et al., 2015). The increasing health care cost for depression can negatively impact the quality of life.

Project Aims

The aim of this DNP project is to reduce suicide rates through the implementation of a depression screening protocol in the ED. This intended protocol will both identify and refer patients who fall in the category of moderate to severe depression within the timeframe of four - five weeks.

Project Objectives

The host facility will meet these objectives within the timeframe of the DNP project of four to five weeks:

1. Develop an evidence-based depression screening protocol.
2. Educate the ED staff to the new protocol.
3. Measure the knowledge of the Ed staff before and after (pre and post) the education with a 100% pass rate.
4. Compliance of the ED staff utilizing the screening protocol will be 100% and measured through weekly chart audits.

Theoretical Framework

According to Moran, Brunson, & Conrad (2017), nursing was founded on theories that had evolved from within the profession, as well as theories outside the profession. The theoretical framework is an abstract structure that gives credence to a research (Moran et al.,

2017). In other words, a theoretical framework provides the foundational underpinnings for the subject, or topic that is being researched, or implemented. Depending on the type of research or quality improvement project, different theories will be more relevant based on whether it is a qualitative or a quantitative research.

According to the American Association of Family Physicians [AAFP] (2020), quality improvement (QI) innovations are often described as systematic, and formal approaches to how practice performances and approaches are analyzed. One such approach is the Donabedian Model, which is widely utilized in QI project innovations (AAFP, 2020). It is a model framework based on examining organizational structure to see where the change needs to occur. The Donabedian Model (See Appendix A) is a middle range theory, and it will be the theoretical framework for this DNP project, which is a depression screening tool which will be utilized by the ED staff at the practice site.

Historical Development of the Theory

The Donabedian model was developed by Avedis Donabedian nearly 55 years ago and has been used successfully to implement qualitative changes in various settings (Donabedian 1988). While the Donabedian model is widely known for three standards; structure, process, and outcomes, proposed to evaluate the quality of healthcare. Donabedian is also known for his later works. His subsequent work included the seven pillars of healthcare: efficacy, effectiveness, efficiency, optimality, acceptability, legitimacy, and equity, which are still influencing quality healthcare over 50 years later (Ayanian, & Markel, 2016).

Major Tenets

Structure

Donabedian's model theorized that structure represented the organizational setting, the infrastructure, human resources, equipment, how the staff is selected and put together to form a team, and the methodology of training their staff and other personnel (Mormer & Stevans, 2019). The structure of the healthcare organization is visible, and these factors impact how care is delivered, which is known as the process (Ayanian & Markel, 2016).

Process

Under the Donabedian model, process has to do with what was done to the patients or what is being done in terms of the services that patients receive (Mormer & Stevans, 2019). This means that everything from how patients are treated from the moment they arrive to the time they leave the healthcare organization is part of the process (Mormer & Stevans, 2019). Process also entails the technical and interpersonal facets of delivery. Technical processes include being able to provide diagnostics and x-rays, and all the services that patients need when they come to the hospital or the clinic (Ayanian & Markel, 2016). In other words, process is how everything functions.

Outcomes

Outcome refers to what will be measured or assessed or evaluated at the site (Ayanian & Markel, 2016). Based on the Donabedian model of quality healthcare, outcomes are especially important. The goal of healthcare is to improve patient outcomes. The Agency for Healthcare Research and Quality (AHRQ, 2020) noted that outcomes reflect the impact of the healthcare intervention on the health status of the patients. Outcomes impact all the stakeholders inclusive of the patient population, staff, and others. Outcomes determine quality of care, it impacts the

institutions in the ratings especially if outcomes include unnecessary deaths or other adverse conditions reviewed or assessed at a site (Ayanian & Markel, 2016).

Based on the Donabedian model, outcomes include the satisfaction of the patients, and whether patients' conditions are improved or worsened after an encounter in a healthcare setting such as a hospital or clinic (Ayanian & Markel, 2016).

Application to DNP Project

In this DNP project, the goal is to implement a depression screening protocol in the ED. This will be accomplished through the utilization of the Donabedian model with structure, process, and outcomes to measure the effectiveness of this new protocol. Utilizing the Donabedian Model, the project lead will educate and train the ED staff to implement the depression screening protocol, which will be administered to everyone who enters the ED for care.

Structure

Structure is the setting where the DNP depression screening protocol will be implemented such as the ED in an acute care hospital. Structure also includes the participants (ED staff) who will be involved in the implementation process. Structure is usually visible, easy to observe and measure (Donabedian, 1988). This depression screening protocol is being implemented because a depression screening protocol does not exist at this time, which opens a practice gap when compared to best practices. Depression screening is a component of the national standards.

Process

Process is that action steps to be taken to achieve the intended outcome or outcomes (Donabedian, 1988. Process covers several segments to include diagnosis, treatment, prevention,

and patient education (Donabedian, 1988). The Donabedian model will be used in this DNP project to educate staff so they can administer the depression screening protocol to the patients who enter the ED regardless of the purpose of the ED visit.

Outcome

The outcome refers to measurement, evaluations, and assessments of the process. In many instances, outcomes are weighted heavily because they reflect the effects of the intervention. Outcome reflects behavior changes, new knowledge gained, improved quality of life, and patient satisfaction because of the process (Donabedian, 1988). The outcome of this DNP project is two-fold. One outcome is increased knowledge of depression for the ED staff. The other outcome is that of compliance with the protocol, which will result in improved detection and referral for treatment rates.

Setting

The DNP project site is the emergency department (ED) of a large public hospital in New York City. It was known as "The Home for the Colored Aged." The facility first began providing services in 1839 mainly for people of color. The hospital is in a densely populated community comprised mostly of immigrants, to include Hispanics, Latinos, and African Americans (United States Census Bureau, 2010). For over 177 years, this hospital has been providing quality healthcare services to the community in one of New York City's most populated boroughs.

Services

The hospital is recognized for outstanding clinical outcomes in trauma care that surpasses established benchmarks (NYCHealth&Hospitals, 2020). There are numerous specialty services provided at the hospital, which include primary healthcare, Lesbian/Gay/Bisexual/Transgender (LGBT) healthcare services, trauma care, diabetes care, bariatric care, cardiology, surgical, and

behavior health services. The hospital is one of the premier acute care centers in the nation and is one of the country's renowned teaching hospitals.

The inpatient capacity is 362 beds, including 20 neonatal intensive care units, 10 surgical intensive beds, eight pediatric intensive care beds, seven coronary care beds, and an expanded 11 station renal dialysis unit (NYCHealth&Hospitals, 2020). At the time of this site visit, the hospital had 100 percent occupancy, partly due to the COVID-19 pandemic.

The hospital has a total staff of over 1,400 individuals with approximately 300 physicians and 800 nurses, which comprise of approximately 530 registered nurses (RN) and 220 licensed practical nurses (LPN) (NYC HHC, 2020). The ED is a level one trauma center and one of the busiest in the New York City metropolitan area (NYC HHC, 2020). Each year, approximately 144,000 patients are served at this project site. The total number of ED staff consists of 120 individuals to include physicians, physician assistants (PA), advanced practice registered nurses (APRN), nurse managers (NM), ED technicians, and medical assistants (MA) and RNs. The ED is staffed with full-time and part time staff members who rotate mostly on 12-hour shifts. The ED serves an average of seventy patients per 12-hour shift for approximately five hundred patients each week. Currently, of the 120 staff members in the ED, 110 individuals are considered direct staff who provide patient care.

