2019

Depression Screening in Poststroke

Shannah Lowe
Walden University

Walden University

College of Health Sciences

This is to certify that the doctoral study by

Shannah Lowe

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Edna Hull, Committee Chairperson, Nursing Faculty
Dr. Camilla Jaekel, Committee Member, Nursing Faculty
Dr. Eileen Fowles, University Reviewer, Nursing Faculty

The Office of the Provost

Walden University
2019

Abstract

Depression Screening in Poststroke

by

Shannah Lowe

MS, Troy University, 2012

BS, Troy University, 2009

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

November 2019

Abstract

Depression, a sequela of stroke, is underrecognized and underreported. The American Heart/Stroke Association estimated 1/3 of patients develop depression after a stroke. Depression after a stroke has negative influence on stroke recovery through decreased participation in rehabilitation, and increased morbidity and mortality. The American Heart/Stroke Association recommended that depression screening be conducted on stroke patient; however, there is a lack of guidance regarding the optimal time and tools for depression screening. The practice problem identified was the absence of depression screening in poststroke patients at the project site. The project question focused on identifying evidence-based approaches for depression screening in poststroke patients. The goal of the project was to develop clinical practice guidelines for depression screening poststroke. The framework used to develop the project was the John Hopkins Evidence-Based Nursing model. An expert panel was used to evaluate the developed clinical practice guidelines. Serving as participants, expert panelist were selected based on their background in stroke care management. Panelists evaluated the guidelines using the Appraisal of Guidelines for Research and Evaluation Instrument II standard instrument tool. Twenty-five percent of reviewers recommended using the guidelines and 75% recommended using the guidelines with minor modifications. Implementation of clinical practice guidelines support depression screening after stroke leading to increased awareness, education, recognition and reporting. The findings of this project have the potential for positive social changes by improving depression screening in stroke patients and increasing early recognition and reporting of depression poststroke.

Depression Screening Poststroke

by

Shannah Lowe

MS, Troy University, 2012

BS, Troy University, 2009

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

November 2019

Dedication

I would like to dedicate this doctoral academic to my family and friends. Thank you for your support. Special thanks to my grandmother, who was the reason for the doctoral project focus. To my dearest friend, Diana Harton, who was my cheerleader when times were difficult, and I was ready to wave the white flag. To my mom, Elois Lowe who has served as a role model for many aspects of my life, including this one. Your encouragement to reach for the dreams, have made this achievement possible.

Acknowledgments

After renew strength, motivation, and perseverance, I have reached the end of the doctoral academic journey. I will forever be indebted to my faculty chair, Dr. Edna Hull, PhD, RN, CNE for the reviews of the many iterations of the DNP proposal and final project. Thank you for your support and guidance when my progression through the DNP project was in jeopardy of being derailed. The words of support and guidance became my lifeline to continue to move forward.

I am grateful for the support of Cynthia Bond MSN, APRN, ACNS-BC. Your mentorship and guidance through the project site was above and beyond. I couldn't have gotten through project completion without your expertise.

Table of Contents

List of Tables

Section 1: Nature of the Project

Introduction

Depression in the poststroke patient has been documented in the literature as having a negative impact in clinical outcomes (Jia et al., 2010). The occurrence and impact of depression may vary depending on the severity of disability and location of cerebral infarct (Kouwenhoven, Kirkevold, Engedal, & Kim, 2011). Depression in poststroke patients can lead to fatigue, pain, and failure to participate in rehabilitation activities (Lerdal et al., 2011). Stroke is the leading cause of disability in the United States, with 20% of people requiring institutional care 3 months poststroke (Hollender, 2014). It has been estimated that approximately one third of stroke patients will be affected by depression (Hollender, 2014). Kouwenhoven, Kirkevold, Engedal, and Kim, (2011), stated that the incidence of poststroke depression is higher within 1-month post stroke than later phases.

Stroke is the leading cause of disability, which can result in life changing alterations for the stroke survivor. Depending on the severity of the stroke, the survivor may have limitations on the degree of independence, subsequently affecting their quality of life and participation in the life known before the stroke (Kouwenhoven, Kirkevold, Engedal, & Kim, 2012). Although the survivor is alive, it can be assumed there is a perception of loss. Poststroke depression is associated with physical disability, stroke severity, history of depression, and cognitive impairment (American Heart Association Stroke Council, 2017). Additionally, poststroke depression is attributed to poorer functional outcome (American Heart Association Stroke Council, 2017). The American

Heart Association Stroke Council, (2017) stated that one in three stroke survivors suffers from depressive symptoms because of biological and psychosocial factors. However, in lieu of the prevalence of poststroke depression, there is no standard or guidelines for screening of depressive symptoms in this population.

This evidence-based project relates to the Doctor of Nursing Practice (DNP) Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking, with emphases on the DNP students' leadership roles in recognizing health care issues and use of evidence-based knowledge to improve patient health outcomes (American Association of Colleges of Nursing [AACN], 2006). The AACN (2006) further detailed DNP Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice, which focuses on the DNP students' ability to interpret, spread, and assimilate research into evidence-based practice. Implementation of evidence-based practice is not an uncommon occurrence within the acute care setting. However, when existing guidelines neglect to include hospital organizations, subsequently the discussion changes to "is this guideline best practice and should the organization adopt it?" According to Campos (2011), evidence-based practices are interventions or programs that have been rigorously scientifically evaluated for effectiveness, whereas best practice lack independent evaluation of effectiveness.

The nature of the DNP project was to develop a clinical practice guideline based on the evidence to facilitate a process for depression screening in poststroke patients, ultimately leading the organization to implement the guideline. An additional implication of the DNP project was to impact social change through adoption of the guideline across

the system and into the clinical setting. An additional impact for social change included presentation of clinical guidelines at various conferences and meetings as appropriate.

Problem Statement

The problem that was addressed in the evidenced-based project is the lack of depression screening in the poststroke patient as evidenced by non existing tools, policies or procedures. While recent reports indicate over 1,500 patients have been treated for stroke at the project site, data on how many of those patients have reported symptoms related to depression is unknown. In a recent statement by the American Heart Association Stroke Council (2017), depression affects one third of stroke survivors and is associated with poor functional outcomes and increase mortality. Most patients, approximately half of stroke survivors, are discharged home with persistent neurological impairments (Andersen et al., 2000). Readmission rates within 1 year of stroke range from 20% to 27% (Andersen et al., 2000). Increase health care costs and emotional distress are associated with readmission of the stroke patient, a common occurrence in the acute care setting (Andersen et al., 2000).

The Joint Commission standards for primary stroke center details essential requirements for the stroke program. In the disease specific requirements chapter titled *Delivering or Facilitating Clinical Care,* (DSDF) Element 4 provides specific requirements to address the plan of care that is based on a needs assessment (The Joint Commission, 2017). In comparing the DSDF Element 4 in a Primary Stroke Center, a similar standard with the Comprehensive Stroke Center requirements, indicates that there is a notable difference. In the comprehensive center requirement, there is an element for

assessing the patient for depression, cognitive decline, and other social issues prior to discharge (The Joint Commission, 2017), however the primary stroke center standards do not have this as a requirement. Recently, the standards for a comprehensive certified center have been updated, eliminating the requirement for depression screening (The Joint Commission, 2018). Prior to this recent update, this difference led to variation in practice in the delivery of patient care and potential outcomes among the stroke patients treated in a primary stroke center versus a comprehensive stroke center.

The stroke population characteristics between a primary care center and a comprehensive care center are relatively the same with the major difference being available intervention options. Although there is not a consistent standard between the primary center certification and the comprehensive center certification regarding depression screening, there is a recommendation by the U.S. Preventive Services Task Force (USPSTF) for depression screening in all adult patients.

The number of stroke survivors will likely increase because of the improvements in the management of acute strokes (Lightbody et al., 2007). Subsequently, this leads to an increase number of individuals living with a disability either physically or cognitively (Lightbody et al., 2007). Nursing practice has long held an interest in improving patient outcomes and nurses possess the skills to assess factors that will have a negative impact on them. Nursing can play an active role in recognition and management of poststroke depression, a common consequence of a stroke (Lightbody et al., 2007; Melrose, 2016), through engagement in early depression screening.

Purpose

The primary aim of this DNP project was to develop a clinical practice guideline for depression screening in the poststroke patient. A clinical practice guideline can be defined as statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options (Rosenfeld & Shiffman, 2009).

The evidence is clear that poststroke patients have an increase propensity of developing depression, subsequently leading to poorer outcomes, decreased quality of life, increase readmission rates, and increase mortality (American Heart Association Stroke Council, 2017; Andersen et al., 2000; Robinson-Smith, Johnston, & Allen, 2000; Whyte & Mulsant, 2002). The opportunity between the recommendation of the evidence and current practice, can be lessened with a clinical practice guideline for depression screening in post stroke patients.

Nature of the Doctorate Project

The nature of this project involved development of a clinical practice guideline for depression screening. I used the John Hopkins Nursing Evidence-Based Practice model (JHNEBP) (Newhouse, John Hopkins University, Sigma Theta Tua International, & John Hopkins Hospital, 2007). The model described in detail later, consist of three phases. Using the JHNEBP model, the first phase identified absence of a clinical practice guideline to facilitate depression screening in poststroke patients as the practice problem. In accordance with the second phase of the JHNEBP model, my next step was to review the research and non research available for depression in poststroke patients. Sources of

evidence that I considered included original research papers, journal articles, organization recommendations, questionnaires, other evidence-based projects and systematic reviews. The final phase, translation, is where the feasibility of use of the clinical practice guideline will be evaluated with consideration of the external and internal factors (see Newhouse, John Hopkins University, Sigma Theta Tua International, & John Hopkins Hospital, 2007) Also, in the last phase, the evaluation of the guideline was collected, analyzed and disseminated to the stakeholders of the organization.

The evidence-based project involved several actions. First, I used JHNEBP to facilitate a review of the evidence and evaluate internal and external factors as it related to the development of the clinical practice guideline (see Newhouse, John Hopkins University, Sigma Theta Tua International, & John Hopkins Hospital, 2007). Second, the literature was critically appraised, then synthesized. Following a synthesis of the literature, the clinical practice guideline was developed. Nearing the completion of the guideline, I identified members for expert panel review to provide anonymous feedback of the clinical guideline using the AGREE II instrument. I revised the guidelines based on the recommendations of the expert panel. At the end of completing the revision, another group was formed consisting of key stakeholders and end users. The purpose of the second group was to discuss usability and validate content. The final steps of the process were to develop a final report and disseminate to key stakeholders.

Significance of the Project

Poststroke depression has a significant impact on the recovery of stroke survivors (Robinson-Smith et al., 2000). Despite the negative impact, there lacks a specific

guideline or protocol on when or how to screen for depression in poststroke patients. Although the USPSTF has recommended depression for all adults, it currently excludes settings such as hospitals or other acute care settings. In the DNP project setting key stakeholders included the stroke coordinator, the stroke program medical director, chief nursing officer, unit director of the primary stroke unit, unit leadership, and staff nurses. Nurses in the acute phase have the potential to significantly impact outcomes for the poststroke patient through identifying patients at risk for poststroke depression because of their proximity and education efforts across the continuum (Babkair, 2017; Klinedinst, Dunbar, & Clark, 2012; Stanfill, Elijovich, Baughman, & Conley, 2016). Because of the unique position of nursing in patient and family education, care givers and poststroke patients will have increased awareness of depressive signs. Consequentially, increasing the recognition and reporting of depressive signs in the poststroke patient has the likelihood of prompt treatment and lessen the stigma of depression (Klinedinst et al., 2012). Early identification and treatment of depression in poststroke patients can have a positive impact on participation in rehabilitation and quality of life.

Through the development of a clinical guideline, I hoped to increase awareness of poststroke depression while simultaneously facilitating a standardized approach to depression screening across the healthcare system. Dissemination of the clinical practice guideline at local and regional conferences would broaden the social impact to other organizations seeking to implement a similar practice.

Summary

Section 1 provided an overview of poststroke depression, impact of depression in poststroke patients, and current guidelines from the USPSTF. The practice problem that the DNP project addressed is development of a clinical practice guideline for depression screening in poststroke patients. The goal of this project was to develop an evidence-based clinical practice guideline that facilitated screening in poststroke patients, a high-risk group for depression. In the next section the background and context of depression in poststroke patients will be further explained.

Section 2: Background and Context

Introduction

The purpose of this DNP project was to develop a clinical practice guideline for depression screening in poststroke patients that include the following scope, purpose, and recommendations for depression screening. The goal of this project was to provide the clinical site with a clinical practice guideline that supports depression screening in poststroke patients. In this section concepts, relevance to nursing practice, local background and context, and the role of the DNP student are discussed.

