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Educating Nurses About Poststroke Depression and Using the PHQ-2/9

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This is to certify that the doctoral study by

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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.

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Walden University
2020

Abstract

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by

Mary T. McMullen

MS, Wilmington University 2015

BS, East Tennessee State University, 2013

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Stroke has affected more than 7 million people and up to 33% of those patients reporting depression. The lack of screening for depression for patients post stroke can delay treatment for depression and hinder or lengthen recovery. The purpose of this project was to develop a nursing staff education program on using the Patient Health Questionnaire (PHQ) tools (PHQ-2 and PHQ-9) at the bedside to detect signs and symptoms of depression and identify nurse-driven interventions. Using the Johns Hopkins nursing evidence-based practice model and Orem's self-care model for guidance, an interdisciplinary team was assembled to collaborate on the development. A pre post design was used to assess whether the program would increase knowledge on PHQ tool use and comfort level in recognizing signs and symptoms of depression following program implementation. A total of 53 registered nurses participated in the educational sessions. Nursing knowledge on PHQ tool use increased from a mean of 2.89 to 4.92 on the pretest and posttest, respectively. The comfort level of the nurse participants to recognize the signs and symptoms of depression increased from a mean score of 4.13 to 4.81. Recommendations include educating all bedside nurses within the hospital beginning at orientation and providing annual refresher education on the signs and symptoms of depression, conducting effective screening using the PHQ tools, and adding tools to the electronic health record. The social and psychological impact of post stroke depression affects not only the patient, but their family, friends, and the community. Providing nurses post stroke depression education and a validated tool for assessments will allow them to advocate for patients to receive prompt treatment for depression and to foster a healthy recovery following a stroke.

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Dedication

The completion of my DNP degree, including this project, would not have been possible without the constant encouragement of my husband, John McMullen. You have seen me thorough times I wanted to give up and when I doubted my own abilities. Your love never wavered even in the most stressful times and I am forever grateful. Second, I want to dedicate this to my parents, William and Ellen Barberi. You cheered me on, talked me off the proverbial ledge, and have always said I could do anything I put my mind to. Your unrelenting support from a young age to now has been instrumental in my accomplishments. Thank you to three of my closest friends who have been by my side, my support system, and personal cheerleaders. Annemarie Monteleone, Lisa Dixon, & Vicki Cornelius, you are the some of the greatest friends anyone could have, and I am blessed. And lastly, thank you to my brother, Carl Barberi, extended family, and friends who have seen me through my nursing education and career, culminating in the completion of this program.

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Section 1: Nature of the Project

Introduction

More than 7 million people are stroke survivors and all people can be placed on a spectrum from having no to complete neurological deficits that include physical, emotional, and/or cognitive (American Heart Association, 2018). To support the physical and neurological therapies, it is important to treat the patient's emotional status. It is imperative to recognize signs and symptoms of depression early to begin treatment. Early recognition by the acute care nurse in the immediate post stroke phase can potentially affect the short- and long-term physical and cognitive effects for patients.

The current standard practice, if a nurse suspects depression, was to ask the attending physician for a psychological consult and wait for the patient to be evaluated, or to have the patient evaluated in the physician's office after discharge from acute care. Unfortunately, there was the risk for a large gap of time between the initial onset of symptoms of depression and when a person is evaluated that can have a significant impact on their recovery. "Patients with stroke who had a depressed mood within the week after their stroke were more likely to be severely disabled up to 24 months after stroke" (Willey et al., 2010, p.1898). This can include delayed recovery from depression, delayed activities of daily living (ADL) recovery, and reduced overall social functioning. There are multiple tools for nurses to use to evaluate a patient for depression. To be proactive in treating the stroke patient in the acute phase of treatment, the Patient Health Questionnaire-2/9 (PHQ-2/9) is a tool that nurses can use to screen for signs and symptoms of depression. If the PHQ-2 provides a positive screen (score of 2 or greater),

it is recommended for the PHQ-9 to be filled out (De Man-van Ginkel et al., 2012) which will allow the nurse to refer the patient as needed for treatment. The PHQ-2 has been found to be effective as a preliminary screening tool for depression in patients who have multiple sclerosis (Amtmann et al., 2014) and has been effective in the screening of depression in stroke patients (Kroenke, Spitzer, Williams, 2003).

Current stroke rehabilitation and recovery guidelines recommend the use of depression screening tools such as the PHQ-2 for routine screenings (Winstein et al., 2016). The PHQ-2 is specific, easy to administer, and will not interfere with current patient care and assessments, only elevate them to include the patient's emotional status. The PHQ-2 will determine if the patient is at risk for depression. The current recommendations from the American Heart Association/American Stroke Association is the abbreviated PHQ-2 survey (Weinstein et al, 2016).

Problem Statement

According to the American Heart Association/ American Stroke Association 2016 Guidelines for Adult Stroke Rehabilitation and Recovery (Winstein et al., 2016), up to 33% of patients who survive a stroke report depression, either situational or it can be a lifelong illness (Boland, Keller, Gotlib, & Hammen, 2002). Depression can occur at any time post stroke. To benefit from the rehabilitation process, it is important to recognize depression early (Winstein et al., 2016).