The patients who seek care from the project site are from all races, ages, and socio-economic backgrounds. Patients' population varies across the life span with mainly young adults to geriatrics. The project site accepts various forms of health insurance including Blue Cross Blue Shield, United Healthcare, Medicare, Medicaid and Metro Plus Insurance.

The project site is furnished with state-of-the-art equipment including the use of electronic health records (EHR) to track progress notes, patient information, nursing

assessments, admissions, and computerized provider order entry (CPOE). The ED also has full body imaging equipment, audio visual equipment, televisions, closed-circuit camera systems, fax machine and a printer room.

Population of Interest

The population of interest are the RNs who provide direct patient care within the ED. Registered Nurses are required to completed training at an accredited nursing school and are licensed through the Board of Nursing (BON) to practice. All RNs involved in this QI project at least hold an associate degree and vary in experience from recent graduate to seasoned ER nurses. The RNs will implement the depression screening protocol within the triage area, therefore, all RNS will be included as participants. Physicians, PAs and NPs, employed within the ED will also take part in this project. The provider's educational level varies from master's prepared nurses to Doctor of Philosophy and will be implementing the depression screening protocol within the triage setting of the ED. Every RN employed within the ED rotates through the triage area; therefore, all RNs will be included as participants.

Inclusion Criteria

The direct population of interest are all RNs employed in the ED to include fulltime, part time, per diem RNs, and travel RNs (who are employed under contract with the hospital for several months) are to be included. The indirect population of interest include the patients and will have no contact with the project lead. All persons 18 years and older, who enter the ED for care during the implementation period will be included.

Exclusion Criteria

All persons younger the age of 18 years who enter the ED seeking care before and after the implementation period are excluded from The DNP project. The medical staff, to include

MAs, NM, CNAs. Nurses that are employed through health care agency as temporary staffing needs, and ancillary staff will be excluded. Nurses who do not work in the ED will also be excluded from this DNP project.

Stakeholders

This quality improvement (QI) project would not be possible without the support of the key stakeholders at the project site. The stakeholders are those who have a vested interest in the project and the project outcomes (Moran et al., 2017). According to Boyer et al. (2018), organizational changes, quality improvement projects, and system changes can be daunting if the key stakeholders are not identified early when they can provide feedback, get clarifications, or voice objections (Boyer et al., 2018). Moran et al. (2017) mentioned that identifying and engaging key stakeholders at the conception of the organizational change is significant as they could represent unsurmountable barriers to the change program or innovation being proposed.

The key stakeholders for this DNP project are the employees, RNs, Director of Nursing (DON), ED N M, ED Chief Medical Director, Chief of Mental Health and Behavioral Services, community leaders, and residents of the community. These individuals provide collaborative engagement to help build awareness and inspiring others both at the organizational and local level (Lalani, et al., 2018).

The role of the board of directors, nurse mangers, and administrators are decision-makers who grant permission to conduct the DNP project at the project site and support the practice change. Their roles also include making equipment available for the project, such as a printer/copier, audiovisual equipment, and access to EHR. The role of the key stakeholders is to refer the patients for further counselling therefore, they need to be educated in the protocol.

The nurses, as key stakeholders, will be responsible for the implementation of the project in the ED during the four to five weeks. The participants have two main roles. Their first role is to be learners during the first week of implementation when the project lead will educate participants on depression screening protocol. The second role of the participants is the implementation of the depression screening protocol. Other significant stakeholders include the patients, PAs, NPs, and physicians. The role of the patients is to provide accurate information to the nurses. The physicians will utilize the data generated by the depression screening protocol to help in their evaluation of the patients and provide treatment options.

The hospital has granted permission to complete the quality improvement project at the project site. The project lead has been assured there is no affiliation agreement required between the university and the project site (Appendix B).

Interventions

This DNP project examines the knowledge of depression screening and referral rates in adults who seek care in the ED. The timeframe for implementing the nurse-driven driven depression screening and management protocol is five weeks, which includes educating participants, administering a pre and posttest for knowledge attainment, execution of the protocol, and data collection. According to Bemker and Schreiner (2016), having a timeline serves as a guide to keep the project lead on track. A timeline can be as simple as checking off completed tasks, documenting milestones, and making sure the goals are being accomplished each day. Prior to the implementation start date, the project lead will send a reminder to the clinical nurse manager in the ED regarding the depression screening upcoming start date as well as dates, times, and locations of educational presentations. The following is an implementation timeline:

Week 1

During week one, the project lead will ensure that all equipment for the presentation is functional prior to the initial training day. Eight educational sessions will be completed for both days and night shifts. Staff education will be completed in week one with four educational sessions per shift. Each session will be 45 minutes to an hour in length and include training on depression screening policy/protocol and the disease process. The pre- and post-test will be administered on the same day as the education. The project lead will collect the test results for both tests each session and enter the data in Excel. Special arrangements will be made for staff who were unable to attend the formal presentation due to absence from work during the training period. During the training sessions, participants will be given hand-outs on the depression screening protocol and screening tools.

Week 2:

Implementation of the protocol begins. The project lead will be available at the project site to monitor, answer questions, and provide support during this process to ensure it goes smoothly.

Week 3 & 4

The project lead will continue to monitor and provide support during the implementation process and start data collection for compliancy. This will include random chart audits of ten charts daily while the data is entered into excel.

Week 5:

This will be the final week of the protocol implementation. During this week, the project lead will perform final data collection through the chart audits then begin to analyze the data by using SPSS software.

Tools and Instruments

It is important that the nurses and the ED medical providers have the training, resources, and tools for the successful transition of this quality improvement project. Therefore, to integrate the depression screening protocol into the busy ED clinical workflow, it is critical that screening and diagnostic instruments be practical, brief, and accurate (Beiser,2019).

Depression Screening Policy/Protocol

An ED depression screening protocol (EDDSP) was approved by stakeholders at the project site (Appendix C). The EDDSP incorporates evidence-based practice guidelines that integrate the use of both the PHQ-2 and PHQ-9 screening tools. The PHQ-2 and the PHQ-9 tools were developed by Spitzer et al. in 1999, with an educational grant from Pfizer, Inc. There is no permission required to reproduce, translate, or distribute either tool (APA, 2020; Kroenke et al., 2001). This screening tool will be incorporated into the RN triage note. The depression screening protocol also includes a flow chart that provides step by step guidance for staff. It can be used throughout the process, from initiating screening using PHQ-2 or PHQ-9, scoring, interpreting results to referrals and treatment when warranted.

The PHQ-2 and PHQ-9 are standardized depression screening tools. The PHQ-2 is a first step approach for depression screening while the PHQ-9 is a nine-item multipurpose tool for screening, diagnosing, monitoring, and measuring the severity of depression (Bader et al., 2016). It is applicable for use in extremely busy clinical settings such as an ED. The diagnostic validity

of the PHQ-9 for depression has previously been shown in primary care and obstetric clinics (Savoy & O'Gurek, 2016).