Concepts, Models and Theories

For this project, I used the JHNEBP. The JHNEBP model is composed of three phases including practice, evidence, and translation (PET) (Newhouse et al., 2007). Phase 1 consists of recognizing and identifying a practice problem to answer (Newhouse et al., 2007). In this DNP project, the problem was the absence of a clinical practice guideline for depression screening in the poststroke patient. The second phase involved a comprehensive review of synthesis of research and non research evidence on the topic of the post stroke patient for depression. Lastly, the final phase was the implementation of the proposed change as a pilot study, in this instance a DNP project, measure outcomes, and dissemination of findings. The last phase of the JHNEBP model was demonstrated as evident by synthesis of the evidence to develop the guideline, review and validation from an expert panel, end user and stakeholder feedback, creation of a final report, and dissemination of the clinical guideline for recommendations. Other concepts of the model

are the influence of internal and external factors in implementation of the proposed change (see Newhouse et al., 2007).

This model is an open system that consist of several related components. The outputs from the JHNEBP are influenced by internal and external factors (see Newhouse et al., 2007). The model, which is a process that facilitates translating evidence into practice, steps include identifying the evidence-based practice question, researching the evidence, and translation of evidence into practice (see Newhouse et al., 2007). However, within each major element there are several steps that occur as one matriculates through the process. This model has been used extensively by nurses to implement practice changes on infection prevention programs, postoperative urinary retention, and alarm fatigue (Buchko & Robinson, 2012; Dillman, Mancas, Jacoby, & Ruth-Sahd, 2014; Mori, 2015).

Mori (2015) conducted a quality improvement project to improve outcomes in orthopedic patients undergoing total knee arthroplasty by implementation of evidence-based practice guidelines to prevent surgical site infections. The JHNEBP model was used to implement an infection prevention program. The project used guideline recommendations from the Institute of Healthcare Improvement (IHI) on prevention of surgical site infections. The population involved included patients undergoing total hip arthroplasty (THA) and total knee arthroplasty (TKA). Based on the recommendations in the evidence, each THA and TKA patient would receive nasal swab testing for Methicillin-sensitive Staphylococcus aureus (MSSA) and Methicillin-resistant Staphylococcus aureus (MRSA) 2 weeks prior to surgery, a bath containing

Chlorhexidine Gluconate (CHG) was administered 5 days prior to surgery, the day before surgery and the morning of surgery, to decolonize patients who had a positive MSSA or MRSA swab test result. An additional process was implemented for those patients with negative results for MSSA or MRSA to receive decolonization timely prior to surgery (Mori, 2015). Implementing the evidence-based guidelines resulted in reduction in surgical site infections, from 5.3% prior to implementation of the evidence-based project to 0% 7 months after implementation (Mori, 2015).

Buchko and Robinson (2012) conducted a project in a 43-bed adult postpartum gynecologic unit in a community teaching hospital studying women who recently underwent urogynecology surgery with postoperative urinary retention. The purpose of the project was to identify evidence and management for postoperative urinary retention in women who had urogynecology surgery and integrate it into an evidence-based protocol. Buchko and Robinson described how the JHNEBP model was used to facilitate development of an evidence-based algorithm to use in a pilot study to evaluate effectiveness of the postoperative urinary retention algorithm.

Dillman, Mancas, Jacob, and Ruth-Sahd (2014) described a systematic literature review of patient outcomes in critically ill uninsured patients compared to the critically ill insured patients. The authors described how the JHNEBP model was used to conduct the literature review. After reviewing the literature in accordance with the model guidelines, results showed poorer patients who are critically ill have worse outcomes if uninsured (Dillman et al., 2014). Authors in the previously referenced studies demonstrated

application of the JHNEBP model to conduct evidence-based research. As detailed below evidence-based sources are a cornerstone in nursing research.

In an addition to using the JHNEBP model in my DNP project, I incorporated evidence-based sources. Evidenced-based practice (EBP) is the careful incorporation of the best research evidence with clinical expertise and patient values and needs in the delivery of quality, cost effective health care (Grove, Burns, & Gray, 2013). EBP also affords opportunities for nursing care to be individualized, effective, streamlined, active and amplify effects of clinical judgement (Grove et al., 2013). Evidence-based protocols facilitate early recognition and early interventions in conditions that have the potential of negative consequences if not treated early. Cervical cancer, nutritional, breast cancer, and colon cancer screenings have had a positive impact on early identification and treatment of the respective diseases (Grove et al., 2013). Evidence-based sources are highly perceived in healthcare. These sources serve as guide to change practice or implement new process that will have a positive effect on the population.

Relevance to Nursing Practice

Depression has been demonstrated to be common in poststroke patients, occurring as early as 2 weeks up to 1 year following a stroke (Buga, Filfan, George, & Popa-Wagner, 2015; Damush et al., 2008; Hermann et al., 2011; Hollender, 2014; Joubert et al., 2006; Kouwenhoven, Kirkevold, Engedal, & Kim, 2012). Depression is associated with poor functional outcomes and higher mortality rates in poststroke patients (American Heart Association Stroke Council, 2017). Lack of a protocol supports the need for clinical practice guidelines on how to assess for depression in the poststroke patient.

Adverse consequences of lack of screening include late recognition and identification of depression in poststroke patients (Klinedinst et al., 2012). Additional outcomes due to lack of standards for depression screening in the acute care setting in this population contributes to under recognition of potential depressive signs and subsequently delayed referral for treatment (Klinedinst et al., 2012). Depression after a stroke is relevant to nursing practice because of the associated poor functional outcomes, high mortality rates, and the lack of a standardize process for assessment of depressive symptoms.

The USPSTF is an independent group of national experts in prevention and evidence-based medicine (US Department of Health & Human Services, 2012). This panel of experts works to improve the health of all Americans by making evidence-based recommendations about clinical preventive services such as screenings, counseling services, or preventive medications (U.S. Department of Health & Human Services, 2012). In recent years, this agency has focused on recommendations addressing early identification of depression (US Department of Health & Human Services, 2012). The USPSTF recommends screening of all adult patients for depression regardless of risk factors (Siu & U.S. Preventive Services Task Force, 2016). The recommendations are based on substantial evidence that there are a variety of factors associated with depression including persons with chronic illness, other mental disorders, advanced age, disability, poor health status related to medical illness, complicated grief, chronic sleep disturbances, loneliness, and a history of depression (Siu & U.S. Preventive Services Task Force, 2016). However, within the acute care setting in the southern United States, which this DNP project is intended, there is no established tool in accordance with the

recommendations for depression screening. Considering that the USPSTF recommendation includes all patients in the acute care setting, in conjunction with recommendations from the American Stroke Association, I focused on a select high-risk population, the poststroke patient.

Stroke is a common medical illness in the United States, affecting approximately over 600,000 cases annually (American Heart Association, 2015). A person may suffer major changes in their because of a stroke. Loss of health, occupation, social role, and independence are some adverse effects of a stroke (Whyte & Mulsant, 2002). Poststroke depression affects approximately a third of the stroke survivor population and is a significant world health problem (Buga et al., 2015). Depression affects approximately 5.4 to 8.9% of nonstroke patients and accounts for more than $43 billion in medical care costs within the United States (Maurer & Darnall, 2012). Maurer and Darnall (2012) also reported that depression is projected to become the second largest cause of disability by 2020. Symptoms of depression can be specific as depressed mood, loss of interest in activities, impaired concentration, feelings of guilt, and suicidal ideation, however the symptoms can be nonspecific (Maurer & Darnall, 2012). Nonspecific symptoms include abdominal pain, back pain, change in weight or appetite, constipation, fatigue, headache, insomnia or hypersomnia, joint pain, neck pain and weakness (Maurer & Darnall, 2012). Although symptoms of depression range from specific to nonspecific, there are risk factors that would place an individual at a higher susceptibility for depression. Chronic medical illness, chronic minor daily stress, chronic pain syndrome, family history of depression, female gender, low income, job loss, low self-esteem, low social support,

prior depression, single, divorced, widowed, traumatic brain injury, and younger are associated with the prevalence of depression (Maurer & Darnall, 2012). The USPSTF has made recommendation for recognition of general depression symptoms but within the broad classification at risk patients, the stroke patient has a higher risk of depression.

Although generalized depressive symptoms include those referenced above, poststroke depression presents as fatigue, insomnia and psychomotor impedance (Buga et al., 2015). Buga et al. (2015) estimated that 30% of stroke survivors suffer from poststroke depression, which affects short-term and long-term rehabilitation. Additional consequences of poststroke depression include poor outcomes, delay in recovery, impaired cognition, decreased quality of life, and decreased treatment efficiencies, as well as having mortality rates three times higher when compared to those without depression (Buga et al., 2015). According to Buga et al., 40% of poststroke patients will have an onset of depression within 3 months after suffering from a stroke. In those patients with a likelihood of developing depression, 30% develop depression after hospital discharge (Buga et al., 2015). Consequently, poststroke patients who continue to suffer from depression also exhibit failure to follow treatment plans and irritability with personality changes (Buga et al., 2015). Although negative outcomes are associated with depression in poststroke patients, there is little guidance on the optimal process to screen poststroke patients regarding timing of conducting a depression screening. The primary recommendation for depression screening comes from the USPSTF, which recommends depression screening in all adults (Siu & U.S. Preventive Services Task Force, 2016). However, the recommendations currently appear to be limited to the primary care setting,

excluding acute care settings such as hospitals. Another limitation in the recommendations is the reference that screening should be implemented in settings that have adequate systems in place to provide accurate diagnosis, effective treatment and appropriate follow-up (Siu & U.S. Preventive Services Task Force, 2016). Depression after a stroke is a common sequela, despite the associated negative outcomes and prevalence of depression following a stroke there is a lack guidance for detection and reporting.

Depression is a condition with high prevalence worldwide. Depression includes disorders of major depression, minor depression and dysthymia. Depression affects approximately 340 million people worldwide, with 18 million people suffering from depression in the United States (Egede & Ellis, 2010). Egede and Ellis (2010) reported that according to the World Health Organization depression is accountable for the highest proportion of burdens associated with non-fatal health outcomes accounting for approximately 12% total years lived with disability. Studies have demonstrated that depression is a major cause of morbidity, mortality and increased use of healthcare resources (Andersen et al., 2000; Kouwenhoven et al., 2011; Williams et al., 2011).

It's estimated that depression has a prevalence of 5.4 to 8.9 percent in the United States general population, subsequently affecting 5 to 13 percent of patients in the primary care setting (Maurer & Darnall, 2012). Depression is attributed to $43 billion in medical care and costs (Maurer & Darnall, 2012). While depression can be present in the absence of other conditions, there is a higher incidence of depression in the presence of other conditions such as chronic medical illness, chronic minor daily stress, chronic pain

syndrome, family history of depression, female sex, low income job/loss, low self-esteem, low social support, prior history of depression, single/divorced/widowed, traumatic brain injury, and younger age (Maurer & Darnall, 2012). Depression has been associated with increased mortality, worsening preexisting conditions such as cardiovascular disease and diabetes, can lead to suicide (Hollender, 2014).

Stroke is a common medical condition, with over 600,000 new cases annually (Whyte & Muslant, 2002; American Heart Association, 2015). In the United States, there are 4.5 million survivors, however this figure is projected to increase as the management of stroke continues to improve (Whyte & Muslant, 2002; American Heart Association, 2015). Stroke results in changes in an individual's life, there can be a significant amount of loss related to health, occupation, social role and independence. Subsequently major depression is a common occurrence after a stroke. Approximately one third of stroke victims will suffer from post stroke depression with a peak prevalence within the first year (American Heart Association Stroke Council, 2017). Post stroke depression is thought to complicate and delay stroke rehabilitation, subsequently leading to poorer outcomes (Kouwenhoven, Kirkevold, Engedal, & Kim, 2011).

Kirkil, Deveci, Deveci, and Atmaca (2015) conducted a cross sectional study to investigate the prevalence and relationship of depression in chronic obstructive pulmonary disease patients (COPD). The investigators enrolled 80 COPD patients in the study. The results of the study showed that depression was diagnosed in 42 (52.5%) of the patients using the Beck Depression Inventory and 51 (63.8%) using the Hospital Anxiety and Depression Scale (Kirkil, Deveci, Deveci, & Atmaca, 2015). In addition to

identification of depression in COPD patients, the authors linked the depression symptoms exhibited to the stage of the disease. Results demonstrated the more advanced the stage of COPD, the greater the depressive symptoms. Depressed mood in COPD patients were linked to poorer outcomes (Kirkil et al., 2015).