Nurses are at the bedside, interacting with patient and family, and can objectively perform a preliminary evaluation, using the PHQ-2 and the PHQ-9 assessment tool, as part of required assessments. Poststroke depression can have adverse effects cognitively

and functionally (Alajbegovic et al., 2014). Early effective treatment could result in a positive effect on rehabilitation and return to the community. There was no standardized early screening in place, within this specific hospital system, for nursing to objectively determine if a patient is suffering from early stages of depression (Stroke coordinator, personal communication, April 22, 2019). Nurses either did not have or did not use the recommended PHQ-2 during the immediate acute phase (initial 2 weeks) for post stroke patients and did not understand the effectiveness of nurse implemented interventions (Stroke coordinator, personal communication, April 22, 2019).

Purpose Statement

The purpose of this evidence-based project (EBP) was to develop an educational program on signs and symptoms of depression to allow nurses the ability to assess all patients in the hospital that are acute post stroke for depression. This included observation of signs and symptoms of depression and implementation of the PHQ-9. The PHQ-2 is an abbreviated form of the PHQ-9 and should be administered first. Both the PHQ-2 and PHQ-9 are screening tools that can be used by the nursing staff at the bedside without extensive training. To provide post stroke patients with the best opportunity for recovery, it was the focus of this project to provide education on depression to the nursing team that cares for post stroke patients in acute care, nursing interventions for depression, implementing the PHQ-2 screening tool, and subsequent PHQ-9 if necessary. Recognition of post stroke depression and the use of a tool that can be completed by a variety of practitioners, including registered nurses, is imperative to effective stroke care (Rogers, 2017).

Nature of the Doctoral Project:

Nurses in most acute care facilities spend between 8-12 hours per shift with patients (Jarrar, Minai, Al-Bsheish, Meri, and Jaber, 2018). During this time, nurses conduct initial and follow up assessments based on their hospital guidelines and patient requirements. Integrating a screening tool, such as the PHQ-2/9, into the plan of care will allow for detection of the early signs of depression and routine screening during the acute post stroke phase. As frontline staff in patient care areas, it is important for nurses to be educated about the most recent recommendations and advancements in post stroke education (Price & Reichert, 2017).

The nature of this project was an educational program for nurses in an acute care setting of a local hospital to recognize the signs and symptoms of depression in stroke patients including the use of the PHQ-2 and PHQ-9 depression screening tools. The project included the nurses on the current stroke unit and began with a pre survey, including demographic information, to evaluate and analyze their understanding of the signs and symptoms of depression. The educational sessions consisted of didactic presentations, the opportunity to practice the PHQ-2 and PHQ-9 by role play during the sessions, and the chance to ask questions. A post survey was completed by participants after all education sessions were held. The anticipated outcome of this educational EBP was for the nursing participants to have increased knowledge on the signs and symptoms of stroke related depression and the ability to implement the use of the PHQ-2/9 tool to screen for depression at the bedside. In addition, the nurses will then be able to intervene with available resources at the initial signs and symptoms of post stroke depression.

Significance to Nursing of the Project.

The number of patients surviving strokes is rapidly rising due to early recognition of symptoms and increased intervention effectiveness (Donkor, 2018). Symptoms of depression can appear in patients experiencing stroke immediately to weeks or months later (Dwyer Hollender, 2014). It is important for hospital nursing staff to be conversant with the signs and symptoms of depression. It is imperative to properly treat patients' post stroke with rehabilitation and inpatient therapy. Patients may not be aware they are depressed, especially in the initial stages after a stroke. Depression can negatively affect a patient's ability to participate in therapies and in turn affect their recovery (Winstein et al., 2016). Nurses completing a screening, early and often, to potentially initiate treatment for depression may have a profound impact on the overall outcome of treatment for all post stroke patients. The need to begin the evaluations early in the acute care setting is due to patients being discharged home with a physician office follow-up with unknown date, if they keep it, and the risk of undiagnosed and untreated post stroke depression. To prepare the patient for the best outcomes, it is important for all caregivers from the emergency department through the inpatient setting to be aware of the impact that the stroke can have on the patient's emotional state, specifically depression.

Definition of Terms

The following are definitions of terms that have been used for this DNP evidence-based project:

Acute: Sudden onset, symptoms can change rapidly (Medline Plus, 2019)

Chronic: Medical condition that lasts over an extended timeframe, does not go away easily (Medline Plus, 2019)

Depression: According to the National Institute of Mental Health (NIMH, 2019), it is a mood disorder that can affect the way you feel, think, and complete daily activities. Some symptoms that may be present are a sad or anxious mood, decreased energy, difficulty sleeping, and feelings of worthlessness. This list of symptoms is not all inclusive and are variable based on the situation and person affected.

Patient Health Questionnaire 2/9 (PHQ-2, PHQ-9): A two and nine question screening tool for assessment, monitoring, and measuring the symptoms of depression. The questionnaire provides an assessment of depressive thoughts and feelings and the severity of each. (Kroenke, Spitzer, Williams, 2001).

Rehabilitation: The World Health Organization (WHO) defines rehabilitation as "a set of measures that assist individuals, who experience or are likely to experience disability, to achieve and maintain optimum functioning in interaction with their environments" (WHO, 2011, p. 96)

Stroke: A medical diagnosis described as a rupture or blocked blood vessel in the brain which causes a decrease of oxygenated blood and nutrients to the brain and cell death (American Stroke Association, 2019).