According to the APA (2020), PHQ-9 scores > 10 had a sensitivity of 88 % and a specificity of 88% for major depressive disorder. The reliability and validity of the tools have indicated it does have sound psychometric properties. A study involving two different patient populations produced Cronbach alphas of 0.86 and 0.89 (APA, 2020; Bader et al., 2016). The protocol does not include medication management. Prescription will not be provided due to the liability.

Educational Presentation

A systematic review of the literature was used to design an educational PowerPoint presentation that outlines the depression screening protocol (Appendix D). The presentation will be presented by the project lead for a duration of 45 minutes to an hour. Copies of the depression screening protocol and flow chart will be given to staff. The presentation will discuss appropriate interventions, including referral, follow-up for diagnosis, or treatment of depression. The presentation provides guidance to the direct population of interest and how to utilize the PHQ-2 and PHQ-9 during screening. The policy and flow chart provide a step-by-step approach, how to execute the process and interpret the results. All staff will be given an opportunity to ask questions at the end of the presentation.

Pre and Post Test

The pre and post-test will be given in a paper format before and after the educational training (Appendix E). The test is a brief 10 question quiz that includes both multiple-choice and true and false questions. It was developed by Dr. Bui, a psychiatrist, and Dr. Gailey Brown-

Edmundson, clinical nurse educator, for educational purposes. Permission has been granted for the project lead to utilize this tool (Appendix F). The tests are identical and will be used to measure staff knowledge before and after the educational training. The tool will measure staff knowledge, skill, and experience regarding the screening protocol and depression. The pre-test will be administered just prior to the educational presentation. This will provide a baseline of the provider's knowledge of the screening protocol and other information provided.

Once the presentation is complete, the staff will be given the post-test. A minimum score of 80 percent is needed to pass the test. The pre-and post-test will be examined to appraise the level of knowledge attained during the educational session. It will also help assess the staff's level of confidence in completing the depression screening. Staff members that fail the post-test will have an opportunity to repeat the educational training, and complete the test, until a passing score is obtained. The test score for each participant will be documented on the scoresheet. Each participant's test score will be identified by their initial, a 3-digit code, and will remain confidential.

Educational Resources

Educational pamphlets about depression, with unrestricted copyright access, were obtained online from the National Institute of Mental Health (NIMH). The pamphlets will be given to patients and family members, seen in the ED, with depression as educational resources (Appendix G). These educational pamphlets are written both in English and Spanish to meet the needs of the patients being served. These pamphlets will be made available to staff, and the link will be included in the educational presentation for additional information.

Chart Audit Tool

Chart audits are effective tools that can be used to identify areas that need improvement and can be utilized to evaluate patient care from assessment through outcome (Allozini et al., 2019). The chart audit tool includes the patient's age, gender, date of the ED visit, completion of PHQ-2 and PHQ-9 and severity (Appendix H). It will also include mental health referrals and treatment interventions. The information in the audit will help to determine whether the participants are complying with the depression screening protocol. The chart audit will also determine the compliancy of the nurses and providers of the protocol.

The Statistical Package for Social Sciences (SPSS)

The Statistical Package for Social Sciences (SPSS) software program will be utilized for all data analysis. The SPSS software is the standard for data analysis irrespective of the kind of data. The SPSS meets both reliability and validity criteria (Schmith & Brown, 2012). Data collected each day will be entered on an Excel spreadsheet. All data will be stored on a secure database and protected by a password. Data will then be transferred into the SPSS software for analysis.

Study of Interventions and Data Collection

Ensuring that an accurate and appropriate methodology is utilized is a crucial step in data collection. According to Paradis et al (2016), the methodology and analytical approach applied by the investigator to collect, check, verify, and analyze data and outcomes are of vital importance. The pre and posttest will be completed by the participants just prior to the educational training and immediately after completion of the training. It will be graded manually by the project lead, and the scores entered in the SPSS to generate outcome measures. This data will be used to determine if there was an increase in staff knowledge and their compliancy with the protocol.

As mentioned previously, in order to maintain confidentiality, the project lead will assign each participant a randomly generated four-digit identification number prior to completing the pre and posttest. Only the project lead will have access to this information and knows which participant is associated with each assigned number. The information will be encrypted and stored on a password protected laptop that will be locked away in an office cabinet at the end of each day. Data collection will also be completed through the electronic health records to which the project lead has received approval. Data collected, using a chart audit tool, will gather information to determine whether the participants comply with the protocol (yes/no). It also includes screening and referral if the patient has moderate to high risk. If the protocol is incomplete, then the answer is no for noncompliant.

Recruitment Methods

The project is a QI improvement supported by leadership and management. In order to maintain consistency and improve in care coordination, all ED providers to include RNs, have been mandated by hospital administrators to participate in this practice change at the project site. Attendance of the educational training, or completion of the pre and posttest, will not be a condition of employment. There will be no monetary compensation for participants. The project lead will review the chart of adult patients, 18 years old and above, that are seen in the ED during the five-week implementation phase. A total of ten adult patient charts, seen within the implemented time frame at the project site, will be randomly selected each day, and audited by the project lead.

Ethics/Human Subjects Protection

Human subjects play an important role in research. They function as a source for data, and generate knowledge which can be beneficial to society (Yip, Han, & Leong Sng, 2016).

Therefore, researchers have an ethical obligation to protect participants from harm, and that includes, adhering to rules and guidelines that protect the rights, health, dignity, integrity, privacy, and confidentiality of research subject's personal information. (Yip, Han, & Leong Sng, 2016).

This project is not a research study; however, there are ethical considerations that require adherence. To ensure ethical standards are maintained, the project lead must successfully complete all required Collaborative Institutional Training Initiative (CITI) program modules (Appendix I). It must be noted, this project is considered a Quality Improvement initiative and does not involve direct contact with human subjects; this project may be exempt from the Institutional Review Board's (IRB) review. However, the project lead will submit a Touro University Nevada project determination form in accordance with their guidelines for revision, by project team, to determine if IRB review is required.

Confidentiality

In an effort to maintain the confidentiality of staff and patients, no identifiable data will be asked or collected. The chart audits will not extract patient names, identification number, or any personal health information. Each pre-and post-test document will have an identifiable number. The identification number will allow for a match t-test analysis result and will eliminate the need for any additional identifiable information. The data will be analyzed and reported in aggregate. The data will be stored in a secure filing cabinet, as well as on an encrypted USB-drive, which will be password protected. Only the project lead will have access. All files will be destroyed in a shredder equipped with sensitive security features after a year from completion of the project.

All the provisions of the Health Insurance Portability and Accountability Act (HIPAA), regulations, and laws will be adhered to in order to protect the security and privacy of patient's health information. According to Blanke and McGrady (2016), there is increased concern among stakeholders about the growing risk of protecting sensitive data, such as patient health information, from cyber-attacks. Consequently, the Federal Emergency Management Agency (FEMA) has acknowledged there is cause for concern, and regulations such as HIPAA, and the Health Information Technology for Economic Clinical Health Act (HITECH), has increased security requirements as well as the penalty for those who are not in compliance (Blanke & McGrady, 2016).

Measures/Plan for Analysis

This QI project addresses two major areas, namely, measuring staff knowledge before and after the educational training, and measuring staff compliance with the developed protocol. A Paired T-test will be used to evaluate knowledge acquisition of each participant. The Fisher's Exact test will measure staff compliance. The outcome of the data collected from the pre-and post-tests, as well as from the chart audits of the depression protocol, will be analyzed using the SPSS version 27 for data analysis.