In a similar study, investigating the effect of anxiety and depression on self-care agency and quality of life the results demonstrated a correlation between depressive symptoms, self-care and quality of life in COPD (Yildirim, Asilar, Bakar, & Demir, 2013). Yildirim, Asilar, Bakar, and Demir (2013) completed a study in Turkey evaluating the effects of COPD. The descriptive study had 135 hospitalized patients from January to June 2010, who met the inclusion criteria. The results yielded 85.6% of patients at risk for depression and 69.6% at risk for anxiety (Yildirim, Asilar, Bakar, & Demir, 2013). Self-care scores and quality of life had a negative correlation to the risk of depression and anxiety, meaning the lower the self-care score the lower the quality of life, while there was an increased risk of depression and anxiety (Yildirim et al., 2013). The conclusion of the study stated anxiety and depression have a disruptive impact of physical, psychological and social functioning, as well as an undesirable effect on treatment compliance and recovery (Yildrim, Asilar, Bakar, & Demir, 2013).

Kouwenhoven et. al (2012) performed a qualitative study to describe the “lived experience” of stroke survivors with depressive symptoms in the acute phase of a stroke. The study consisted of nine participants in stroke and rehabilitation units in Norway, meeting the inclusion criteria. Participants engaged in 45 to 90 - minute interview sessions with the investigators occurring 4 and 7 weeks following the stroke. Two main

themes were generated from the study including feelings of being trapped and losing oneself. The authors stated that three of the participants referred to their feelings as depression, two as not depressed, and four made no reference to the term at all, however all had a score suggestive of depression according to the Beck Depression Scale (Kouwenhoven et al., 2012). Stroke survivors may not refer to the emotions as depressive symptoms, but describe them in relation to losses, despair and grief and these symptoms may not be viewed as clinical depression by healthcare providers (Kouwenhoven et al., 2012).

Robinson-Smith et al., (2000) conducted a longitudinal correlational descriptive design study investigating self-care, self-efficacy, quality of life and depression after stroke. Participants were identified by records of admission to three hospitals inside a key rehabilitation institution in northeastern United States. The purpose of the study was to determine the relationship of self-care, self-efficacy to functional independence, quality of life and depression after a stroke at one and six months. At the one - month time period, the study had 77 participants, however 14 did not participate at six months for assorted reasons, such as death, mental status change below target, relocation, spouse illness, and refusal (Robinson-Smith et al., 2000). Overall there were 63 participants included in both the one month and six-month interval. The results demonstrated lower rankings in independence and health, lack of job, sex life and personal control and lack of job and sex life at one month and six months respectively (Robinson-Smith et al., 2000). Additionally, in the six-month quality of life assessment participants reported lower quality of life regarding travel on vacation, pursuit of leisure activities, amount of stress

or worries, and the potential to have a long life. Symptomatic depression was identified in 25% of the participants at one month, conversely at six months' depressive symptoms were identified in 15% of the participants. In the one - month time frame, functional independence did not demonstrate a relationship to quality of life, however it did demonstrate a strong relationship to depression. According to the authors one month after a stroke, self-care and self-efficacy contributed to 51% of the variance in depression and coping 52% in quality of life. The authors reported statistically significant differences between one month and six months after stroke in the categories of self-care, self-efficacy, quality of life and depression with a 95% confidence level. Robinson-Smith, Johnston, and Allen (2000), concluded that self-care, self-efficacy is related to quality of life and depression after stroke.

Haung et al., (2014) conducted a study exploring factors associated with depression in older residents with stroke in long-term care facilities. The cross-sectional design spanned twenty-three institutions in southern Taiwan. The authors utilized purposive sampling, enrolling 111 participants that met criteria. The participants were screened for depression using the Taiwan Geriatric Depression Scale (TGDS). The authors reported 41 of the 111 participants experienced depression, 36.9% of the total group (Huang et al., 2014). Prevalence of depression was 45.7% in nursing homes, 36.2% in intermediate care facilities, and 22.2% in domiciliary care facilities, with low Barthel's Index scores correlated to more depressive symptoms (Huang et al., 2014). The recommendation of the authors was depression screening for elderly residents with stroke on admission to long-term care facilities by the healthcare provider (Huang et al., 2014).

Joubert et al., (2006) performed a prospective randomized control trial in a stroke unit. Participants of the study were randomized to an intervention or control group and were followed over a 12-month period. The purpose of the study was to evaluate the effect of a shared care model on management of vascular risk factors for stroke according to approved best practice guidelines, effect of screening for post stroke depression by a validated telephone assessment method with feedback to the General Practitioner (GP). Additionally, in the context of a shared model, what is the effect of such a shared care model on stroke recurrence and long-term stroke related mortality? A total of 80 patients were randomized into the study, with 35 in the control and 45 in the intervention group (Joubert et al., 2006). Overall the researchers reported better management of risk factors in the intervention group when compared to the control group. In specific regards to depression approximately 45% of the control group screened as depressed at 12 months, compared with 20% of the intervention group that screened as depressed (Joubert et al., 2006).

Williams et al., (2011) conducted a quasi-experimental study. The purpose of the study was to assess pre-post change in depression screening and treatment using an electronic medical record-based system intervention in veteran ischemic stroke survivors receiving care at two VA Medical Centers over a four-year period. The study included 652 participants, 278 veterans in the intervention group and 374 veterans in the control group. The authors reported post stroke depression screening was performed within six months for 85% of the intervention group compared with 50% of the control group, and the treatment action was received by 83% of the intervention group compared with 73%

of the control group who screened positive for depression (Williams et al., 2011). The authors concluded that automated depression screening in primary and specialty care can improve detection and treatment of post stroke depression.

Lightbody et al., (2007) conducted a cross-sectional pilot study comparing clinical diagnosis of depression by a psychiatrist with two clinical interviews, using the Geriatric Mental State (GMS) exam and the Montgomery-Asberg Depression Rating Scale (MADRS), performed by a nurse. The study had 28 participants. Lightbody et. al (2007) reported the psychiatric clinical diagnosis (PCD) classified 25% of the patients as depressed, the MADRS and GMS classified 43% and 54% patients respectively as depressed. The PCD was performed by the psychiatrist while the MADRS and GMS was performed by nurses. The investigators further reported that when compared to the PCD, the GMS had a sensitivity of 71% (CI 29-96%), specificity of 67% (CI 43-85%), positive predictive value of 42% (CI 15-72%) and a negative predictive value of 88% (CI 62-98%) (Lightbody et al., 2007). The overall efficiency of the GMS was 68% (CI 48-84%) (Lightbody et al., 2007). The MADRS had a sensitivity of 100% (CI 59-100%), specificity of 65% (CI 38-86%), positive predictive value of 54% (CI 25-81%) and negative predictive value of 100% (CI 72-100%), with an overall efficacy of 75% (CI 53-90%) (Lightbody et al., 2007). Lightbody et al., (2007) concluded that nurses have an instrumental role in detecting, preventing, and managing the depression in the post stroke patient.

McIntosh (2017) completed an evidence-based quality improvement project, a depression screening protocol in patients with acute stroke. The purpose of the quality

improvement project was to determine efficacy of an evidence-based depression screening protocol in early detection and treatment of post stroke depression and to identify any relationships between the protocol interventions, depression scores, and diagnosis (McIntosh, 2017). In the project nurses completed depression screening utilizing a validated tool on patients that had a confirmed diagnosis of stroke. The study used a convenience sample of 79 hospitalized patients with acute stroke (McIntosh, 2017). Results yielded 48% of the participants were identified as being depressed as defined by a score >4 on the validated tool, patient health questionnaire 9 (PHQ-9). Additionally, patients who had positive depression screening were more likely to receive education on stroke and depression, in conjunction with being medically treated for depression before discharge (McIntosh, 2017). The project also demonstrated an increase in nurse's documentation of screening results, (x^2=9.19, p=.002). Mcintosh (2017) concluded that an evidence-based depression screening protocol improved early detection and treatment of post stroke depression in hospitalized patients in the acute care setting.

Melrose (2016) wrote an article centered on the nursing role in identification of post stroke depression. Post stroke depression has been associated with poor recovery and rehabilitation response, reduced social interactions, increase utilization of healthcare services, increased rates of cardiac and stroke sequalae, and increased mortality rates (Melrose, 2016). Melorose (2016) stated recognizing and responding to depression is a priority for nurses and formal caregivers knowing prevalence of post stroke depression is 10% - 50% in stroke survivors. Post stroke depression can have extended durations, for several years if not treated (Melrose, 2016). Scales and questionnaires are valuable

resources that can aid a nurse in the assessment of post stroke depression (Melrose, 2016).

Screening for post stroke depression has historically been considered a condition associated with primary care, not in the acute care (hospitalized) setting. However acute care settings have implemented various processes to address depression screening, as a response to the previous Joint Commission Disease Specific Certification (L. Durm, personal communication, September 18, 2017).

The goal of the DNP project was to develop a clinical practice guideline for post stroke depression screening. The desired impact of the clinical practice guideline was to provide a standard and process for depression screening in the post stroke patient.

Local Background and Context

Depression is a condition with high prevalence worldwide. Depression includes disorders of major depression, minor depression and dysthymia. Depression affects approximately 340 million people worldwide, with 18 million people suffering from depression in the United States (Egede & Ellis, 2010). Egede and Ellis (2010) reported that according to the World Health Organization depression is accountable for the highest proportion of burdens associated with non-fatal health outcomes accounting for approximately 12% total years lived with disability. Studies (Andersen et al., 2000; Kouwenhoven, Kirkevold, Engedal, & Kim, 2011; Williams et al., 2011) have demonstrated that depression is a major cause of morbidity, mortality and increased use of healthcare resources.

It's estimated that depression has a prevalence of 5.4 to 8.9 percent in the United States general population, subsequently affecting 5 to 13 percent of patients in the primary care setting (Maurer & Darnall, 2012). Depression is attributed to $43 billion in medical care and costs (Maurer & Darnall, 2012). While depression can be present in the absence of other conditions, there are some that have a higher incidence of depression such as chronic medical illness, chronic minor daily stress, chronic pain syndrome, family history of depression, female sex, low income job/loss, low self-esteem, low social support, prior history of depression, single/divorced/widowed, traumatic brain injury, and younger age (Maurer & Darnall, 2012). Increased mortality, worsening preexisting conditions such as cardiovascular disease and diabetes, can lead to suicide (Hollender, 2014).

Stroke is a common medical condition, with over 600,000 new cases annually (Whyte & Muslant, 2002; American Heart Association, 2015). In the United States, there are 4.5 million survivors, however this figure is projected to increase as the management of stroke continues to improve (Whyte & Muslant, 2002; American Heart Association, 2015). Stroke results in changes in an individual's life, there can be a significant number of losses related to health, occupation, social role and independence. Subsequently major depression is a common occurrence after a stroke. Approximately one third of stroke victims will suffer from post stroke depression with a peak prevalence within the first year (American Heart Association Stroke Council, 2017). Post stroke depression is thought to complicate and delay stroke rehabilitation, subsequently leading to poorer outcomes (Kouwenhoven, Kirkevold, Engedal, & Kim, 2011). Despite the prevalence of

post stroke depression and recommendations for screening, there remains a lack of clinical practice guidelines to facilitate the process and standardization of care.

The project setting was located within a healthcare system in the southern United States. The healthcare system is comprised of 11 hospitals, 15 urgent care centers, 16 satellite diagnostic imaging centers, three health parks and a pediatric center, one adult congregate living facility, three skilled nursing facility, and three inpatient hospices. The organizations are either Primary Stroke Center Certified or Comprehensive Stroke Center Certified as designated by the Joint Commission, the differences were discussed earlier in the project. As with any other organization, the project setting has a mission and vision. The mission is to create and deliver high quality hospital, physician and other healthcare related services that improve the health and well-being of the individuals and communities it serves. In conjunction with the mission, the vision of the organization is to deliver world-class healthcare.

Role of the DNP Student

The DNP project was a fulfillment requirement of Walden University, as such the student was the leader of the project. The DNP project leader was responsible for the primary authorship of the proposal, project design and implementation, data analysis, and summarization. Factors considered when choosing a focus for the DNP project was the patient population in my professional practice and the practices between various entities within the same healthcare system. Another influencing factor to the DNP project topic is being a Clinical Nurse Specialist (CNS). A CNS is a Master's or Doctoral prepared Advanced Practice Nurse whose primary function is to improve outcomes in patient care.