Assumptions and Limitations

There were four assumptions made for this project:

- Nursing staff are aware of signs and symptoms of depression.

- Nurses are aware of the stigma associated with a depression diagnosis and how to have talks with patients.
- The nurses would be open to further education for depression screening.
- It may be difficult to implement the screening post education due to the electronic health record and willingness of staff to add more required charting to their shift.

The EBP does not come without perceived limitations. These included the following:

- Time constraints of the nurses due to workload and limited time to dedicate to the pre- and posttest and education.
- Resistance of nurses to participate in the project due to risk of change in charting requirements and increase in workload.
- Resistance from administration after completion of project to implement the screening into the patient record.

Summary

In summary, post stroke depression can affect a patient's ability to recover and participate in rehabilitation. Registered nurses spend a significant amount of time with patients in acute care setting immediately after receiving a post stroke diagnosis and can assess patients for signs and symptoms of depression. Section 1 provided the information regarding the use of the PHQ-2/9 as recommended according to the American Heart Association (AHA) and American Stroke Association (ASA) guidelines (2016). This tool is effective in the early diagnosis and treatment of post stroke depression.

Depression can follow other chronic diagnoses such as chronic heart disease, chronic pain, and any other diagnosis that can impact an individual's quality of life or ADLs (Colquhoun et al., 2013).

This EBP will determine the effectiveness of the education program and the use of the PHQ 2/9. My preceptor site plans to use the educational module created for post stroke depression throughout the facility but for this EBP was limited to the acute care stroke unit. Education of all acute care nurses from the emergency department through rehabilitation nurses should be educated about signs and symptoms of depression and what can be done to assist patients.

Section 2 includes a discussion of Orem's theory of self-care, originally published in 1971 (Orem, 2001). The process of nursing care from planning to implementation is developed using various nursing theories including the self-care theory. The self-care theory states a person is responsible for care of themselves until the point where they are unable (Orem, 2001). At this juncture, it is the caretaker that assumes care of the person. The individual should be allowed to participate based on ability and the nurse or caretaker will complete the unmet needs (Orem, 2001). Patients who have been diagnosed with a stroke are not the only affected persons. The impact of disability or depression affects not only the patient, but also affects their family, friends, and the community at large. The team approach, from nursing to therapists, is imperative to providing post stroke care. The impact of interprofessional collaboration is necessary for the development of social change as discussed in Section 2.

Section 2: Background and Context

Introduction

In the previous section, the impact of post stroke depression in the acute phase of the illness was discussed. It was the purpose of this project to develop a staff education program of early identification of depression in post stroke patients and provide acute care nurses with proper screening tools, such as the PHQ-2 and PHQ-9, and the education to utilize them. Section 2 presents the nursing theory and concepts that provided guidance for this project and the relevance to current nursing practice. The self-care deficit theory by Orem (2001) allows guidance for nurses to provide for a patient as they are unable. Self-care is "directed toward bringing about specific regulations of human functioning and development through deliberate result-seeking action under existent or changing environmental conditions" (Denyes, Orem, & Bekel, 2001, p. 49). Patients who have a stroke may have deficits that range from hemiparesis to paralysis (National Stroke Association, 2018). Depression may impact not only the patients desire to provide basic self-care such as hygiene, but also may have an impact on capacity and desire to participate in therapy or rehabilitation and socialization (Dwyer Hollender, 2014).

The role of the Doctor of Nursing Practice (DNP) student, as outlined within the American Association of Colleges of Nursing (AACN), provides essentials as a basis for advanced practice education. These include organizational and systems leadership for quality improvement and systems thinking and interprofessional collaboration for improving patient and population health outcomes (AACN, 2006). This project incorporates both concepts.

Nursing Theory

Poststroke depression affects the person/patient as a whole (Hamid & MacKenzie, 2017). There are many cause and effect relationships in this project related to stroke and depression. The self-care deficit theory described in Current Nursing (2012) emphasizes how people should be responsible for their own self until they cannot. At this point, it is the responsibility of the ill person, or their family member, to find those who are capable of caring for them, following through with all prescribed medical treatments, and tending to the physical, mental, and emotional needs of the person until such time as they can care for themselves (Petiprin, 2016). For the purposes of depression screening beginning immediately post stroke, it will allow the patient quicker access to help if they begin to have difficulty with acceptance of oneself and learning to live with the deficit post stroke (Hamid & MacKenzie, 2017).

Self-Care Model

Poststroke depression may influence outcomes due to participation in therapy, decreasing physical, social, and cognitive function, and likely neuroplasticity (Towfighi et al., 2017). The risks associated with late diagnosis of depression in stroke patients may be mitigated by initiating the screenings beginning in the immediate acute phase (Dwyer Hollender, 2014). This may be by having nurses complete the PHQ-2 and if positive, the expanded PHQ-9, followed by implementing Orem's self-care model. It requires that nurses have substantive knowledge about self-care and understand that human beings are both the focus of their own actions and the agents of their actions (Denyes, Orem, & SozWiss, 2001). Orem's self-care model has three primary categories: nursing systems,

self-care deficit, and self-care (Orem, 2001). These categories are further delineated to include:

- Nursing systems (wholly compensated, partially compensated, and supportive-educative).
- Self-care deficit (five methods of helping: acting for and doing for others, guiding others, supporting another, providing an environment promoting personal development in relation to meet future demands, and teaching another)
- Self-care (self-care, self-care agency, self-care requisites, and therapeutic self-care demand)

Implementing the nursing process of assessment, nursing diagnosis, plan, implementation, and evaluation using Orem's self-care model (Current Nursing, 2012), nurses were able to participate in the early detection of depression of patients who have been diagnosed with an acute stroke. Orem's theory is the most appropriate theory for educating nurses about post stroke depression due to the education allowing the patient to desire self-care and the nursing staff to initiate care when there is a self-care deficit. The multitude of self-care deficits and personal needs may vary on a large spectrum from patient to patient and day to day. By using Orem's theory of self-care, these various needs can be met when nurses understand the connection between depression and lack of desire to meet one's physical needs (Orem, 2001).

Gap in Nursing Practice

The gap in practice in this facility revealed there was no current documented assessment by nursing staff for depression in post stroke patients. The clinical relevance of this project was to empower nurses to assist with the early diagnosis of depression in the acute stage of a stroke diagnosis. Caregivers are well positioned to identify symptoms of post stroke depression that they may not disclose to their providers (Hamid & MacKenzie, 2017). Nurses have the clinical education to provide physiological care for patients as determined by the various state departments of nursing and with continuing education. Education that is specific to depression screening tools, such as the PHQ-2 and PHQ-9, may assist in the early detection of signs and symptoms of depression in the acute care setting (Ski, Munian, Rolley, &Thompson, 2014).

Social Change

The impact of disability or depression affects not only the patient, but also affects their family, friends, & the community and is not always tangible or quantifiable. It is imperative for nurses to assist in the observational assessment & implementing tools to assist with potential changes in the patient and the community. According to Walden University, one of the Core-8 feature changes is advocacy (Walden University, 2017). With the implementation of this project, it was the intention to bring awareness of the potential under-diagnosis of post stroke depression (PSD). One of the primary roles of a nurse is to be a patient advocate. It is also important for nurses to advocate for the family, friends, and community. The negative connotations which come with the stigma of depression may cause patients to resist reaching out for help. The PHQ-2 & PHQ-9

will provide nurses with an objective tool, as well as providing aide needed to the patient and family with a positive screening notated.

The current practice by nurses, if they perceive the patient as being depressed or having signs of depression, was to ask the primary physician to order a psychological consult. There were no evaluation tools that give the nurse guidance to allow for a broader range of nursing diagnosis. Implementing a screening tool was likely to decrease the risk of misinterpretation and lack of consistency among nursing staff caring for these patients.

Local Background & Context

The 2016 American Heart Association/American Stroke Association guidelines address depression among stroke patients and recommend the completion of a PHQ-2 screening on all patients who have been diagnosed with a stroke (Weinstein et al, 2016). There is currently an increase on the awareness of depression and its ability to hinder recovery. This project focused on this attribute of stroke patients and assisted with optimizing their recovery.

Literature Review

The information for the project was obtained by analyzing peer reviewed research studies. The articles were obtained through scholarly database searches including the Walden University library, CINHL, EBSCO, PubMed, Science Direct, & the AACN. Information was also obtained through specialized websites such as the American Heart Association, American Stroke Association, WHO, & the National Institute of Health. A

total of 1 book, 84 articles, & approximately 14 websites were initially reviewed with 1 book, 21 articles, & 7 websites used in the review.

The articles were published between 2001 & 2018, with 14 of the articles published within the past 6 years. The websites were updated between 2017 & 2019 except for the American Association of Colleges of Nursing Essentials which was updated as of 2006. Keyword and phrase searches consisted of depression, depression screening, post stroke depression, nursing & depression screening, PHQ-2, PHQ-9, stroke & depression, chronic illness & depression, stroke complication, & stroke rehabilitation.

Role of DNP Student

My role in this project was to direct the development of the staff education program which included a PowerPoint presentation and the pretest and posttests. I educated the specialty clinician and nurse educator on the importance of the program as they are responsible for teaching it to all nurses currently working at the facility and those hired after the initial rollout is completed.

As a nurse caring for stroke patients in a neurological intensive care unit (ICU), I have witnessed the emotional effect it can have on a patient when they begin to understand the effect that the stroke has had on their abilities to be independent. I did not realize what could be done without a doctor's order that could have helped these patients. Personally, watching the impact of depression on the participation in therapy & willingness to interact with others, made me seek out further information. This led to my preceptor showing me the new stroke treatment guidelines & the development of this project. This project provided the nursing staff with the education to move forward with

depression screenings and general nursing treatments for patients in the acute care setting allowing for optimal care.

Summary

In section 2, the use of Orem's self-care model was discussed and the necessity for nurses to be aware of their patient's needs, physically & emotionally. To provide care for the entire self of the patient, the emotional needs must also be met, specifically recognition of depression, in post stroke patients. The emotional impact that a stroke has on a patient can further complicate their care if they choose not to participate in therapy or socialize with family, friends, & others (Towfighi et al., 2017). At the hospital which participated in this project, more than 500 acute stroke patients were treated on a yearly basis (Stroke coordinator, personal communication, April 22, 2019). It was the goal of this project to educate & train the bedside nurses to care for the patient's needs, including recognition of signs & symptoms of depression. Section 3 includes a discussion on sources of evidence including the American Heart Association/ American Stroke Association (AHA/ASA) guidelines & the approach to gather data (2016).