Paired T-Test

According to Pallant (2016), a paired t-test is used to determine whether the mean difference between two sets of observations, or data, is zero. The rationale for the paired t-test is to determine whether the scores of staff knowledge (pre/posttest) remained the same or improved after the educational training. In a paired sample t-test, each subject or item is measured twice resulting in pairs of data that can be compared (Pallant, 2016). The paired t-test will provide a comparison to determine the difference in change between the pre- and post-test scores and

whether the educational training made a statistically significant difference or not (Tae Kyun, 2015).

Fisher's Exact Test

The Fisher's Exact test will be used to measure ED staff compliance using the new protocol. This QI project consists of a small convenient sample, and as such, the Fisher's Exact test is practical when analyzing a small size (Tae Kyun, 2015). It also has the ability to provide precise results instead of approximation (Kim, 2017). The Fisher's Exact test will be very useful for gathering information that requires a direct answer, such as yes or no to determine staff compliance.

Analysis of Results

One objective of this quality improvement project was to educate the ED staff to the new protocol. As stated earlier, the QI project addresses measuring staff knowledge before and after the educational training. A Paired T-test was used to evaluate staff knowledge.

A second objective of this quality improvement project was to implement an evidence-based depression screening protocol at the practice site and assess compliance. As stated earlier, the QI project addresses measuring staff compliance of the developed protocol. A post protocol implementation assessment was performed using a chart audit review during weeks 3, 4, and 5. The compliance assessments were analyzed using a Fisher's Exact test with the proportions and confidence intervals presented.

Staff Knowledge

A total of 110 individuals participated in the educational training and completed the pre and posttest, which consisted of ten items. The pre-and post-test was used to evaluate the level of knowledge achieved from the educational session. The t test can be used when the assumptions are met: There are two paired measurements of the characteristic of interest; one pretest and one posttest measurement on the same person, the two measures that are compared are normally distributed or there are at least 30 pairs and a distribution that is not too badly skewed, and the measurement scale is either interval or ratio (Kellar & Kelvin, 2013). All assumptions are met; therefore, a paired t test is appropriate for the project data. A paired t test was performed to determine if the staff knowledge scores are significantly different.

T-test for Knowledge

Descriptive data can be conveyed as mean and standard deviation or as median and range (Falter, Budts, Goetschalckx, Cornelissen, & Buys, 2019). The mean deviation (MD) and the standard deviation of the mean difference (SDD) were calculated using the paired t-test.

The paired t-test analysis was performed to assess the education intervention on the knowledge of the 110 participant pre and post samples at the $\alpha = 0.05$ level. There was a significant difference in the pre-test scores for knowledge (M=65.91, SD=7.70) and post-test scores (M=100.00, SD=0); $t(109) = 46.45$, $d = 4.43$, $p < 0.001$. Post test scores are significantly higher than pre test scores. This supports the assertion that the education intervention would increase knowledge. Table 1 and Figures 1 and 2 illustrate these findings.

Table 1

Paired t-Tests

	Post			Pre						95% CI	
	M	SD	n	M	SD	n	t	df	p	Lower	Upper
Knowledge	100	0	110	65.91	7.7	110	46.5	109	<.001	32.64	34.55

Figure 1

Pre-test Results of Staff Knowledge

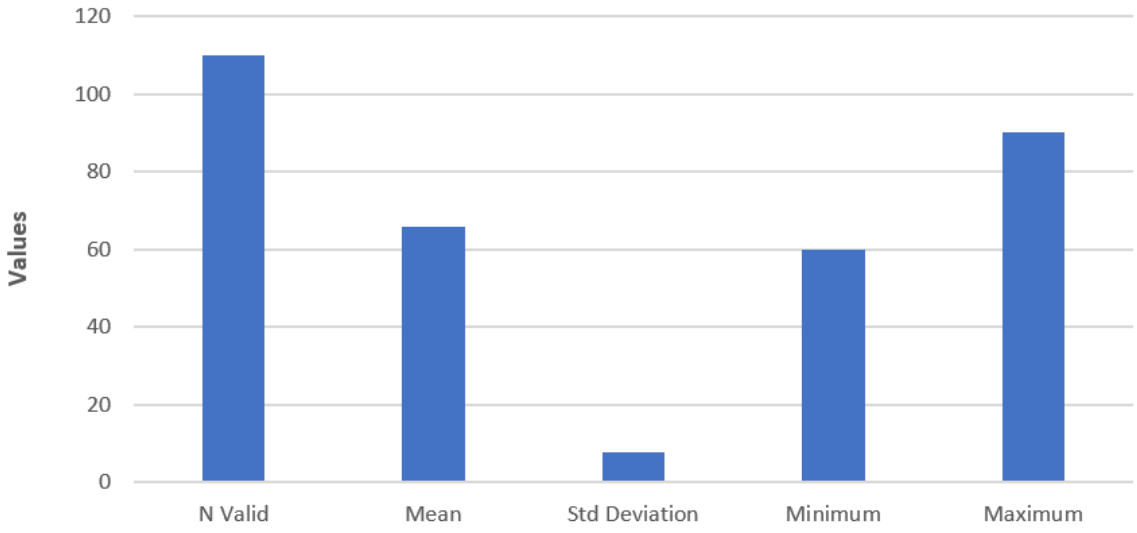

Figure 2

Post-test Results of Staff Knowledge

Protocol Compliance

The second objective of the project was to perform depression screening on all adults over 18 years old seen in the ED and refer those who scored positive for moderate or severe depression to mental health services for continuity of care. During the four-week implementation period of the new depression screening protocol, a total of 3,240 (n=3240) patients over age 18 were screened in the ED. All patients were initially screened for depression utilizing the PHQ2 tool. This tool has two questions, and if the answer was no (meaning they are not feeling depressed), no further screening was necessary. Those who answered yes on the PHQ2, were further screened using the PHQ9 to determine the severity of their depression.

Depression was categorized as mild, moderate, or severe. Those who were diagnosed with mild depression, received educational materials on depression prior to discharge. Those who were diagnosed with moderate or severe depression, were referred to the mental health services for further evaluation and treatment options.

The Fisher's Exact test was utilized to measure staff compliance with the depression screening protocol. According to McLeod (2019), the Fisher's Exact test is a method for determining whether there is an association between two categorical variables. Fisher's Exact test can be used when the assumptions are met: The participants constitute an independent and random sample, there are two independent variables to be compared, the two measures are nominal or ordinal, and there are no cells with an expected frequency of zero (Kellar & Kelvin, 2013). These assumptions are met; therefore, the Fisher's Exact test is appropriate for the project data.

Chart Audit Results

A total of 200 charts were randomly selected and audited over a four-week period to validate compliance of the depression screening protocol. Of the 200 patient charts audited, 170 screened positive for moderate to severe depression. Only 168 patients were included in the final analysis and referred to mental health services.

Information provided in Table 2 indicated that 30 individuals scored positive for mild depression, 162 individuals scored positive for moderate, and eight patients scored positive for severe depression. The two individuals that scored positive for moderate depression were discharged without a referral to Mental Health services. Further investigations revealed that one patient was already receiving treatment, and one patient declined mental health services. In all, 84% of patients were referred to mental health services.