The CNS has expertise in clinical practice, patient education, research and consultation to impact the three spheres of influence: patient care, nursing and systems (Sparacino & Cartwright, 2009). As the CNS in neurosciences, there is a constant monitoring of clinical practice in addition to staying abreast of evidence and/or guidelines of regulatory/authority bodies. In the recent American Heart Association/American Stroke Association (AHA/ASA) guidelines there is a recommendation that post stroke patients be screened for depression (Powers et al., 2018). However, the guidelines do not specify if depression screening is recommended in the stroke patient receiving care at a comprehensive stroke center or primary stroke center as part of the acute management phase. Therefore, the inference is that all post stroke patients regardless of the stroke center designation should be screened. Development of clinical practice guidelines for depression screening will improve standardization, consistency, and care in poststroke patients across the healthcare system rather than just a single entity.

Summary

The review of the literature has supported that screening for depression in post stroke patients can improve early identification and treatment in that population. The utilization of an evidence-based tool related to depression screening in the post stroke patient will improve quality of life, self-care, self-efficacy and functional outcomes. However, without a clinical guideline there is a decreased likelihood that depression screening will occur. Section 2 of this project presented an overview of stroke and the connection to depression, John Hopkins Evidence-Based practice model as the framework, and the role of the DNP student in carrying out the evidence-based project.

Section 3 discussed the literature search of depression, depression screening and the approach to the DNP project.

Section 3: Collection and Analysis of Evidence

Introduction

The purpose of this project was to develop a clinical practice guideline for depression screening in poststroke patients. The overall goal of this project was to develop a clinical practice guideline for depression screening, which will ultimately facilitate early identification and treatment if warranted in post stroke patients.

Section 3 outlines the development process of the project. This section reviews the practice-focused question, sources of evidence reviewed regarding the topics of depression and depression screening, the project's approach, population/sampling, data collection, data analysis, project evaluation, and summary.

Practice-Focused Question

The local problem that the DNP project addressed is the lack of depression screening in poststroke patients. The following practice-focused question guided my project: What are current evidence-based approaches for screening for depression in the post stroke patient? The goal of this project was the development of a clinical practice guideline for depression screening in a primary stroke center to screen for depressive symptoms in poststroke patients. After the conclusion of development of the clinical practice guideline, the outcomes included the following:

Outcome 1: Literature Review Matrix: Depression screening in patients with chronic conditions with comprehensive review of the literature

Outcome 2: Development of a clinical practice guideline for post stroke patients with a validated tool

Outcome 3: Approved clinical practice guideline by an expert panel for depression screening in post stroke patients

The summation of outcomes and dissemination to program stroke coordinator and other stakeholders will occur after graduation from Walden University.

The following terms were used in developing the project:

Clinical guidelines: Standardized current national and international guidelines for the assessment, diagnosis, and management of patient conditions that are developed by clinical guideline panels or professional groups to improve the outcomes of care and promote evidence-based health care (Grove, Burns, & Gray, 2013).

Protocol: A detailed plan of scientific or medical experiment, treatment or procedure (Merriam-Webster, n.d.).

Poststroke depression: The onset of persistent sadness or loss of interest in the acute phase of a stroke, a time span from 2 weeks up to 1 year following a stroke (Buga et al., 2015).

Sources of Evidence

The sources that were used for the review were recent evidence-based projects and peer-reviewed literature. To facilitate development of the clinical practice guideline, I used the current clinical guidelines from the American Heart/Stroke Association, the UPTSF, and other evidence-based guidelines. Information was used to define depression and onset of depression in poststroke patients, and identify validated assessment tools, treatment recommendations, and follow up which will be included in the clinical practice guideline. These sources are currently used to define some aspects of care in the stroke

patient within the organization. Incorporating them into the clinical practice guideline provided additional support for implementation in the organization. Collecting and analyzing this evidence was imperative to discovery of evidence-based approaches to depression screening in post stroke patients for cumulation into a clinical practice guideline.

Published Outcomes and Research

I performed a literature review for the most current and relevant information related to this project, which is depression screening in poststroke patients. The following electronic databases were utilized: The Cumulative Index to Nursing and Allied Health Literature, Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, Cochrane Methodology Register, and PsycARTICLES. The keywords that were used to retrieve sources of evidence included: *depression and post stroke, depression screening, depression screening tools, post stroke, evidence based-guidelines and protocols,* and *John Hopkins Evidenced-Based Practice Model*. The search was limited to articles from 2000 to 2016 which were relevant to the project.

Evidence Generated for the Doctoral Project

Participants

Once the clinical practice guideline was developed, an expert panel was formed. Qualifications for an individual to be considered for the panel was contingent on practice specialty or job functions, such as neurologist or stroke program director respectively. The expert panel was limited to a maximum of five participants. The second panel consisted of the potential end users of the clinical practice guideline, bedside clinician,

stroke program coordinator, a clinical nurse specialist, and unit director. It is important that the end user was engaged in the review of the guideline as to ensure usability. All participants were contacted via email for participation.

Procedures

The initial step for developing a clinical practice guideline was the identification of the problem the guideline will address. As previously discussed, the practice problem I observed was the lack of depression screening in poststroke patients at the project site. The practice question developed is what are current evidence-based approaches for screening for depression in the poststroke patient? I developed evidence selection criteria for the clinical practice guideline. Selection criteria used any previously published guidelines or recommendations regarding depression screening and depression screening in the poststroke population. Other pertinent selection criteria were evidence that contained adults, ages 18 and older, stroke survivors, and inpatient care settings and depression tool. The selection criteria were organized in a chart using Microsoft Word (Appendix A). The evidence included peer-reviewed, original research studies and evidence-based projects. The evidence was evaluated for the selection criteria; however, the evidence was not to be eliminated if all criteria are not met. Importance was placed on setting, population age, and depression screening tool. For evidence missing elements of the selection criteria, the level of evidence was of heavier significance. I used a letter coding system to describe the feedback received from the expert panelists. The evidence was appraised using the JHNEBP levels of evidence. Following the appraisal of the evidence, it was synthesized and used to develop the clinical practice guideline. Once the

clinical guideline was developed, the expert panelist was contacted via email with the link to the feedback form. The feedback from the expert panelist was collected using the standard instrument, the AGREE II. AGREE II is a 23-item instrument (Appendix D) that is divided into six quality domains with a 7- point Likert scale to score each item that was used to collect recommendations from the expert panelist (AGREE Next Steps Consortium, 2013). The Likert scale has a range of 1 to 7, with 1 meaning strongly disagree and 7 meaning strongly agree. AGREE II has an acceptable reliability in most domains with Cronbach's alpha 0.64-0.88 with 95% of appraisers finding the tool useful for evaluating guidelines (Brouwers et al., 2010). The panelist was sent an electronic link via email to the standard instrument. This facilitated anonymity of the panelist. All information was stored in a secured location with access restricted to me. I retrieved the feedback from the AGREE II website and scores of the clinical practice guideline. After the revisions were completed, the clinical practice guideline was submitted to the second group to discuss content validation and usability. At the conclusion of the feedback from the expert panelist and end-user/key stakeholders, a final report of the clinical practice guideline will be developed and disseminated.

Protections

I collaborated with the clinical site mentor to identify panelist for the project. Once identified panelist were contacted in the manner previously described. To protect each panelist identity, each participant was emailed the identical communication separately, there were no group email communication. Email communications were saved

to a password protected folder. Absence of feedback within the AGREE II instrument was considered as voluntary withdrawal from the project.

Once I obtained committee approval, the project was submitted to the University's IRB review for approval. The University's IRB role was to review the project for any potential human subject violations or any breaches in data collection in accordance to institutional regulations. Following the approval from University IRB, the project was submitted to the project site's IRB for review and approval. The role of the project site's IRB was to ensure the project complies with the organization's research requirements and human subject protection.

An ethical dilemma I navigated is bias. Bias means to slant away from the true or expected (Grove et al., 2013, p. 197). Due to the time spent researching the evidence, I had developed a belief the depression screening in poststroke patients should be part of the management phase in the acute care setting. To mitigate the bias to depression screening, the I used the recommendations from the expert panel to support use of the clinical practice guideline.

Analysis and Synthesis

Approach

The Appraisal of Guidelines Research and Evaluation (AGREE) II was used to develop the clinical practice guideline. This project targeted hospital patients admitted to an acute care stroke unit in a primary stroke certified designated hospital. I obtained IRB approval, 01-09-19-0558331 from the University and the project site (see Appendix B). Permission was also obtained from leadership at the project site prior to implementation.

I developed clinical practice guidelines based on current evidence. Once the clinical practice guideline was developed, I sought out panelist to participate on the expert panel to provide feedback and recommendations. Panelist considered were relevant professionals such as a mental health provider, neurology provider, and an advanced practice nurse, such as a clinical nurse specialist. Potential panelists were contacted via email to serve as participants using the University's approved disclosure to expert panelist form for anonymous questionnaires (see Appendix C). Participation was voluntary. Panelist were sent the AGREE II instrument and a link to the electronic guideline to review. Once the AGREE instrument was returned by the expert panel, I revised the clinical practice guideline according to the received recommendations. The next step was to identify a group of key stakeholders including neuroscience nurses, stroke program coordinator, clinical nurse specialist to present the revised guideline to for validation and usability. To identify the key stakeholders, I used the host facility organizational chart in addition to the administration list. Final feedback from end users will be compiled in a report that will be disseminated to key stakeholders.

Data Analysis

Data analysis was conducted using the AGREE II score calculator (Appendix E). I analyzed each of the six domain scores and overall assessment of the clinical practice guideline. Overall score for recommendation to use clinical practice guideline was reported.

Evaluation

At the completion of the EBP project a summative evaluation was conducted. The summary consisted of the individual appraisers scoring and overall assessment of the clinical practice guideline. Recommendations for use was also included in the summative evaluation. The evaluation will be presented to the stakeholders of the organization following conferral of the student's doctorate degree.

Summary

Section 3 provided a review of the DNP project, detailed overview of method of the literature search using the key terms depression and stroke, evidence-based guidelines and protocol and depression, depression screening, depression screening tools, depression screening. The methodology of the DNP project was also discussed in this section. Section four will discuss the findings, implications, recommendations, strength and limitations of the clinical practice guidelines.

Section 4: Findings and Recommendations

Introduction

Depression poststroke affects approximately one third of stroke survivors (American Heart Association Stroke Council, 2017). Depression has been demonstrated to have a significant impact on the quality of life, functional recovery, morbidity, and mortality of the poststroke patient (Robinson-Smith et al., 2000, Yildirim et al., 2013). Powers et al. (2018), on behalf of the American Heart/Stroke Association, made recommendation for depression screening for poststroke patients in the 2018 Guidelines for the Early Management of Patients with Acute Ischemic stroke. Despite this recommendation, there is a lack of guidance on which validated tools to use, address optimal timing for screening, and appropriate healthcare personnel to perform the depression screening in the poststroke patient.

The DNP project site, a multicenter healthcare system located in the southern United States, used the guidelines of the American Heart/Stroke Association (see Powers et al., 2018) in addition to standards of care of The Joint Commission (see The Joint Commission, 2018) in the delivery of care of the stroke patient. However, the organization lacks mechanisms and or processes in place to perform depression screening in poststroke patients. The DNP project sought out to address this gap in practice. The goal of this project was the development of a clinical practice guideline for depression screening in a primary stroke center to screen for depressive symptoms in poststroke patients.

As mentioned earlier in this paper, the sources that were used for the review were recent evidence-based projects and peer-reviewed literature. I used current clinical guidelines from the American Heart/Stroke Association, the UPTSF, and other evidence-based guidelines. Information from sources were used to define depression and the onset of depression in poststroke patients, and to identify validated assessment tools, treatment recommendations, and follow-up, which will be included in the clinical practice guideline. The sources of evidence were then appraised using the JHNEBP research appraisal method, reflected in Appendix A. The evidence from the sources were then synthesized to develop the clinical practice guidelines (Appendix F).

Findings and Implications

The project was carried out as specified in the procedure. Five individuals from the project site were invited to participate on the expert panel. Four panelists completed feedback using the AGREE II instrument. Participation was voluntary, lack of response from the fifth panelist was assumed as a withdrawal of participation. The AGREE II instrument uses a Likert scale scoring 1-7 that the expert panelist used to rank items in each domain (Table 1).