Section 3: Collection and Analysis of Evidence

Introduction

Section 2 included a discussion of Orem's self care model and the relevance to post stroke patients. The facility participating in this project and its demographics were outlined. Due to the number of stroke patients admitted to the facility, it was an excellent starting point for educating staff nurses who care for them. According to the AHA/ASA 2016 guidelines, depression symptoms should be addressed early in the rehabilitation process. This is important due to the lessening time in rehabilitation (Winstein et al., 2016). Patients who are in an acute care hospital post stroke have many more hours of face-to-face contact with nurses than they do individual physicians and are also care coordinators for the patient and family (Jarrar et al., 2018). As nurses are coordinating this care and in discussions with physicians and treatment providers, they are at the helm of care. They are key to assessing for depression due to their proximity and culmination of time at the patient's side providing care (Mitchell, 2016). The use of the PHQ-2 tool has been used in other post stroke depression studies and found to be reliable without discrimination to age, gender, and ethnicity (Williams et al., 2005), which will allow the study to address all diagnosed stroke patients. The inclusion of nurses at the bedside completing the PHQ-9 has been found effective yet required specific education on the questionnaire (De Man-van Ginkel et.al., 2012). Section 3 will include the specific practice focused questions and further information on gathering of data and the staff that is included.

Practice-Focused Question

Bedside nurses caring for patients in the acute care setting aid in various forms including meeting physical and emotional needs. It is important to make sure nurses have all available resources to give the most up-to-date and evidence-based care to patients.

- Will the implementation of a staff education program for acute post stroke patients provide early detection of signs and symptoms of depression?
- Will the bedside nursing staff be able to implement the PHQ-2/9 questionnaire within the electronic health record (EHR)?
- Can bedside nurses effectively implement nurse driven interventions for depression in acute care post stroke patients?

Project Design

The DNP evidence-based project was formatted using the Johns Hopkins nursing evidence based practice model (JHNEBP) (Dang & Dearholt, 2017). Permission was granted from Johns Hopkins Institute to use and reproduce the information provided for this project. This model used a three-step approach to provide effective and timely research and implementation of evidence-based practice for nursing. The three steps, practice question, evidence, and translation (PET), have individual steps within each section and align with this EBP.

The first step was to determine who the participants would be and where to gain information for the participating facility. An interdisciplinary team was formed to discuss ideas and concerns regarding the project. There were a total of seven

participants, two registered nurses (RN) from the neurological intensive care unit (ICU) both with stroke certification credentials, the stroke coordinator, RN specialty clinician, RN clinical educator, the psychiatrist who evaluates the majority of the patients with consults to psychiatry, and myself. Meetings were scheduled for Mondays and Wednesdays for 2 weeks. The 1 hour and 30 minute meetings were used to discuss project objectives, barriers, and create the education for the nurses at the participating facility. My current preceptor, as the director of critical care for the hospital, was updated frequently on the status of the project.

The second step in the JHNEBP model was accomplished by scholarly searches for evidence. All participants of the interdisciplinary team summarized their articles and presented it to our group. The findings were categorized by the strength of the evidence and agreed upon by all parties. This was discussed during the biweekly meetings.

Translation is the action and implementation part of the project based on the JHNEBP model. Flyers were distributed and nurses were able to choose what session they attended. Sessions were scheduled in 1-hour increments during the month of July 2019. To minimize the time spent away from their patients, the nurses who participated in this EBP were given a pretest when they arrived for the education session. A pretest of Likert scale questions was given to the participants to gauge their perception of understanding of depression and the PHQ-2/9. This included a demographic section and was given prior to any education. Sessions were held on day and night shift for the convenience of staff. The educator and specialty clinician conducted the initial training including teaching all the front-line nurses signs and symptoms of depression and the use

of the PHQ-2/9 tool. Education consisted of interactive sessions and included a PowerPoint presentation and question/answer sessions. This was the preferred method of teaching due to the effectiveness and ability to provide meaningful learning by providing information and multimedia which invoked conversation versus a conventional lecture format (see Penciner, 2013). A posttest followed asking the same questions as the pretest allowing for comparison of answers and evaluation of learning. A satisfaction survey was given to nurses who participated to provide feedback on the session. To complete the model, the outcomes from the surveys will be disseminated to the facility.

Population and Sampling

The approach for this evidence-based staff education project was to support the organization in the implementation and evaluation of classroom style learning sessions including educational materials and pre- and posttests. Nurses received an invitation to participate in educational sessions on depression and use of the PHQ-2 and PHQ-9 screening tools via email communication, word of mouth, and flyers posted in the break room.

Approximately 50 nurses of different ages, genders, ethnicities, and educational backgrounds were recruited for the staff education program beginning in July 2019. The class size was limited to 15 participants per class. Sessions were held on day shift and night shift, allowing all staff to participate. The nursing experience of staff participating in the project range from new graduate to nurses with over 6 years of acute care experience per the current nursing director, (personal communication, March 15, 2018).

All registered nurses were invited to participate as directed by their manager and for continuing education.