Table 2

Depression Screening Results

Type	Total	Percent
Mild Depression	30	15%
Moderate Depression	162	81%
Severe Depression	8	4%
Cases Referred	168	84%
Case's score + for Mod depression not referred	2	1%

Fisher's Exact Test for Compliance

A Fisher's exact test was performed to examine the relation between moderate and severe protocol implementation compliance. The relationship between these variables was not significantly different, $p > .99$. Compliance was not significantly different for the moderate and severe classifications. Pre-intervention compliant proportion is .96 with post implementation proportion of 1.00 (Table 3). Two cells have expected cell counts of less than 5, supporting the use of Fishers Exact test.

Table 3

Fisher's Exact Test for Compliance

	Referred		p	Proportion	95% CI[1]	
	Yes	No	0.99		Upper	Lower
Moderate	160	2		160/162 = .99	0.99	0.96
Severe	8	0		8/8 = .1.0	1	0.6

[1] The Wilson procedure without correction for continuity was used.

Discussion of Findings

The implementation of the depression screening protocol and educational training at the practice was successful. It resulted in an increase in the utilization of a standardized screening tools, to identify, document and refer patients to mental health services. Prior to the implementation of the project, there was no established depression screening protocol in the ED. With this QI measure, depression screening went from 0% to 100% over the course of four weeks. Both objectives were met at the end of the project implementation period. Staff knowledge in depression/depression screening increased by 51%. The results of this QI project reveal a 99% increase in the changed behavior indicating a significant level of compliance and confidence in utilization of the new protocol. Data analysis techniques chosen for this QI measure was appropriate and produced substantial results. The overall outcomes of the analysis revealed increase of 95% in depressional screening and mental health referral rates. The proportion of patients that received referral to mental health services, indicated that implementing the depression screening protocol has increased identification of those at risk for suicide.

According to Bueno-Notivol et al., (2020) the prevalence rate of depression has increased since the COVID-19 pandemic. The author also mentioned that in 2017, the prevalence of depression was 3.44%, and in just four short years the prevalence has increased to 25%, and much of that is attributed to the pandemic (Bueno-Notivol et al., 2020). Depression is not only a national problem but also a global problem. Although the pandemic has resulted in an increase in depression, social unrest due to multiple world events make it a necessity to put in place depression screening protocols in an ED setting.

Significance/Implications for Nursing

Recent studies suggested that the occurrence of depression among patients in the emergency department (ED) is substantially higher than in the general population (Abar, Hong, Aaserude, Holub, & DeRienzo, 2017). The ED is an ideal location for identification and appropriate intervention for those impacted by depression. Screening for depression, supported by referral to mental health services, was found to be an essential element in the identification and management of patients seen in the ED setting. The use of appropriate screening tools, and the ability for providers to initiate such screening, created an effective combination for improved quality of care for those entering the ED setting for other complaints. Despite the National guidelines and recommendations for depression screening, providers at the practice site were not screening their adult patients for depression. Barriers, such as a busy ED turnover rate, has led to missed opportunities to identify those at risk. The project findings suggest that the ED providers/nurses are at the front line and are the gate way to implement evidenced-based depression screening protocol to capture patients in need of mental health services.

Limitations

According to Ross and Zaidi (2019), the limitations noted within a study should place research findings within their proper context, to make sure readers are able to understand the credibility of a study's conclusion and can generalize findings appropriately. The implementation of the depression screening protocol showed significant improvement in depression screening practice among ED providers. However, this quality improvement measure faces some key limitations.

Project Design

The implementation phase of four weeks was a short period of time to collect a substantial amount of data to determine the long-term effect of the new protocol and staff continued adherence for sustainability. Also, pre and post intervention of the educational training noted ~~that~~ the participants' short-term memory improved to 100% on post intervention. Thus, the depression screening educational intervention increased participants' short-term knowledge acquisition, but it is unclear whether the simple training will assist ED providers with long-term memory acquisition. A longer duration would likely produce a more robust result. Therefore, further studies are needed to assess the outcomes of the intervention over a longer time frame.

Data Collection Methods

During the implementation phase of the QI project, there was verbal feedback from the participants regarding time constraints (an additional task) in completing the depression screening. As described previously, the PHQ-2 template was used initially, and if the patient scored positive, the triage nurse would use the PHQ-9 to continue with the remaining seven questions. However, the use of a computerized template, built into the triage nurse's notes, was intended to expedite the process, and make it seamless. This project did not investigate the additional time used by the triage nurses to complete the depression screening or the additional time spent by the providers with patients in completing referral to MH services. This could also be an area for future investigations.

Due to the small sample size, the Fisher Exact test was used to measure the project objectives. The use of a small sample size jeopardizes the generalizability of the result, and limits the possibility to draw assumptions from the sample to wider study population (Vasileiou,

Barnett, Thorpe, & Young, 2018). A larger population would provide a more robust finding as an important marker, to the quality of the research (Vasileiou, Barnett, Thorpe, & Young, 2018).

Recruitment Data

Researchers have an obligation to the academic community to present complete and honest limitations of a presented study (Ross & Zaidi, 2019). The findings of this QI project are based on the information gained from only one department at the project site. The protocol was not tested in any other type of health care setting. It may have certain biases based on one ED versus another setting. Therefore, I cannot guarantee the results will be the same in any setting.

One of the most significant limitations was the project did not follow-up on patients referred to mental health services. The project lead had limited ability to examine whether mental health follow-up occurred. The number of patients that accepted the mental health referrals and actually followed up, was not assessed as part of this project. The patient's autonomy to make an informed decision should be considered (Spatz, Krumholz, & Moulton, 2016).

Project Sustainability

Sustainability is critical to the continuation of the project's ability to advance after the implementation phase (Maji, et al., 2019**).** The enthusiastic approach of participants was impressive and remained unwavering from the beginning to the end of the project. They were optimistic with the change process and provided constructive feedback. A warm hand-off would be given to the provider for patients that scored positive for severe depression and deemed at risk. The participants buy-in demonstrated their support of the change and increased the likelihood that this QI measure will be successful and sustainable (French-Bravo & Crow, 2015). This project will be sustainable because it aligns the facility safety goals in accordance with Joint

Commission National Safety goals for suicide prevention and risk reduction in the health care setting (The Joint Commission, 2021). Prior to the implementation of this QI measure, the project site did not have a depression screening protocol in place

Dissemination

Knowing the characteristic of the audience that findings are shared with, are paramount in shaping a dissemination strategy for this project (Brownson, Eyler, Harris, Moore, & Tabak, 2018). The project results will be shared with stakeholders to include nurses, medical providers, and leadership at the project site using a PowerPoint presentation. Nursing leadership confirmed that educational presentation will be included during orientation training for new hires in the ED.

This quality improvement project will be filed in the Doctoral of Nursing Practice Project Repository (doctorsofnursingpractice.org), which allow DNP graduates to share their project in a scholarly environment. Articles on this website are not peer-reviewed; however, it provides an opportunity to disseminate the contents of the project, as available resources to other DNP students and health care professionals. The project results will also be shared with Touro University Nevada faculty and student colleagues using a Power Point presentation. Guidance is being sought from the American Association of Nurse Practitioner (AANP) for consideration to submit my proposal. Permission has been sought from the AANP for a poster presentation at the upcoming AANP Fall Conference in Hollywood, Florida in September 2021.