A quality score was then calculated for each domain. There are various methods on which domains are highest priority, depending on the preference of the users. For the intent of this DNP project, all domains are of equal significance, therefore all domains have a calculated quality score. Threshold for the quality score is 70%, which means quality scores 70% or higher signify a high-quality guideline. The quality scores for each domain are Domain 1 Scope and Purpose: 89%, Domain 2 Stakeholder Involvement:

68%, Domain 3 Rigor and Development: 72%, Domain 4 Clarity of Presentation: 93%, Domain 5 Applicability: 71%, and Domain 6 Editorial Independence: 81%. The overall assessment of the clinical practice guidelines was 79%, which indicated high quality guidelines based on the ratings of the expert panel. Although the overall assessment revealed a high-quality clinical practice guideline, there are opportunities for revisions in three of the domains: stakeholder involvement, rigor and development, and applicability with quality scores of 68%, 72% and 71% respectively. The expert panelists were also asked to provide an additional overall assessment and recommendation for use of the clinical practice guidelines. For the final category there is not a quality score applied as with each domain, but rather it is reported as a raw score based on the number of panelists that responded yes, yes with modifications, or no for recommendation for use of the clinical practice guidelines. All panelists responded yes to a recommendation for use, however one (25%) panelist responded “yes” and three (75%) responded “yes with modifications”. None of the panelist responded “no”.

An unanticipated limitation of the DNP project were challenges in obtaining feedback from the second panel of end users prior to the conclusion of the implementation phase. Multiple attempts were made but I was unsuccessful in obtaining meeting times from identified participants of the second group due to scheduling conflicts and organizational priorities such Joint Commission survey visits and disaster drills. This limitation delayed providing the summation report for the leaders in the organization as well as vetting the usability with the end users.

Another limitation was the lack of narrative comments or feedback from the expert panelists when rating scores were low on the Likert scale, (below 5). This lack of feedback prohibited me from specifically addressing the deficit. Although there was strong support recommending the guidelines for use with modifications, limitations on revisions exist around the lack of details of required modifications.

The response rate of the expert panelist is another limitation. As stated previously, five experts were contacted via email to participate in the expert panel. However, only four of the five completed the instrument. The panelist who did not complete the AGREE II instrument on the clinical practice guidelines served in the role as a neurologist. The lack of feedback from a medical doctor affects the willingness of leaders of the organization to implement the practice guidelines.

The clinical practice guideline lacked treatment options for those who were identified to have depressive symptoms, which is a limitation of the project. This area was excluded from the clinical practice guideline because it would significantly lengthen the guidelines which had the potential to impact expert panelist participation.

Potential implications include depression screening in poststroke patients within the project site using the clinical practice guidelines. The incorporation of the clinical practice guidelines in the clinical setting would provide standards on timing of depression screening, frequency intervals, who should perform the screening, and what tools to utilize for depression screening. Admitted stroke patients would receive the standard of care as recommended by the American Heart/Stroke Association, promoting early identification and ultimately treatment. Another implication within the organization is the

increased engagement from nursing in proactively assessing for signs of depression through performance of depression screening. Additionally, patients and caregivers would have increased awareness lessening the negative stigma around depression. For healthcare systems such as the project site, implementation of depression screening clinical practice guidelines increases standardization across the system. It also improves communication with community providers. Additionally, upon discharge overall effectiveness is achieved improving the assessment and management of depression in the poststroke patient.

An outcome of doctorate education is the ability to influence positive social change. The successful implementation of the clinical practice guideline has the potential to expand beyond the project site. Through dissemination at conferences, forming collaborative relationships with other colleagues on the subject of depression will facilitate the ultimate goal of developing the DNP project clinical practice guidelines into national practice guidelines. Development and implementation of national practice guidelines for depression screening poststroke will eliminate the ambiguity surrounding timing, screening tools, who performs depression screening, management and treatment for those patients who screen positive for depression and providing organizations to enhance care delivered to poststroke patients. This enhanced care has the potential to improve the quality of life, mortality, and morbidity of the stroke survivor.

Recommendations

Although the clinical practice guidelines were developed as a part of the DNP project, I received a strong recommendation for use by the expert panelist. Additionally,

feedback from the end users will be a critical component of successful implementation. The clinical practice guidelines will need revisions based on the recommendations prior to sharing with end users. Once end user feedback is obtained, future solutions include implementation of the clinical practice guidelines with a pilot study. Implementation of the guidelines will need to be supported with educational in services and training regarding depression screening as this will be a change in current practice. Those aspects were not included as part of the DNP project and will need to be developed.

Strengths and Limitations of the Project

The DNP project, development of clinical practice guidelines for depression screening poststroke has mentionable strengths. The response rate of the expert panelist, 80% yielded a high-quality review of the clinical guidelines. The high ratings, in conjunction with a recommendation for use with modifications is another identified strength. Limitations of the project include absence of feedback from a neurologist, end user feedback, and absence to improve guidelines because of missing comments or details.

Recommendations for future projects would be to revise guidelines according to suggestions of the expert panel. An additional recommendation is to collaborate with the panel to ensure the inclusion of treatment options into clinical practice guidelines. The clinical practice guidelines provide guidance surrounding depression screening in poststroke patients; however, evaluation of actual impact should be considered in future projects.

Table 1

Expert Panelist Ratings

	Appraiser 1	Appraiser 2	Appraiser 3	Appraiser 4
Domain				
Domain 1: Scope and Purpose				
Item 1	7	6	7	6
Item 2	6	6	6	5
Item 3	7	7	7	6
Domain 2: Stakeholder involvement				
Item 4	7	4	7	3
Item 5	7	3	7	1
Item 6	7	7	7	1
Domain 3: Rigor of Development				
Item 7	7	6	6	6
Item 8	7	1	6	5
Item 9	6	4	3	6
Item 10	7	4	2	6
Item 11	7	6	6	6
Item 12	7	5	6	6
Item 13	7	5	4	7
Item 14	6	1	6	3
Domain 4: Clarity of Presentation				
Item 15	7	7	7	6
Item16	6	7	7	6
Item 17	7	7	7	5
Domain 5: Applicability				
Item 18	6	5	5	7
Item 19	7	5	7	5
Item 20	7	3	6	6
Item 21	7	1	2	5
Domain 6: Editorial Independence				
Item 22	7	7	7	6
Item 23	7	1	7	5
Overall Assessment	7	5	6	5

Section 5: Dissemination Plan

As mentioned in an earlier part of this paper, the project will be disseminated to the stakeholders of the organization in a report after graduation. This report will include the expert panel ratings and recommendation, as well as the end user feedback. Future attempts will be made to coordinate with the end user group to obtain feedback, following completion of the DNP program.

The summation report will be shared with the stroke program directors, medical directors, and organization accreditation specialists. Subsequent dissemination to the larger leadership team and nursing practice councils will be necessary for full support of the clinical practice guidelines.

In consideration of advancement to the nursing profession, dissemination of the clinical practice guidelines is recommended to the local and or regional stroke alliance organizations. Secondly, dissemination should occur at national and stroke-related conferences. Magnet conferences would be a third venue as those are heavily focused on the impact nurses have on the outcomes of patients. The ultimate venue would be at the International Stroke Conference, which occurs annually at various locations within the United States.

Analysis of Self

The DNP project has provided me with many opportunities to function in different capacities. One role is that of practitioner. I am a clinical nurse specialist, which is a form of a practitioner. In this role, I constantly must investigate strategies to improve the health of the stroke population and the best ways to incorporate those strategies into

clinical practice. The scholar role challenged me throughout the DNP project in finding relevant sources and critically appraising the evidence. Prior to initiation of the DNP project, I identified as being a novice scholar, however by the conclusion of the project, I feel I have progressed to being competent. As project manager, I designed the project, projected a timeline, “engaged in selling” the concept, implemented the project, obtained and analyzed findings, and concluded with a report of the findings. Generally, a project manager collaborates with a team of individuals and delegates different aspects of a project; however, because I elected not to designate a team, I was accountable for all aspects of the project. That degree of responsibility required me to be organized, and use calendars, trackers, and other available resources. All the roles have facilitated growth in collaboration with members in other roles as well as other organizations, which I was not accustomed to. Long term, I want to continue to advance development of clinical practice guidelines for depression screening in poststroke patients through forming collaborative relationships with other professionals involved with care and outcomes of the stroke patient.

Throughout the project, I identified areas of growth opportunities. A significant lesson I learned is to always identify key stakeholders and involve them in the initial planning stages, including the development of the idea. Awareness of those key individuals can have a significant impact on required approvals. Another opportunity was formulating necessary relationships when partnering with other organizations. It is important to comprehend the individual’s role within the organization and his/her priorities. Although project site approval had been granted by the project site, I made

several trips to meet with potential participants on the expert panel to obtain buy-in. A final lesson I learned is to be accepting that the journey is not smooth. Obstacles will happen that will impact the original plan of the project such as unforeseen challenges in scheduling conflicts that prevent the group from meeting as initially planned. However, the project must come to an end, therefore said barriers become a limitation. It is not the end, but just a detour in the journey to improve patient care while simultaneously impacted the nursing profession.

Summary

Stroke is the fifth leading cause of death in the United States but remains the leading cause of disability (American Heart Association, 2015). This population of individuals, the poststroke patient, has a higher propensity of developing depression poststroke (American Heart Association Stroke Council, 2017). Depression poststroke can have a negative impact on the quality of life and increase mortality and morbidity of the stroke survivor (Buga et al., 2015, Kouwenhoven et al., 2011, Robinson-Smith et al., 2000). Despite the prevalence of depression poststroke in the evidence and recommendations for screening, there lacks clinical practice guidelines for depression screening of the poststroke patient. The aim of this DNP project was to address the gap in practice through development of clinical practice guidelines for depression screening poststroke.

References

AGREE Next Steps Consortium. (2013). *The AGREE II Instrument [Electronic version]*. Retrieved from http://www.agreetrust.org

American Association of Colleges of Nursing. (2006). *The essentials of doctoral education for advanced nursing practice*. Retrieved from http://www.aacn.nche.edu/publications/position/DNPEssentials.pdf.

American Heart Association. (2015). Heart Disease and Stroke Statistics—2016 Update A Report from the American Heart Association. *Circulation, 133,* e38-e360. https://doi.org/10 .1161/CIR .0000000000000350

American Heart Association Stroke Council. (2017). Post-stroke depression; A scientific statement for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke, 48,* e30-e43. https://doi.org/10.1161/STR.0000000000000113

Andersen, H. E., Schultz-Larsen, K., Kreiner, S., Forchhammer, B. H., Eriksen, K., & Brown, A. (2000). Can readmission after stroke be prevented? Results of a randomized clinical study; a post discharge follow up service for stroke survivors. *Stroke, 31,* 1038-1045. Retrieved from http://stroke.ahajournals.org

Babkair, L. A. (2017). Risk factors for poststroke depression: An integrative review. *Journal of Neuroscience Nursing*, *49*(2), 73-84. https://doi.org/10.1097/JNN.0000000000000271

Brouwers, M. C., Kho, M. E., Browman, G. P., Burgers, J. S., Cluzeau, F., Fedar, G., ... Markarski, J. (2010a). AGREE Next Steps Consortium Development of the

AGREE II part I assessment of validity of items and tools to support application. *Canadian Medical Association Journal, 182*(10), E472-8. Retrieved from www.agreetrust.org

Brouwers, M. C., Kho, M. E., Browman, G. P., Burgers, J. S., Cluzeau, F., Fedar, G., ... Markarski, J. (2010b). AGREE Next Steps Consortium Development of the AGREE II part I performance usefulness and areas for improvement. *Canadian Medical Association Journal*, *182*(10), 1045-52. Retrieved from www.agreetrust.org

Buchko, B. L., & Robinson, L. E. (2012). An evidence-based approach to decrease early post-operative urinary retention following urogyneologic surgery. *Urologic Nursing*, *32*(5), 260-273.

Buga, A. M., Filfan, M., George, B., & Popa-Wagner, A. (2015). The impact of aging on post stroke depression. In P. Singh & S. Mastana (Eds.), *Depression; A silent culprit in health and disease* (pp. 51-67). [Adobe Digital Editions version]. Retrieved from http://ebooks.bethamscience.com/book/9781681081458

Campos, S. (2011). Evidence-based practice vs best practice. Retrieved from http://www.communitygrantsnow.com/2011/08/30/evidence-based-practices-vs-best-practices/

Damush, T., Jia, H., Reid, L., Qin, H., Cameon, R., Plue, L., & Williams, L. (2008). Case finding algorithm for post-stroke depression in the veterans; health administration. *International Journal of Geriatric Psychiatry, 23,* 517-522. https://doi.org/10.1002/gps.1930

Dillman, J., Mancas, B., Jacoby, M., & Ruth-Sahd, L. (2014). A review of the literature differences in outcomes for uninsured versus insured critically ill patients opportunities and challenges for critical care nurses as the patient protection and Affordable Care Act begins open enrollment for all Americans. *Dimensions of Critical Care Nursing*, *33*(1), 8-14. https://doi.org/10.1097/DCC.0000000000000012

Egede, L. E., & Ellis, C. (2010). Diabetes and depression: Global perspectives. *Diabetes Research and Clinical Practice, 87,* 302-312. https://doi.org/10.1016/j.diabres.2010.01.024

Grove, S. K., Burns, N., & Gray, J. R. (2013). *The practice of nursing research; Appraisal, synthesis, and generation of evidence* (7th ed.). St. Louis, Missouri: Elsevier Saunders.