The facility for this project was an inpatient hospital unit specializing in stroke and neurological patients in the state of Florida. The hospital, a not-for-profit medical center, has a total of 400 hospital beds. It is one of only four hospitals in its county to be designated by the Florida Agency for Healthcare Administration (AHCA) as a Comprehensive Stroke Center. The hospital also received an award for the 2018 American Heart Association / American Stroke Association's Get with The Guidelines®–Stroke Gold Plus Quality Achievement award. The hospital treated approximately 518 patients diagnosed with a stroke between May 2018 and May 2019, not including diagnosis of Transient Ischemic Attack (TIA) (Stroke coordinator, personal communication, May 30, 2019).

Data Collection

The answers to the pre- and posttest questionnaires were answered by participants via the online program SurveyMonkey®. This program allowed for anonymity for the participants due to the lack of identifying data requested. Due to the SurveyMonkey® program being online, there is a log in required allowing the responses to be secure. A sign in sheet with employee last name and employee number was used to prevent duplication and match pre- and posttest collection of data for consistency.

Protection of Human Subjects

Per the Walden University Staff Education Manual (2017), forms were developed to collect and de-identify personal information, outline procedures, participation, and

privacy. Permission from the institution review board (IRB) at Walden University was granted and assigned approval number 06-17-19-0620567. The EBP participating facility deferred to the university and accepted their IRB approval process. I have no personal biases to the education, assessments, or facility.

Sustainability

Typically, the PHQ-2/9 is completed by the patient in the outpatient setting, however due to the use of the EHR in the acute setting, the nurse will be asking the patient the questions and documenting the response in the computer as requested by the stroke coordinator (personal communication May 30, 2019). This required collaboration with the informatics team post project to implement the charting. All nurses caring for stroke patients were provided the education and the stroke coordinator determined the competency of nurses to complete the PHQ-2/9. The stroke committee was given the education documentation from the project and will begin the development of a protocol within the hospital for its use. The anticipated protocol is to have nurses complete a PHQ-2/9 screening with all patients admitted with a diagnosis of stroke and implement nurse-initiated care that does not require a physician order. If a patient scores a 2 or greater on the PHQ-2, the remaining seven questions will be initiated, which is the PHQ-9 screening tool. If the patient scores as 4 or greater on the PHQ-9, the primary provider will be contacted to assess the patient for depression and provide a diagnosis (Stroke coordinator, personal communication, June 16, 2019).

Project Evaluation

The project was evaluated based on the participation and understanding of the education provided on PHQ-2/9 & nursing interventions for depression. Staff were continually evaluated by verbal communication of question and answer and observation of practices by the stroke coordinator and clinicians. Feedback obtained from the stroke clinician is that the facility will be moving forward with EHR implementation within a few months of completion of the education. Once the stroke and informatics team have implemented the PHQ-2/9 in the EHR, chart auditing can begin. The stroke coordinator, stroke clinicians, and department leadership team will be auditing the EHR for all acute stroke patients to evaluate the consistent use of the PHQ-2/9 and interventions. Further education will be provided to individuals not meeting the standards of care as outlined in the future protocols.

Analysis and Synthesis

The use of the Statistical Product and Service Solutions (SPSS) 25.0 (2017) software was instrumental in providing the results of pre- and posttest statistics. Data from the demographics, pretest, & posttest were included to extract the pertinent statistical information. Proper tables & graphs were developed based on the descriptive statistics.

Summary

As a Doctoral of Nursing Practice (DNP) student, it was imperative to use Walden University's project process guide and the AACN Essentials of Doctoral Education for Advanced Nursing Practice to meet the recommendation that "health professionals should

be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice" (American Association of Colleges of Nursing, 2006, p.6). Two specific essentials that are intertwined in my project are Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking & Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes. Educating nurses about detection of depression in acute care, particularly in stroke patients, can impact patient outcomes and provide quality improvement. According to Essential II, graduates must be able to "assess the impact of practice policies and procedures on meeting the health needs of the patient populations with whom they practice" along with leadership components emphasizing ongoing improvement with health outcomes (American Association of Colleges of Nursing, 2006, p.10). Nurses caring for patients in a hospital collaborate with multiple physicians of various specialties, physical therapists, among other modalities. This is necessary for improved patient outcomes & allows for the nurse to play an integral role in the patient's care, implementing Essential VI. Essential II and Essential IV go hand in hand when applied to this current project and not only consider the current nursing practice but also forward thinking of improved patient outcomes and nurses being change agents by utilizing tools that are currently available. This project not only allows for continuing education for the nurses on signs and symptoms of depression in stroke patients, but also allows them the opportunity to utilize best practice as set forth by the AHA/ASA patient care guidelines.

By providing the nursing staff an educational session on risks of depression in acute post stroke patients, the signs & symptoms of depression, and the knowledge to use the PHQ-2 tool, all the practice focused questions & the current gap in practice can be addressed. This will give the facility a foundation for the implementation of the process requiring depression screenings in stroke patients. As nurses, it is important to continue evolving with the best practices of our profession and helping others. Section four will discuss the findings from this EBP and provide recommendations for the facility & future educational opportunities.