Conclusion

In conclusion, depression is a major health disorder that is treatable. Untreated depression has the potential to be associated with poor outcomes and increased risk for suicide. A major issue at stake for a person suffering from depression is their life. The importance of screening for depression in patients seen in an ED setting cannot be overemphasized. In the absence of

screening, many patients affected by depression may go unnoticed. Therefore, the utilization of a depression screening protocol serves as an effective tool for early identification, treatment, and referral to mental health services. Information obtained in this project indicated that implementation of the depression screening protocol can be used in any setting to capture those at risk. The assumption is that ED providers, that are trained and familiar with depression screening, will be better informed and equipped to identify signs of depression in their patients. Findings from this project suggest that implementation of a depression screening protocol has the potential for significant benefits.

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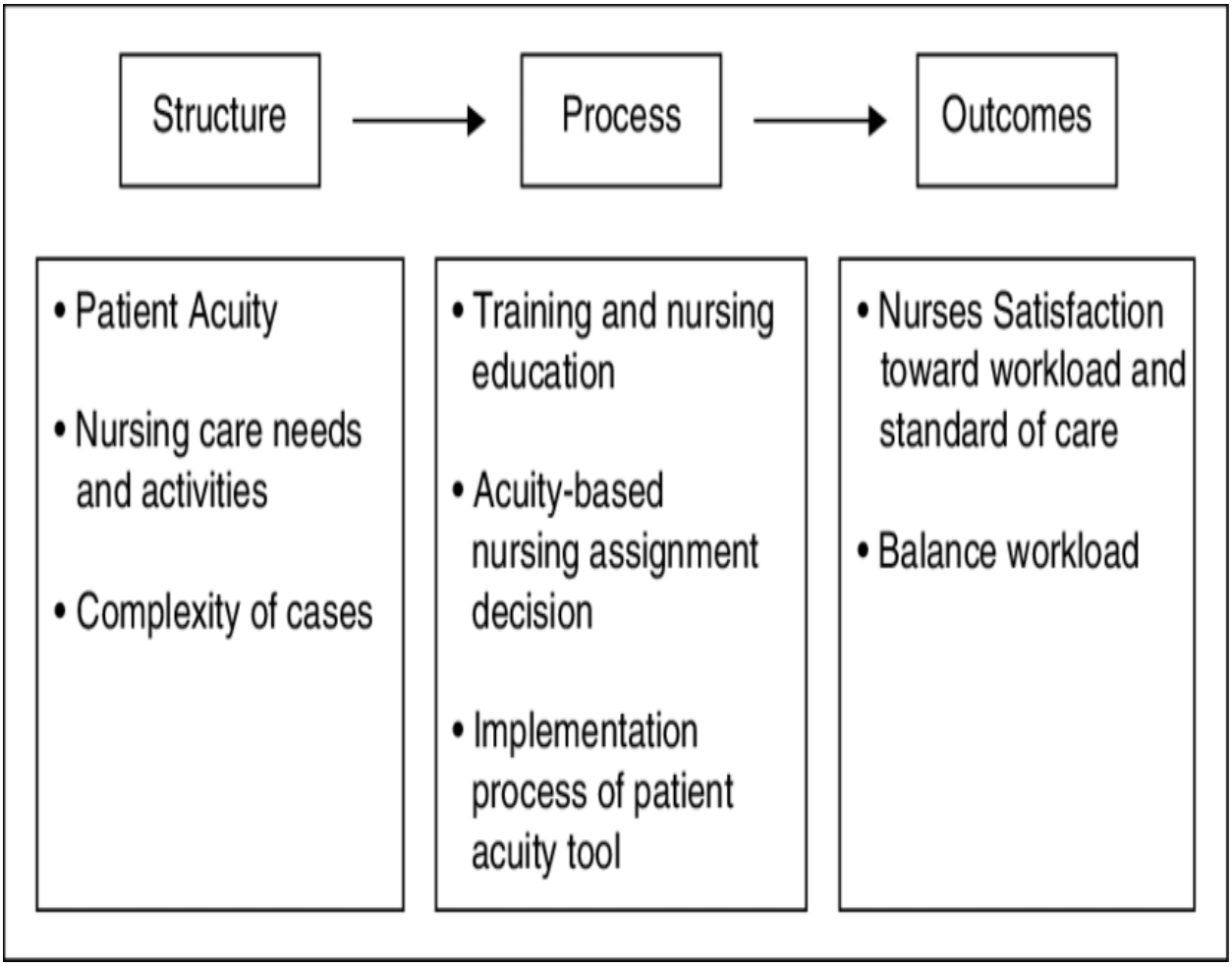
Appendix A

Donabedian Model



Appendix C

ED Depression Screening Protocol

Topic:

Effective Date:

DEFINITION: Depression is a serious mental health mood disorder marked by classic symptoms such as sadness, anhedonia, hopelessness, insomnia or hypersomnia, poor appetite, feeling of worthlessness or excessive guilt and diminished concentrations. To be diagnosed with depression, these symptoms must be present most of the day, nearly every day, for at least two consecutive weeks and cannot be attributed to another medical condition (American Psychiatric Association [APA], 2013).

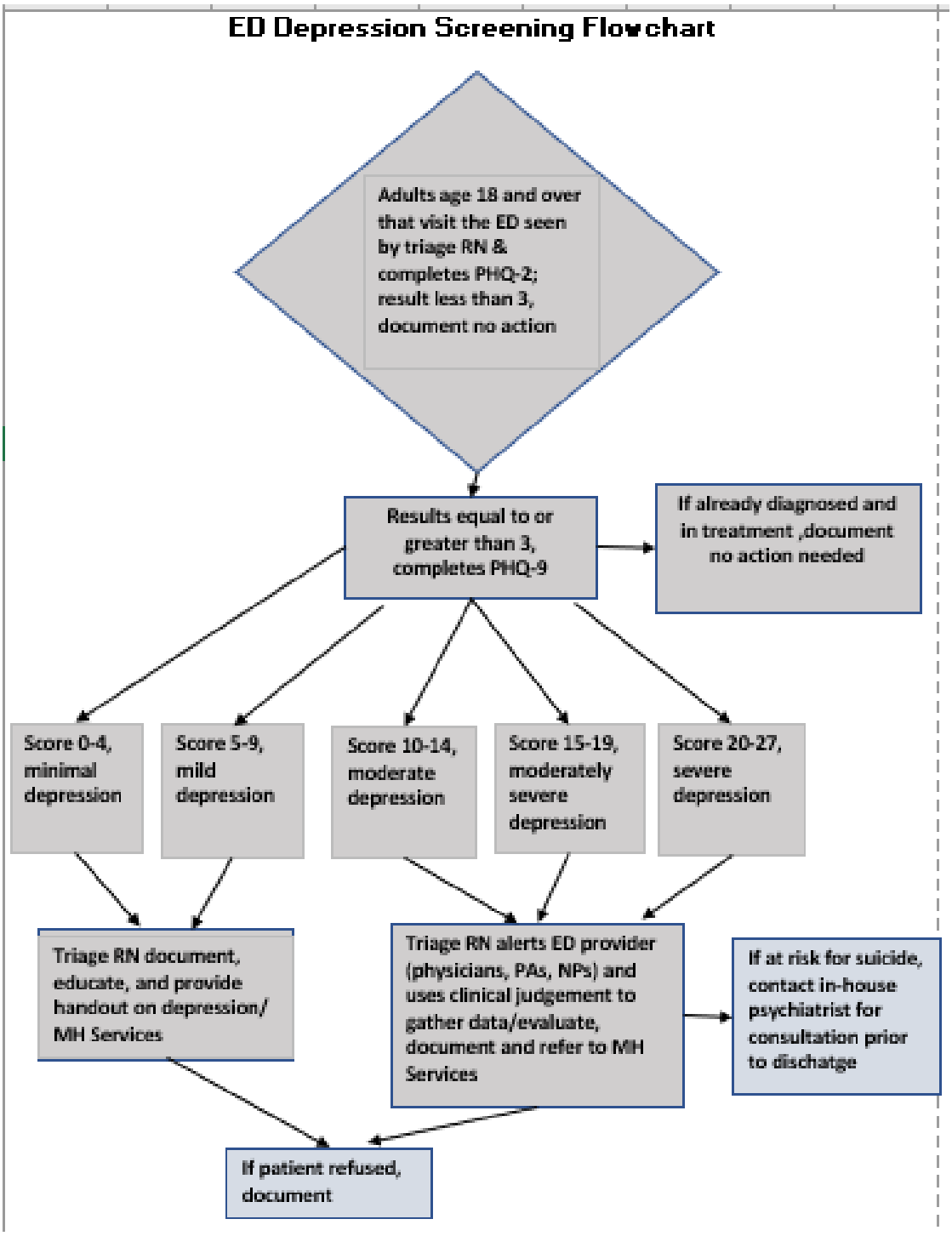
Major depression is associated with high mortality rates, primarily, as related to the occurrence of suicide (APA, 2013). Therefore, depression screening in the emergency department (ED) is a vital step for early detection and appropriate intervention, assessment and evaluation.