Hermann, N., Seitz, D., Fishcer, H., Saposnik, G., Calzavara, A., Anderson, G., & Rochon, P. (2011). Detection and treatment of post-stroke depression; results from the registry of the Canadian stroke network. *International Journal of Geriatric Psychiatry*, *26,* 1195-1200. https://doi.org/10.1002/gps.2663

Hollender, K. (2014). Screening, diagnosis, and treatment of post-stroke depression. *Journal of Neuroscience Nursing*, *46*(3), 135-141. https://doi.org/10.1097/JNN.0000000000000047

Huang, H., Chaung, Y., Hsuch, Y., Lin, P., Lee, B., & Chen, C. (2014). Depression in older residents with stroke living in long term care facilities. *Journal of Nursing Research*, *22*(2), 111-118. https://doi.org/10.1097/jnr.0000000000000028

Jia, H., Chumbler, N. R., Wang, X., Chaung, H. C., Damush, T. M., Cameron, R., & Williams, L. S. (2010). Racial and ethnic disparities in post stroke depression detection. *International Journal Geriatric Psychiatry*, *25*, 298-304. https://doi.org/10.1002/gps.2339

Joubert, J., Reid, C., Joubert, L., Barton, D., Ruth, D., Jackson, D., ... Davis, S. M. (2006). Risk factor management and depression post-stroke: The value of an integrated model of care. *Journal of Clinical Neuroscience*, *13*, 84-90. https://doi.org/10.1016,jocn.2005.07.003

Kirkil, G., Deveci, F., Deveci, S. E., & Atmaca, M. (2015). Anxiety and depression symptoms in patients with chronic obstructive pulmonary disease. *Bulletin of Clinical Psychopharmacology*, *25*(2), 151-161. https://doi.org/10.5455/bcp.20121130122137

Klinedinst, N. J., Dunbar, S. B., & Clark, P. C. (2012). Stroke survivor and informal caregiver perceptions of poststroke depressive symptoms. *Journal of Neuroscience Nursing*, *44*(2), 72-81. https://doi.org/10.1097/JNN.0b013e3182477944

Kouwenhoven, S. E., Kirkevold, M., Engedal, K., & Kim, H. S. (2011). Depression in acute stroke: prevalence, dominant symptoms and associated factors. A systematic literature review. *Disability and Rehabilitation*, *33*(7), 539-556. https://doi.org/10.3109/09638288.2010.505997

Kouwenhoven, S., Kirkevold, M., Engedal, K., & Kim, H. (2012). Living a life in shades of grey; experiencing depressive symptoms in the acute phase after stroke.

Journal of Advanced Nursing, *68*(8), 1726-1737. https://doi.org/10.1111/j.1365-2648.2011.05855.x

Lerdal, A., Bakken, L. N., Rasmussen, E. F., Beiermann, C., Ryen, S., Pynten, S., ... Kim, H. S. (2011). Physical impairment, depressive symptoms and pre-stroke fatigue are related to fatigue in the acute phase after stroke. *Disability and Rehabilitation*, *33*(4), 334-342. https://doi.org/10.3109/09638288.2010.490867

Lightbody, C., Baldwin, R., Connolly, M., Gibson, B., Jawaid, N., Leathley, M., ... Watkins, C. (2007). Can nurses help identify patients with depression following a stroke? A pilot study using two methods of detection. *Journal of Advanced Nursing*, *57*(5), 505-512. https://doi.org/10.1111j.1365-2648.2006.04135.x

Maurer, D. M., & Darnall, C. R. (2012). Screening for depression. *American Family Physician*, *85*(2), 139-144. Retrieved from http://www.aafp.org/afp

McIntosh, C. (2017). A depression screening protocol for patients with acute stroke: A quality improvement project. *Journal of Neuroscience Nursing*, *49*(1), 39-48. https://doi.org/10.1097/JNN.0000000000000231

Melrose, S. (2016). Post-stroke depression How can nurses help. *Canadian Nursing Home*, *27*(1), 5-9.

Merriam-Webster. (n.d.). Protocol. In *Medical Dictionary*. Retrieved from https://www.merriam-webster.com/dictionary/protocol#medicalDictionary

Mori, C. (2015). Implementing evidence-based practice to reduce infections following arthroplasty. *Orthopedic Nursing*, *34*(4), 188-196. https://doi.org/10.1097/NOR.0000000000000157

Newhouse, R. P., John Hopkins University, Sigma Theta Tua International, & John Hopkins Hospital (2007). *Johns Hopkins Nursing Evidence-based Practice Model and Guidelines*.

Powers, W. J., Rabinstein, A. A., Ackerson, T., Adeoye, O. M., Bambakidis, N. C., Becker, K., ... Tirschwell, D. L. (2018). 2018 Guidelines for the early management of patients with acute ischemic stroke; A guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke*, *49*(3), e46-99. https://doi.org/10.1161/STR.0000000000000158

Robinson-Smith, G., Johnston, M., & Allen, J. (2000). Self-care, self-efficacy, quality of life, and depression after stroke. *Physical Medicine and Rehabilitation*, *81*, 460-464. https://doi.org/10.1053/MR.2000.3863

Rosenfeld, R. M., & Shiffman, R. N. (2009). Clinical practice guideline development manual: a quality-driven approach for translating evidence into action. *Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery*, *140*(6 Suppl 1), S1–S43. doi:10.1016/j.otohns.2009.04.015

Siu, A., & US Preventive Services Task Force (2016,). Screening for depression in adults US Preventive Services Task Force recommendation and statement. *Journal of American Medical Association*, *315*(4), 380-387. https://doi.org/10.1001/jama.2015.18392

Sparacino, P. S., & Cartwright, C. C. (2009). Advanced Practice Roles: The operational definitions of Advanced practice nursing: The Clinical Nurse Specialist. In A. B.

Hamric, J. A. Spross, & C. M. Hanson (Eds.), *Advanced Practice Nursing; An intergrative approach* (4th ed. (pp. 349-379). St. Louis, Missouri: Saunders Elsevier.

Stanfill, A., Elijovich, L., Baughman, B., & Conley, Y. (2016). A review and conceptual model of dopaminergic contributions to poststroke depression. *Journal of Neuroscience Nursing*, *48*(5), 242-246. https://doi.org/10.1097/JNN.0000000000000240

The Joint Commission. (2017). Joint Commission E-edition. Certification standards. Retrieved from https://e-dition.jcrinc.com/MainContent.aspx

The Joint Commission. (2018). Joint Commission E-edition Certification standards. Retrieved from https://e-dition.jcrinc.com/MainContent.aspx

US Department of Health & Human Services. (2012). U.S. Preventive Services Task Force (USPSTF): An introduction. Retrieved from http://www.ahrq.gov/professionals/clinicians-providers/guidelines-recommendations/uspst/index.html

Whyte, E. M., & Mulsant, B. H. (2002). Post stroke depression: Epidemiology, pathophysiology, and biological treatment. *Biological Psychiatry*, *52*, 253-264.

Williams, L., Ofner, S., Yu, Z., Beyth, R., Plue, L., & Damush, T. (2011). Pre-post evaluation of automated reminders may improve detection and management of post stroke depression. *Journal General Internal Medicine*, *26*(8), 852-857. https://doi.org/10.1007/s11606-011-1709-6

Yildirim, A., Asilar, R. H., Bakar, N., & Demir, N. (2013). Effect of anxiety and depression on self-care agency and quality of life in hospitalized patients with chronic obstructive pulmonary disease: a questionnaire survey. *International Journal of Nursing Practice*, *19*, 14-22. https://doi.org/10.1111/ijn.12031

Appendix A: Evidence Organization Chart

Authors	Existing guideline (Y or N)	Setting	Participant Age	Population focus	Depression tool	GRADE
Amaricai, E., & Poenaru, D. V. (2016)	N	Rehabilitation Unit	29-59	Young and adult stroke patients	Beck Depression Inventory, Stroke impact scale, Barthel index of ADL	B
American Heart Association. (2015).	N	NA	All ages	General population	NA	A
Babkair, L.A. (2017)	N	NA	18 years or older	Stroke patients	NA	B
Das, J., & G.K., R. (2018).	N	N/A	18 years or older	Stroke survivors	NA	C
De Man-van Ginkel, J. M., Hafsteinsdottir, T. B., Lindeman, E., Ettema, R. G., Grobbee, D. E., & Schuurmans, M. J. (2013).	N	3 hospitals	20-97	Stroke patients	Composite International Diagnostic Interview	B
Joubert, J., Reid, C., Joubert, L., Barton, D., Ruth, D., Jackson, D., ... Davis, S. M. (2006).	N	Stoke units	20 years and older	Stroke patients	Patient Health Questionnaire Depression (PHQ-9)	B
Klinedinst, N. J., Dunbar, S. B., & Clark, P. C. (2012).	N	Hospitals and rehabilitation centers	50-84	Stroke patients	Centers for Epidemiologic Depression Scale (CED-S)	B
Kneebone, I., Baker, J., & O'Malley, H. (2010)	N	Post acute inpatient stroke unit	18 and older	Stoke patients	Hospital Anxiety and Depression Scale (HADS),	C

					Brief Assessment Schedule Depression Cards (BASDEC), Depression Intensity Scale Circles (DISCs), Stroke Aphasic Depression Questionnaire-Hospital (SADQ-H10)	
Li, J., Oakley, L. D., Brown, R. L., Li, Y., Ye, M., & Luo, Y. (2016).	N	hospital	18 or older	Acute post stroke patients	Post Stroke Depression early screening tool	B
Lightbody, C., Baldwin, R., Connolly, M., Gibson, B., Jawaid, N., Leathley, M., ... Watkins, C. (2007)	N	hospital	61-78	Acute post stroke patient	Geriatric Mental State Examination (GMS), and Montgomery-Asberg Depression Rating Scale (MADRS)	B
Llorca, G., Castilla-Guerra, L., Moreno, M. F., Dablado, S., & Hernandez, J. (2015).	N	NA	18 or older	Stroke patients	Patient Health Questionnaire (PHQ-2 and PHQ-9)	C
Matsuzaki, S., Hashimoto, M., Yuki, S., Koyama, A., Hirata, Y., & Ikeda, M. (2015)	N	Rehabilitation hospital	18 or older	Japanese stroke patients	Japanese version of Self rating Depression scale (SDS), Japanese version of Montgomery-Asberg Depression Rating Scale	B

					(MADRS-J)	
McIntosh, C. (2017)	N	Inpatient hospital	18 or older	Stroke patients	Patient Health Questionaire-9 (PHQ-9)	B
Melrose, S. (2016).	N	NA	NA	Post stroke	various	C
Powers, W. J., Rabinstein, A. A., Ackerson, T., Adeoye, O. M., Bambakidis, N. C., Becker, K., ... Tirschwell, D. L. (2018).	Y	NA	NA	Stroke patients	NA	A
Robinson, R. G., & Jorge, R. E. (2016).	N	Community, acute or rehabilitation hospitals and outpatient	18 or older	stroke	Hospital Anxiety and Depression Scale (HADs)	C
Siu, A., & US Preventive Services Task Force (2016,).	Y	Various	18 or older, including pregnant women	General adult population	Patient Health Questionnaire (PHQ-2 and PHQ-9), Hospital Anxiety and Depression scale (HADS), Geriatric Depression Scale, Edinburgh Postnatal Depression Scale (EPDS)	B
Stanfill, A., Elijovich, L., Baughman, B., & Conley, Y. (2016)	N	NA	18 or older	Stroke patients	NA	B
Swartz, R. H., Bayley, M., Lanctot, K. L., Murray, B. J., Cayley, M. L.,	N	Various	18 or older	stroke	NA	C

Lien, K., ... Herrmann, N. (2016).						
Volz, M., Mobus, J., Letsch, C., & Werheid, K. (2016).	N	Inpatient rehabilitation centers	40 years of age or older	Ischemic stroke patients	Mini Mental Sate Test (MMST), Geriatric Depression Scale (GDS)	C
Wang, E. Y., Meyer, C., Graham, G. D., & Whooley, M. A. (2018).	N	Ambulatory care	Older adults	Stable CHD patients with reports of stroke	Center for Epidemiologic Studies Depression Scale (CES-D), PHQ-9 and PHQ-2, and The Whooley questions	C

Appendix B: Site Approval Documentation for CPGD Doctoral Project

APPENDIX A: SITE APPROVAL DOCUMENTATION FOR CPGD DOCTORAL PROJECT

Partner Site
Contact Information
Date

The doctoral student, [Insert Student Name], is involved in developing updated Clinical Practice Guidelines for our organization, and is therefore approved to collect questionnaire data from expert panelists (staff members) in support of that effort, in addition to analyzing internal, de-identified site records that I deem appropriate to release for this doctoral project. This approval to use our organization's data pertains only to this doctoral project and not to the student's future scholarly projects or research (which would need a separate request for approval).