Section 4: Findings and Recommendations

Introduction

The nurses at this local hospital care for patients every day who have been diagnosed with a stroke. There was no definitive screening process in place to assess for the risk of post stroke depression. As a doctoral project, it was the intention to direct the facility in providing an educational program for nurses on the signs and symptoms of post stroke depression and the use of the PHQ-2 and PHQ-9 screening tools. According to the AHA/ASA 2016 guidelines for stroke patient care, it is recommended to utilize a depression screening tool such as the PHQ-2/9 frequently within the care provided post stroke (Weinstein et.al, 2016).

Findings and Implications

The EBP consisted of obtaining demographic information via questionnaire, a pretest survey, education session, and posttest survey. The demographic information was analyzed, and tables provided using the SPSS 25 program. A total of 53 (*N*=53) nurses of different ages, genders, ethnicities, and educational backgrounds participated in these educational sessions. Ages ranged from the youngest at 22 years old to the oldest nurse at 66 years old. There were significantly more females, as the male nurses only accounted for 13% of the participants. The number of White/Caucasian nurses were the highest number consisting of 36 of the participants, followed by nine nurses who reported an ethnicity of Hispanic origin. The project was limited to RNs. The experience of the staff caring for these patients ranged from new graduate nurses to nurses with 31 years of

nursing experience. College education varied among the nurses and included 16 associate degree, 27 bachelor's degree, and 10 nurses with a master's degree.

Table 1

Demographics

Age

	N	Range	Minimum	Maximum	Mean
What is your age?	53	44	22	66	34.66
Number of years as a nurse	53	30	1	31	8.26
Valid N (listwise)	53				

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	46	86.8	86.8	86.8
	Male	7	13.2	13.2	100.0
	Total	53	100.0	100.0	

Race/Ethnicity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Asian / Pacific Islander	3	5.7	5.7	5.7
	Black or African American	5	9.4	9.4	15.1
	Hispanic	9	17.0	17.0	32.1
	White / Caucasian	36	67.9	67.9	100.0
	Total	53	100.0	100.0	

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Associate degree	16	30.2	30.2	30.2
	Bachelor’s degree	27	50.9	50.9	81.1
	Master's degree	10	18.9	18.9	100.0
	Total	53	100.0	100.0	

Prior to presenting the structured education to the nursing staff, informal conversations occurred among the nurses and they were aware of the upcoming education. An unanticipated limitation at the beginning of the process was that the nurses were not eager to take the class as the commonly expressed thought was that this class was not necessary, this knowledge base was already present. While taking the pretest, multiple nurses verbalized they became acutely aware their knowledge could be expanded on and although the information may be known, it was difficult to express in writing. At the onset of the didactic portion, the participants were more receptive and engaged in the teaching process as evidenced by their interactions. Continuing education for nurses is necessary and requested by nurses at all stages of their career ranging from novice nurses to mid to late career nurses (Price & Reichert, 2017). By using a test value of 0, as the null hypothesis, the value of results from the Likert scale were assessed based on their face value. The findings, in Table 2 below suggest there was a baseline knowledge of depression signs and symptoms based on the self-reported responses on the pretest for the ability to name symptoms of depression and nursing interventions with mean responses 3.94 and 3.85 respectively on a 1-5 Likert scale. The results on the posttest were significantly increased with a self-reported mean of 4.96 on the same Likert scale for naming of symptoms of depression and nursing interventions.

Table 2

Pretest

One-Sample Test – Pretest

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Patients who have been diagnosed with a stroke are at risk for depression even if there is no history of depression	30.961	52	.000	4.000	3.74	4.26
I am comfortable in my ability to recognize depression symptoms in patients I care for.	34.266	52	.000	4.132	3.89	4.37
I am able to name 3-4 symptoms of depression a patient may exhibit during hospitalization	29.037	52	.000	3.943	3.67	4.22
I am able to name 3-4 interventions a nurse can do without a physician order for patients at high risk of depression	31.638	52	.000	3.849	3.60	4.09
I know who to contact felt that my patient may be depressed	53.148	52	.000	4.604	4.43	4.78
Early intervention in patients with post stroke depression has no impact in recovery	15.486	52	.000	1.585	1.38	1.79
I know how to complete the PHQ-2 and PHQ-9	16.218	52	.000	2.887	2.53	3.24

There was a need to elaborate on the education of the PHQ-2 and PHQ-9 as some of the participating nurses had never been exposed to it. This was a result of the answers to the question on the pretest, with a mean score 2.89, and verbalized during the didactic portion of the education. The score for ability to complete the PHQ-2/9 improved on the posttest to 4.93 as noted in Table 3 below. The findings demonstrate the nurses felt more comfortable in their ability after the education was received. For those who knew some signs and symptoms and were aware of the PHQ-2/9, the education provided a refresher of the information.

Table 3

Posttest

One-Sample Test (Posttest)

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
I am comfortable in my ability to recognize depression symptoms in patients I care for.	79.425	52	.000	4.811	4.69	4.93
I am able to name 3-4 symptoms of depression a patient may exhibit during hospitalization	187.783	52	.000	4.962	4.91	5.02
I am able to name 3-4 interventions a nurse can do without a physician order for patients at high risk of depression	187.783	52	.000	4.962	4.91	5.02
I know how to complete the PHQ-2 and PHQ-9	134.436	52	.000	4.925	4.85	5.00

Multiple participants verbalized they were previously unaware of the statistics of poststroke depression & the information provided allowed them to see the scope and impact that depression has on stroke patients. The nurses participating in the teaching are frequently caring for poststroke patients in the acute care setting. The finding that there was a need for further education in this group of participants may be indicative of a knowledge deficit for not only acute care nurses but also those providers in rehabilitation facilities, home health, & the general population.