NOTE: Patients with a positive score, indicative of moderate to severe depression (using PHQ-2 or PHQ9) should be documented in the RNs triage note, then referred to the medical ED provider (Physicians, PAs and NPs) for further evaluation.

PROCEDURE

- During the triage process, the triage nurse will screen all patients age 18 and above for depression using the PHQ-2 or PHQ-9
- The screening tools will be included in the triage template, and the triage RN will review with the patient, at every ER visit, to assess for any changes or worsening depressive symptoms.

- The PHQ-2, consisting of 2 questions, will be the initial step to be completed in the depression screening process located in the nursing triage template.
- If patient score is positive on PHQ-2, the triage Nurse will then proceed to the additional questions on PHQ-9.
- If positive for moderate to severe depression, the triage nurse will alert the ED medical team (PA's and NPs) for evaluation and clinical intervention.
- Positive screening warrants further evaluation and referral to Mental Health Services
- ED medical staff, to include, PA, NPs) will review the patients records during the visit to ensure the PHQ is updated and documented.
- Patient that scores positive, for moderate to severe depression, will require referral to the Mental Health Connect Clinic for further evaluation and treatment interventions. Use clinical judgement regarding the patient's safety. If safe for discharge, arrange for outpatient psychiatric follow-up.
- Patients seen with severe depression, and deemed to be at risk for suicide, must have a stat consult, to be seen by in-house psychiatrist for consultation. The patient should remain in ED until seen by psychiatry.
- If patient has a diagnosis of depression, ED provider must assess for severity, functional status, review current treatment for depression, prior to discharge. If safe for discharge, alert the patient primary care provider or mental health clinic provider for follow-up care.
- Provide the patient with educational hand out, Crisis Hot line telephone number, and reiterate the importance of mental health treatment and management of depression. The protocol stops at referring for further management. Prescription will not be provided per management.
- ED providers will document the intervention or patient's refusal, contact information in the patient's chart and utilize appropriate diagnosis code for billing.


ED Depression Screening Flowchart
Adults age 18 and over that visit the ED seen by triage RN & completes PHQ-2; result less than 3, document no action
Results equal to or greater than 3, completes PHQ-9
If already diagnosed and in treatment ,document no action needed
Score 0-4, minimal depression
Score 5-9, mild depression
Score 10-14, moderate depression
Score 15-19, moderately severe depression
Score 20-27, severe depression
Triage RN document, educate, and provide handout on depression/ MH Services
Triage RN alerts ED provider (physicians, PAs, NPs) and uses clinical judgement to gather data/evaluate, document and refer to MH Services
If at risk for suicide, contact in-house psychiatrist for consultation prior to dischatge
If patient refused, document

NIDA Clinical Trials Network

Patient Health Questionnaire-2 (PHQ-2)

Instructions:
Please respond to each question.

Over the last 2 weeks, how often have you been bothered by any of the following problems?

Give answers as 0 to 3, using this scale:
0=Not at all; 1=Several days; 2=More than half the days; 3=Nearly every day

1. **Little interest or pleasure in doing things**
   ☐0 ☐1 ☐2 ☐3

2. **Feeling down, depressed, or hopeless**
   ☐0 ☐1 ☐2 ☐3

Instructions
Clinic personnel will follow standard scoring to calculate score based on responses.

Total score: _ _

Patient Health Questionnaire (PHQ-9)

Patient Name: _____ **Date:** _____

	Not at all	Several days	More than half the days	Nearly every day
1. Over the *last 2 weeks,* how often have you been bothered by any of the following problems?				
a. Little interest or pleasure in doing things	☐	☐	☐	☐
b. Feeling down, depressed, or hopeless	☐	☐	☐	☐
c. Trouble falling/staying asleep, sleeping too much	☐	☐	☐	☐
d. Feeling tired or having little energy	☐	☐	☐	☐
e. Poor appetite or overeating	☐	☐	☐	☐
f. Feeling bad about yourself or that you are a failure or have let yourself or your family down	☐	☐	☐	☐
g. Trouble concentrating on things, such as reading the newspaper or watching television.	☐	☐	☐	☐
h. 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.	☐	☐	☐	☐
i. Thoughts that you would be better off dead or of hurting yourself in some way.	☐	☐	☐	☐
2. If you checked off any problem on this questionnaire so far, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
	☐	☐	☐	☐

PHQ-9* Questionnaire for Depression Scoring and Interpretation Guide

For physician use only

Scoring:
Count the number (#) of boxes checked in a column. Multiply that number by the value indicated below, then add the subtotal to produce a total score. The possible range is 0-27. Use the table below to interpret the PHQ-9 score.