I understand that, as per DNP program requirements, the student will publish a scholarly report of the development of these Clinical Practice Guidelines in ProQuest as a doctoral capstone (with site and individual identifiers withheld), as per the following ethical standards:

a. In all reports (including drafts shared with peers and faculty members), the student is required to maintain confidentiality by removing names and key pieces of evidence/data that might disclose the organization's identity or an individual's identity or inappropriately divulge proprietary details. It is up to the organization to choose if the project should be publicized.
b. The student will be responsible for complying with our organization's policies and requirements regarding data collection (including the need for the site IRB review/approval, if applicable).
c. Via a Disclosure to Expert Panelists Form (which is similar to a consent form but doesn't need to be signed), the student will describe to panelists how the data will be used in the doctoral project and how the stakeholders' integrity and privacy will be protected.

I confirm that I am authorized to approve these activities in this setting.

Signed,

Authorization Official Name

Title

Appendix C: Disclosure to Expert Panelist Form for Anonymous Questionnaires

APPENDIX B: DISCLOSURE TO EXPERT PANELIST FORM FOR ANONYMOUS QUESTIONNAIRES

To be given to an expert panelist prior to collecting questionnaire responses—note that obtaining a "consent signature" is not appropriate for this type of questionnaire and providing respondents with anonymity is required.

Disclosure to Expert Panelist

You are invited to take part in an expert panelist questionnaire for the doctoral project that I am conducting.

Questionnaire Procedures

If you agree to take part, I will be asking you to provide your responses anonymously, to help reduce bias and any sort of pressure to respond a certain way. Panelists' questionnaire responses will be analyzed as part of my doctoral project, along with any archival data, reports, and documents that the organization's leadership deems fit to share. If the revisions from the panelists' feedback are extensive, I might repeat the anonymous questionnaire process with the panel of experts again.

Voluntary Nature of the Project

This project is voluntary. If you decide to join the project now, you can still change your mind later.

Risks and Benefits of Being in the Project

Being in this project would not pose any risks beyond those of typical daily professional activities. This project's aim is to provide data and insights to support the organization's success.

Privacy

I might know that you completed a questionnaire but I will not know who provided which responses. Any reports, presentations, or publications related to this study will share general patterns from the data, without sharing the identities of individual respondents or partner organization(s). The questionnaire data will be kept for a period of at least 5 years, as required by my university.

Contacts and Questions:

If you want to talk privately about your rights in relation to this project, you can call my university's Advocate via the phone number 612-312-1210. Walden University's ethics approval number for this study is (Student will need to complete Form A in order to obtain an ethics approval number).

Before you start the questionnaire, please share any questions or concerns you might have.

Appendix D: AGREE II Instrument

DOMAIN 1. SCOPE AND PURPOSE

1. The overall objective(s) of the guideline is (are) specifically described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

2. The health question(s) covered by the guideline is (are) specifically described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 2. STAKEHOLDER INVOLVEMENT

4. The guideline development group includes individuals from all relevant professional groups.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

5. The views and preferences of the target population (patients, public, etc.) have been sought.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

6. The target users of the guideline are clearly defined.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 3. RIGOUR OF DEVELOPMENT

7. Systematic methods were used to search for evidence.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

8. The criteria for selecting the evidence are clearly described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

9. The strengths and limitations of the body of evidence are clearly described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 3. RIGOUR OF DEVELOPMENT continued

10. The methods for formulating the recommendations are clearly described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

11. The health benefits, side effects, and risks have been considered in formulating the recommendations.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

12. There is an explicit link between the recommendations and the supporting evidence.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 3. RIGOUR OF DEVELOPMENT continued

13. The guideline has been externally reviewed by experts prior to its publication.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

14. A procedure for updating the guideline is provided.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 4. CLARITY OF PRESENTATION

15. The recommendations are specific and unambiguous.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

16. The different options for management of the condition or health issue are clearly presented.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

17. Key recommendations are easily identifiable.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 5. APPLICABILITY

18. The guideline describes facilitators and barriers to its application.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

19. The guideline provides advice and/or tools on how the recommendations can be put into practice.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

20. The potential resource implications of applying the recommendations have been considered.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 5. APPLICABILITY continued

21. The guideline presents monitoring and/or auditing criteria.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 6. EDITORIAL INDEPENDENCE

22. The views of the funding body have not influenced the content of the guideline.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

23. Competing interests of guideline development group members have been recorded and addressed.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

OVERALL GUIDELINE ASSESSMENT

For each question, please choose the response which best characterizes the guideline assessed:

1. Rate the overall quality of this guideline.

1 Lowest possible quality	2	3	4	5	6	7 Highest possible quality

2. I would recommend this guideline for use.

Yes	
Yes, with modifications	
No	

NOTES

Appendix E: AGREE II Score Calculator

Seven-point AGREE II Score Calculator

You must fill in ALL of the Question ratings from an appraiser for the Domain score to be accurate. **Note: Please use the AGREE II User's Manual for full instructions.*

Total # of Appraisers 0	**Appraiser**			
	1	***2***	***3***	***4***
Domain 1 - Scope and Purpose				
Q1 - The overall objective(s) of the guideline is (are) specifically described.				
Q2 - The health question(s) covered by the guideline is (are) specifically described.				
Q3 - The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.				
	Caution: Empty Cells	Caution: Empty Cells	Caution: Empty Cells	Caution: Empty Cells **Domain 1 Score for 0 Appraiser(s):**
Domain 2 - Stakeholder Involvement				
Q4 - The guideline development group includes individuals from all relevant professional groups.				
Q5 - The views and preferences of the target population (patients, public, etc.)				

have been sought.				
Q6 - The target users of the guideline are clearly defined.				
	Caution: Empty Cells	Caution: Empty Cells	Caution: Empty Cells	Caution: Empty Cells **Domain 2 Score for 0 Appraiser(s):**
Domain 3 - Rigour of Development				
Q7 - Systematic methods were used to search for evidence.				
Q8 - The criteria for selecting the evidence are clearly described.				
Q9 - The strengths and limitations of the body of evidence are clearly described.				
Q10 - The methods for formulating the recommendations are clearly described.				
Q11 - The health benefits, side effects, and risks have been considered in formulating the recommendations.				
Q12 - There is an explicit link between the recommendations and the supporting evidence.				
Q13 - The guideline has been externally reviewed by experts prior to its publication.				
Q14 - A procedure for updating the guideline is provided.				
	Caution: Empty Cells	Caution: Empty Cells	Caution: Empty Cells	Caution: Empty Cells

				Domain 3 Score for 0 Appraiser(s):
Domain 4 - Clarity of Presentation				
Q15 - The recommendations are specific and unambiguous.				
Q16 - The different options for management of the condition or health issue are clearly presented.				
Q17 - Key recommendations are easily identifiable				
	Caution: Empty Cells	Caution: Empty Cells	Caution: Empty Cells	Caution: Empty Cells **Domain 4 Score for 0 Appraiser(s):**
Domain 5 - Applicability				
Q18 - The guideline describes facilitators and barriers to its application.				
Q19 - The guideline provides advice and/or tools on how the recommendations can be put into practice.				
Q20 - The potential resource implications of applying the recommendations have been considered.				
Q21 - The guideline presents monitoring and/or auditing criteria.				
	Caution: Empty Cells	Caution: Empty Cells	Caution: Empty Cells	Caution: Empty Cells **Domain 5 Score for**

				0 Appraiser(s):
Domain 6 - Editorial Independence				
Q22 - The views of the funding body have not influenced the content of the guideline.				
Q23 - Competing interests of guideline development group members have been recorded and addressed.				
	Caution: Empty Cells	Caution: Empty Cells	Caution: Empty Cells	Caution: Empty Cells **Domain 6 Score for 0 Appraiser(s):**
Overall Guideline Assessment				
1. Rate the overall quality of this guideline. *Scoring: 1(Least Quality) - 7(Highest Quality)*				
2. I would recommend this guideline for use. *Scoring: "Yes", "Yes, with modifications", "No"*				

Appendix F: Clinical Practice Guidelines

Clinical Practice Guidelines for Depression Screening in Post stroke

Shannah Lowe

Walden university

Clinical Practice Guidelines for Depression Screening in Post stroke

Depression screening is one of the leading causes of disability in adults (Siu & US Preventive Services Task Force, 2016). In 2009 The US Preventive Task Force (USPSTF) issued a statement of recommendations that all adults regardless of risk factors be screened for depression (Siu & US Preventive Services Task Force, 2016). Although the recommendations are inclusive of the entire general population age 18 or older, it identifies groups that have an increased risk of developing depression. Those groups include individuals with chronic illnesses, other mental health disorders, or family history of psychiatric disorders (Siu & US Preventive Services Task Force, 2016).

Individuals that have suffered a stroke could be categorized as chronic illness, which increases the risk of developing depression. The purpose of the following guidelines are to discuss the prevalence of depression post stroke with recommendations for depression screening. Limitation of this guideline are recommendations for treatment.

Depression prevalence post stroke

Stroke is defined as a sudden interruption or loss of blood and oxygen to the brain resulting in tissue damage (Robinson & Jorge, 2016). There are approximately 700,000 strokes yearly in the United States and 163,000 deaths related to stroke (Robinson & Jorge, 2016). Although stroke is the 5th leading cause of deaths in the United States, it remains the leading cause of disability.(American Heart Association, 2015). The American Heart/Stroke Association (2015) stated that depression occurs in approximately one third of stroke survivors. Incidence of depression post stroke is between 33%-50% of stroke survivors (Amaricai & Poenaru, 2016; (Das & G.K., 2018). Post stroke depression is associated with poor functional outcome after stroke, such as sleep disorders, poor rehabilitation outcomes, cognitive impairment, social

withdrawal, isolation and increase mortality (Das & G.K., 2018). In recent guidelines from the American Heart/Stroke Associations, depression screening post stroke is recommended (Powers et al., 2018).

Recommendation: Patients that have suffered a stroke should be assessed for depression.

Timing of depression screenings

Although the current literature and leading stroke advisory bodies recommend depression screening post stroke, there lacks any specific guidance on the optimal time to perform depression screening with the stroke survivor.

The early detection of post stroke detection is essential to optimization of the recovery for stroke survivors (De Man-van Ginkel et al., 2013). Unfortunately, despite the recognition of post stroke depression as a common and important comorbidity of stroke, it remains underrecognized, underdiagnosed, and under treated Post stroke depression is generally defined utilizing the criteria from the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (De Man-van Ginkel et al., 2013). According to the criteria, depression is characterized as the consistent presence of ≥ 5 out of 9 depression symptoms during a two-week period (De Man-van Ginkel et al., 2013). Complicating proper screening is the shorter lengths of stays in the acute care setting, often times less than 14 days, especially with the DSM requirement that depression symptoms be present greater than or equal to two weeks(De Man-van Ginkel et al., 2013). According to Li et al., (2016), post stroke depression range from 25%-79% in American patients. However, studies demonstrate that post stroke depression onset peaks within 30 days after a stroke, subsequently declining gradually over next 12 months (Li et al., 2016). In hospital settings and rehabilitation prevalence rates of major and minor depression were 21.6% and 20% respectively (Llorca, Castilla-Guerra, Moreno, Dablado, & Hernandez, 2015). Post discharge rates of major and minor

depression were 24% and 23.9% three months to three years after discharge (Llorca et al., 2015). The varying state of an individuals mental status between admission and assessments presents challenges for single depression assessments at admission (Matsuzaki et al., 2015).

Recommendations

Post stroke patient should be screened for depression within 24 hours of admission. This screen would serve as a baseline.

Subsequent depression should be performed if patient has length of stay ≥ 14 days in the acute care setting

If patient remains hospitalized at day 30, repeat depression screening is recommended. If patient has been discharged, depression screening recommended at follow up appointment.

Depression screening recommended to be repeat at set time frames, 30 days, 3 months, 6 months and 12 months following a stroke.

Who should perform the depression screen

In addition to the ambiguous timeframes for depression screening in post stroke patients, there is a lack of guidance on which healthcare provider can perform the screening, which can present as a barrier to performing depression screening (Kneebone, Baker, & O'Malley, 2010). Kneebone et al., (2010) occupational therapy and clinical psychology departments collaborated together to develop protocols for depression screening post stroke, in which the occupational therapist was performing the screening. It was thought that occupational therapy were appropriate for performing the screening because of the focus of psychosocial function training they possess (Kneebone et al., 2010). McIntosh, (2017) implemented a project that utilized nursing staff to perform depression screening after receiving education and training. Nurses in the acute phase have the potential to significantly impact outcomes for the post stroke patient

through identifying patients at risk for post stroke depression because of their proximity and education efforts across the continuum (Babkair, 2017; Klinedinst, Dunbar, & Clark, 2012; Stanfill, Elijovich, Baughman, & Conley, 2016). Lightbody et al., (2007) conducted a cross-sectional pilot study comparing clinical diagnosis of depression by a psychiatrist with two clinical interviews, using the Geriatric Mental State (GMS) exam and the Montgomery-Asberg Depression Rating Scale (MADRS), performed by a nurse. Lightbody et al., (2007) concluded that nurses have an instrumental role in detecting, preventing, and managing the depression in the post stroke patient. Melrose (2016) wrote an article centered on the nursing role in identification of post stroke depression. Post stroke depression has been associated with poor recovery and rehabilitation response, reduced social interactions, increase utilization of healthcare services, increased rates of cardiac and stroke sequalae, and increased mortality rates (Melrose, 2016). Melrose (2016) stated recognizing and responding to depression is a priority for nurses and formal caregivers knowing prevalence of post stroke depression is 10% - 50% in stroke survivors. Post stroke depression can have extended durations, for several years if not treated (Melrose, 2016). Scales and questionnaires are valuable resources that can aid a nurse in the assessment of post stroke depression (Melrose, 2016). Joubert et al., (2006) performed a prospective randomized control trial in a stroke unit. Participants of the study were randomized to an intervention or control group and were followed over a 12-month period. The purpose of the study was to evaluate the effect of a shared care model on management of vascular risk factors for stroke according to approved best practice guidelines, effect of screening for post stroke depression by a validated telephone assessment method with feedback to the General Practitioner (GP).

Recommendations

Depression screening protocols should be developed by an interdisciplinary team.

Depression screening should be integrated into nurses assessments.

Depression Screening Tools

The literature supports depression screening in post stroke patients, however, lacks guidance on the ideal tool to use. Lightbody et al., (2007) conducted a cross-sectional pilot study comparing clinical diagnosis of depression by a psychiatrist with two clinical interviews, using the Geriatric Mental State (GMS) exam and the Montgomery-Asberg Depression Rating Scale (MADRS), performed by a nurse. The study had 28 participants. Lightbody et. al (2007) reported the psychiatric clinical diagnosis (PCD) classified 25% of the patients as depressed, the MADRS and GMS classified 43% and 54% patients respectively as depressed. The PCD was performed by the psychiatrist while the MADRS and GMS was performed by nurses. The investigators further reported that when compared to the PCD, the GMS had a sensitivity of 71% (CI 29-96%), specificity of 67% (CI 43-85%), positive predictive value of 42% (CI 15-72%) and a negative predictive value of 88% (CI 62-98%) (Lightbody et al., 2007). The overall efficiency of the GMS was 68% (CI 48-84%) (Lightbody et al., 2007). The MADRS had a sensitivity of 100% (CI 59-100%), specificity of 65% (CI 38-86%), positive predictive value of 54% (CI 25-81%) and negative predictive value of 100% (CI 72-100%), with an overall efficacy of 75% (CI 53-90%) (Lightbody et al., 2007).

McIntosh (2017) completed an evidence-based quality improvement project, a depression screening protocol in patients with acute stroke. The purpose of the quality improvement project was to determine efficacy of an evidence-based depression screening protocol in early detection and treatment of post stroke depression and to identify any relationships between the protocol interventions, depression scores, and diagnosis (McIntosh, 2017). In the project nurses

completed depression screening utilizing a validated tool on patients that had a confirmed diagnosis of stroke. The study used a convenience sample of 79 hospitalized patients with acute stroke (McIntosh, 2017). Results yielded 48% of the participants were identified as being depressed as defined by a score >4 on the validated tool, patient health questionnaire 9 (PHQ-9). Additionally, patients who had positive depression screening were more likely to receive education on stroke and depression, in conjunction with being medically treated for depression before discharge (McIntosh, 2017).

In a study conducted by Wang, Meyer, Graham, & Whooley, (2018) four depression screening instruments were administered to 148 p participants. The instruments included the Center for Epidemiologic Studies Depression Scale (CES-D), Patient Health Questionnaire 9-item and 2-item (PHQ-9 and PHQ-2), and the Whooley questions, a 2-item questionnaire. In the sample of the study, the Whooley questions had the highest sensitivity (89%), 10-item CES-D (80%), PHQ-2 cut point ≥ 2 (79%), PHQ-9 (51%) and PHQ-2 cut point ≥3 (32%) (Wang et al., 2018). However, in terms of specificity the PHQ-2 cut point ≥ 3 (88%) was the highest, then followed by PHQ-9 (87%), PHQ cut point ≥2 (75%), CES-D (71%) and Whooley questions (66%) (Wang et al., 2018). In the analysis of the study the authors state if an instrument cannot rule in or out depression in any patients, then the screening is of little value, since all individuals would need diagnostic review (Wang et al., 2018).

Recommendations

Depression screening instruments should be performed with validated tools for depression detection.

Depression screening instruments should have a reliable sensitivity and specificity to identify depression in patients

Depression screening instruments should be easy to use and brief in duration. Complicated or lengthy instruments have potential to require too much time thereby discouraging conducting the screen.

In summary depression in post stroke patients is a common sequela. Early recognition and treatment of depression in the post stroke patient can have a significant impact on clinical outcomes. Although depression screening is beneficial in post stroke patients, there is little guidance on implementation of such process. Recommendations based on review of the literature include but not limited to the following:

I. Patients that have suffered a stroke should be assessed for depression.

II. Post stroke patient should be screened for depression within 24 hours of admission. This screen would serve as a baseline.

III. Subsequent depression should be performed if patient has length of stay $\geq$ 14 days in the acute care setting

IV. If patient remains hospitalized at day 30, repeat depression screening is recommended. If patient has been discharged, depression screening recommended at follow up appointment.

V. Depression screening recommended to be repeat at set time frames, 30 days, 3 months, 6 months and 12 months following a stroke.

VI. Depression screening protocols should be developed by an interdisciplinary team.

VII. Depression screening should be integrated into nurses assessments

VIII. Depression screening instruments should be performed with validated tools for depression detection.

IX. Depression screening instruments should have a reliable sensitivity and specificity to identify depression in patients

X. Depression screening instruments should be easy to use and brief in duration. Complicated or lengthy instruments have potential to require too much time thereby discouraging conducting the screen.

This guideline only addresses recommendations for depression screening in post stroke patients. Further research is needed to establish evidence-based practices for management and treatment of depression in post stroke patients.

References

Amaricai, E., & Poenaru, D. V. (2016). The post-stroke depression and its impact on functioning in young adn adult stroke patients of a rehabilitation unit. *Journal of Mental Health, 25*(2), 137-141. https://doi.org/10.3109/09638237.2015.1022251

American Heart Association. (2015). Heart Disease and Stroke Statistics—2016 Update A Report from the American Heart Association. *Circulation, 133*, e38-e360. https://doi.org/10 .1161/CIR .0000000000000350

Babkair, L. A. (2017). Risk factors for poststroke depression: An integrative review. *Journal of Neuroscience Nursing, 49*(2), 73-84. https://doi.org/10.1097/JNN.0000000000000271

Das, J., & G.K., R. (2018). Post stroke depression The sequelae of cerebral stroke. *Neuroscience and Biobehavioral Reviews, 90*, 104-114. https://doi.org/10.1016/j.neubiorev.2018.04.005

De Man-van Ginkel, J. M., Hafsteinsdottir, T. B., Lindeman, E., Ettema, R. G., Grobbee, D. E., & Schuurmans, M. J. (2013). In-hospital risk prediction for post-stroke depression Development and Validation of the post stroke depression prediction scale. *Stroke, 44*, 2441-2445. https://doi.org/10.1161/strokeaha.111.000304

Joubert, J., Reid, C., Joubert, L., Barton, D., Ruth, D., Jackson, D., ... Davis, S. M. (2006). Risk factor management and depression post-stroke: The value of an integrated model of care. *Journal of Clinical Neuroscience, 13*, 84-90. https://doi.org/10.1016,jocn.2005.07.003

Klinedinst, N. J., Dunbar, S. B., & Clark, P. C. (2012). Stroke survivor and informal caregiver perceptions of poststroke depressive symptoms. *Journal of Neuroscience Nursing, 44*(2), 72-81. https://doi.org/10.1097/JNN.0b013e3182477944

Kneebone, I., Baker, J., & O'Malley, H. (2010). Screening for depression after stroke Developing protocols for the occupational therapist. *British Journal of Occupational Therapy*, *73*(2), 71-76. https://doi.org/10.4276/030802210X12658062793843

Li, J., Oakley, L. D., Brown, R. L., Li, Y., Ye, M., & Luo, Y. (2016). Early symptom measurement of post-stroke depression. *Journal of Affective Disorders*, *197*, 215-222. https://doi.org/10.1016/j.jad.2016.03.038

Lightbody, C., Baldwin, R., Connolly, M., Gibson, B., Jawaid, N., Leathley, M., ... Watkins, C. (2007). Can nurses help identify patients with depression following a stroke? A pilot study using two methods of detection. *Journal of Advanced Nursing*, *57*(5), 505-512. https://doi.org/10.1111j.1365-2648.2006.04135.x

Llorca, G., Castilla-Guerra, L., Moreno, M. F., Dablado, S., & Hernandez, J. (2015). Post-stroke depression An update. *Neurologia*, *30*(1), 23-31. Retrieved from www.elsevier.es/neurolgia

Matsuzaki, S., Hashimoto, M., Yuki, S., Koyama, A., Hirata, Y., & Ikeda, M. (2015). The relationship between post-stroke depression and physical recovery. *Journal of Affective Disorders*, *176*, 56-60. https://doi.org/10.1016/j.jad.2015.01.020

McIntosh, C. (2017). A depression screening protocol for patients with acute stroke: A quality improvement project. *Journal of Neuroscience Nursing*, *49*(1), 39-48. https://doi.org/10.1097/JNN.0000000000000231

Melrose, S. (2016). Post-stroke depression How can nurses help. *Canadian Nursing Home*, *27*(1), 5-9.

Powers, W. J., Rabinstein, A. A., Ackerson, T., Adeoye, O. M., Bambakidis, N. C., Becker, K., ... Tirschwell, D. L. (2018). 2018 Guidelines for the early management of patients with

acute ischemic stroke; A guideline for healthcare professionals from the American Heart Association/American *Stroke* Association. Stroke, *49*(3), e46-99. https://doi.org/10.1161/STR.0000000000000158

Robinson, R. G., & Jorge, R. E. (2016). Post-stroke depression A review. *American Journal of Psychiatry, 173*(3), 221-231. https://doi.org/10.1176/appi.ajp.2015.15030363

Siu, A., & US Preventive Services Task Force (2016,). Screening for depression in adults US Preventive Services Task Force recommendation and statement. Journal of American

Stanfill, A., Elijovich, L., Baughman, B., & Conley, Y. (2016). A review and conceptual model of dompaminergic contributions to poststroke depression. *Journal of Neuroscience Nursing*, *48*(5), 242-246. https://doi.org/10.1097/JNN.0000000000000240

Swartz, R. H., Bayley, M., Lanctot, K. L., Murray, B. J., Cayley, M. L., Lien, K., ... Herrmann, N. (2016). Post-stroke depression, obstructive sleep apnea, and cognitive impairment Rationale for and barriers to routine screening. *International Journal of Stroke*, *11*(5), 509-518. https://doi.org/10.1177/1747493016641968

Volz, M., Mobus, J., Letsch, C., & Werheid, K. (2016). The influence of early depressive symptoms, social support and decreasing self-efficacy on depression 6 months post-stroke. *Journal of Affective Disorders*, *206*, 252-255. https://doi.org/10.1016/j.jad.2016.07.041

Wang, E. Y., Meyer, C., Graham, G. D., & Whooley, M. A. (2018). Evaluating screening tests for depression in post stroke older adults. *Journal of Geriatric Psychiatry and Neurology*, *31*(3), 129-135. https://doi.org/10.1177/0891988718778791