Not at all	(#) _____	x 0 = _____
Several days	(#) _____	x 1 = _____
More than half the days	(#) _____	x 2 = _____
Nearly every day	(#) _____	x 3 = _____

Total score: _____

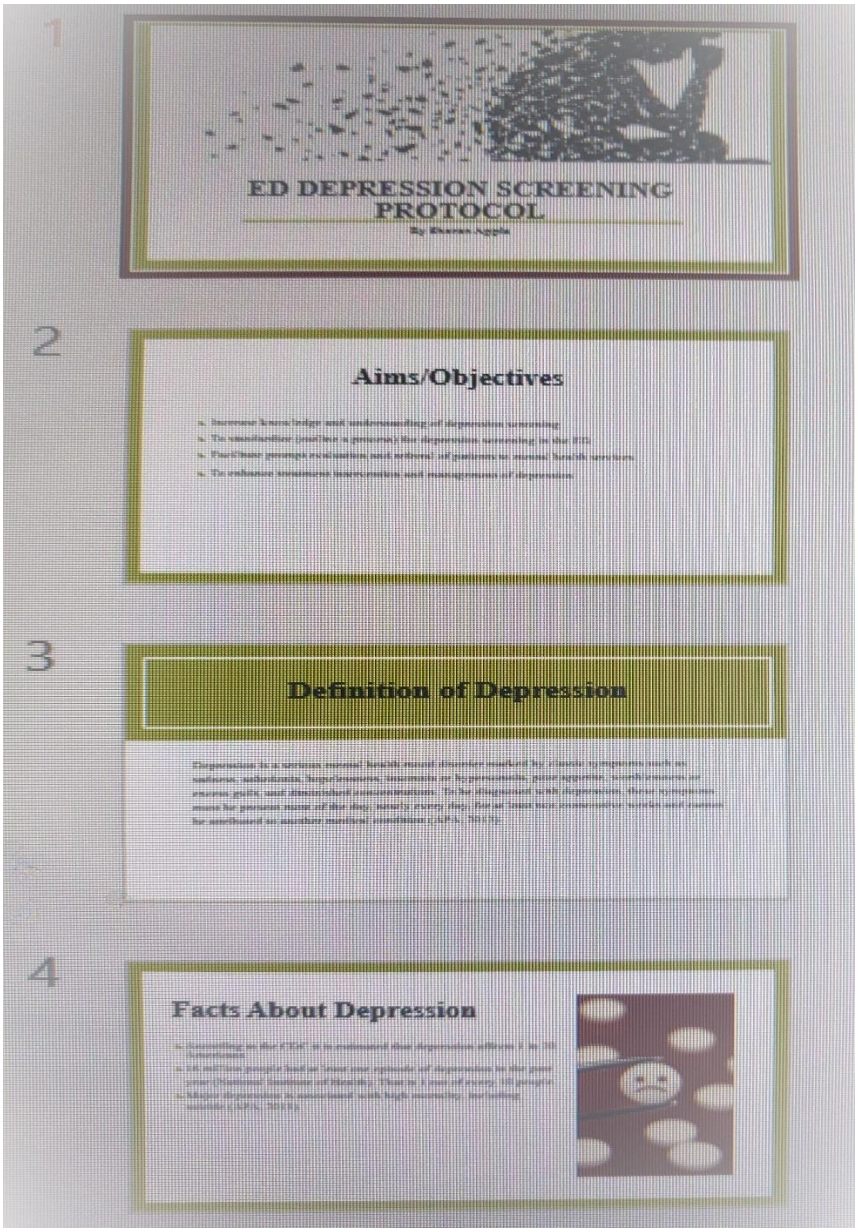
Interpreting PHQ-9 Scores

Diagnosis	Total Score	For Score	Action
Minimal depression	0-4	≤ 4	The score suggests the patient may not need depression treatment
Mild depression Moderate depression	5-9 10-14	5 - 14	Physician uses clinical judgment about treatment, based on patient's duration of symptoms and functional impairment
Moderately severe depression Severe depression	15-19 20-27	> 14	Warrants treatment for depression, using antidepressant, psychotherapy and/or a combination of treatment.

* The PHQ-9 is described in more detail at the Pfizer website: http://www.phqscreeners.com/

Appendix D

Power Point Presentation (uploaded)



Appendix E

Pre and Post Test

Question number	Question
1.	A depressive episode must be present for how many weeks to be considered for major depressive disorder. a. 1 week b. 2 weeks c. 3 weeks d. 4 weeks
2.	Which of the following symptoms is do NOT typically occur during a major depressive episode? a. Decreased appetite. b. Increased suicidal ideation. c. Increased ability to focus. d. Decreased energy.
3.	Which of the following is NOT an antidepressant medication? a. Sertraline b. Wellbutrin c. Remeron d. Hydroxyzine
4.	True or false? Hypothyroidism can present the same way as a major depressive episode.
5.	Do males or females have a higher suicidal completion rate?
6.	Patient ABC is a 55-year-old male with no past psychiatric history. He presents to the clinic reporting a three-week history of severe depressive symptoms with supporting symptoms of lack of appetite, insomnia, severe depression, suicidal ideation, and poor energy and concentration. He denies ever having depressive symptoms before but admits that he drinks alcohol every day for the past year. Last alcohol consumption was 6 beers last night. What is the most likely diagnosis? a. Major depressive disorder b. Persistent depressive disorder c. Substance induced mood disorder, with depressed features d. Bipolar disorder

7.	Patient ABC is a 55-year-old male with no past psychiatric history. He presents to the clinic reporting a 3-week history of severe depressive symptoms with supporting symptoms of lack of appetite, insomnia, severe depression, suicidal ideation, and poor energy and concentration. He denies ever having depressive symptoms before but admits that he drinks alcohol every day for the past year. Last alcohol consumption was 6 beers last night. What should the next step be? a. Recommend that he drive home. b. Recommend that he have someone pick him up and drive him home. c. Recommend that he go to the ER for evaluation.
8.	Patient XYZ is a 25-year-old male with no past psychiatric history. He presents to the clinic reporting a 3-week history of severe depressive symptoms that have been occurring every day. He endorses symptoms of anhedonia, lack of pleasure or interest in activities, poor sleep, weight loss of 10 lbs., fatigue, and guilt over his feelings. He states that he has been unable to work due to his depressive symptoms. He denies any substance use for years but admits that he used marijuana a few times when he was age 18. What is the most likely diagnosis? a. Major depressive disorder b. Persistent depressive order c. Substance induced mood disorder, with depressed features d. Bipolar disorder
9.	A 38-year-old male seen by his primary care provider reports intense sadness, feeling down, in "a dark place", poor concentration, loss of appetite, and irritability, which he says has been going on for over 2 weeks. What is the most likely diagnosis? a. Depression b. Bipolar disorder c. Schizoaffective disorder d. Anxiety
10.	True or false? Patients diagnosed with mild depression should be prescribed anti-depressant medication to help with symptoms.

Appendix E1

1. B
2. C
3. D
4. True
5. Males
6. C
7. C
8. A
9. A
10. False

Pretest/posttest answers

Appendix F

Pre and Post-Test

Permission obtained For Pre-Post Test

Pretest/Posttest Design

The questionnaire items were developed by this writer and my colleague, staff psychiatrist, Dr. Brian Bui for educational purposes and permission is granted to this student to utilize for a research project. The questionnaire asks general knowledge questions along with diagnostic items. Feel free to use the questionnaire as needed.

Gailey Brown-Edmondson DHEd, RN, MSM

Doctor of Health Education

Clinical Nurse Educator

VHA Fellow Mentor & Coach

TMS Facilitator

HAMVAMC VA

100 Emancipation Dr

Hampton, VA 23667

Email: gailey.brown-edmondson@va.gov

PH: 757-722-9961

Appendix G

Educational Pamphlet for Patients

Appendix H

Chart Audit Tool

Date of ED Visit	M/F	Age	PHQ-2 Y/N	PHQ-2 Score	PHQ-2/9 Y/N	PHQ-9 Score	Scene by ED Provider? Y/N	Refer to Mental Health? Y/N	Disposition Discharge/Admit