Recommendations

Depression can impact a patient's ability to participate in their rehabilitation and affect their recovery (Winstein et al., 2016). The AHA/ASA guidelines for adult stroke rehabilitation and recovery (2016) recommend screening patients for poststroke depression. It is the recommendation of this project to educate all bedside nurses currently employed on the signs and symptoms of depression, the use of the PHQ-2 & PHQ-9 and implement a routine screening within the EHR to close the gap in practice and provide nurses with the tools to assess their patient's psychological needs. It is further recommended to have a general teaching of signs & symptoms of depression for all nurses currently employed within this healthcare setting. It is the recommendation of this project to require the education as part of the onboarding education for all future bedside nurses and annual refresher education for nurses currently working in this hospital where caring for stroke patients can occur on any unit. This can be completed as part of an online learning application uploaded through the currently used software.

Strength and Limitations of the Project

The strengths of this project include the validated screening tool & knowledge base of participants. Validity, the following of scientific research methods & the characteristics of the study, is important in creating meaningful research studies (Bhattacherjee, 2012). Prior research has proven the PHQ-2/9 to be a valid & reliable tool for screening patients for poststroke depression. Reliability, or consistency in findings, is the ability of other researchers to repeat any study using the same methods, under the same conditions, & obtaining the same results (see Bhattacherjee, 2012). The ability to focus on a previously developed, reliable, & validated screening tool for stroke patients allowed for a learning opportunity for nurses that was easily adopted into their current workload. The nurses who participated are employed on a neurological unit within the hospital where all stroke patients are sent on admission. These nurses have a keen awareness of the needs of stroke patients and have an interest in advancing their knowledge of nursing care for this population.

Limitations for this project include the size of the group of participants, the schedule and workload of the nurses, & using only one facility. The group of participants included 53 nurses of 1 area of the facility. The schedule of working 3 shifts per week and being taken from their shift to participate, the nurses were potentially distracted. Another limitation would be the ability of the nursing staff to be comfortable in asking the questions of the PHQ-2 and PHQ-9 knowing that there are risks of bias regarding a mental health diagnosis such as depression.

Future Projects

A recommendation for future projects includes applying the information to all nursing units & patients with a diagnosis of chronic diseases, not limiting it to only stroke patients. Another recommendation would be to validate the information by using a larger group of nurses and crossing over to acute rehabilitation hospitals. By utilizing acute rehabilitation hospitals in the assessment of poststroke depression education, there can be studies to validate the most effective timeline for assessing poststroke depression. The use of PHQ-2/9 in the outpatient setting may provide insight on the number of patients who are not diagnosed with depression until after the acute phase and outcomes with diagnosis of depression at 30/60/90/365 days post stroke.

Summary

The nurses who participated in this education were initially reluctant to participate in the education seminar due to preconceived knowledge. Upon the completion of the pretest, and understanding of the education that was provided, the nurses were more receptive. Results from the *t* tests suggested there is self-reported baseline knowledge of signs & symptoms of depression, as observed on the pretest mean score of 3.94. Further education was beneficial as the mean score for the same question increased to 4.96. Pretest scores based on the 1-5 Likert scale had a mean score of 2.89 for the nurses self-reported ability to complete the PHQ-2/9 and a posttest result of 4.9 on the same question, an increase of 2.0 points. The comfort level of the nurses to recognize depression symptoms increased by 0.68 points after the education was provided. Recommendations to close the gap in practice include new hire education, & annual

education refresher for all nurses who care for stroke patients. Future studies related to this project in acute care should include other chronic diseases & extend to long-term acute care and inpatient rehabilitation centers. It would also be beneficial to include following patients post-acute care in the outpatient setting. Section five will include a discussion on the dissemination of this project.

Section 5: Dissemination Plan

Introduction

The findings and recommendations were discussed in the previous section and included results showing increased knowledge after participation in the education sessions. The participants were well versed in caring for stroke patients and with the knowledge deficit observed, the need for further education is needed for all nurses on poststroke depression. Future projects should include applying the PHQ-2/9 to all patients as a screening tool and providing education to all acute care nurses on the signs and symptoms of depression and nursing interventions. Providing the information to those in leadership who could implement the project on a broader scale were contacted and the dissemination plan was created.

Dissemination of Project

The plan for dissemination of this project will take place immediately post validation from Walden University. A meeting was scheduled with the director of education at the participating hospital to discuss the educational program and timeline for rollout within the facility. The learning was provided to the director of education for the purpose of uploading to the currently used learning site, HealthStream, as a venue for dissemination to all staff as a voluntary learning opportunity. A meeting with the director of critical care was requested to discuss the impact of the project for their staff and implications of use for all staff hired after the initial training. After completion of the project, a meeting was held with the stroke coordinator to discuss the implications of the project and discuss future meetings with the informatics team and building the

information in the EHR. For the broader nursing profession, the information would be beneficial to not only nursing students, but those who are currently working in the nursing profession. It can be implemented in any facility's current education as a continuing education platform.

Other avenues of dissemination of this project include providing to the neurologists and neurosurgeons who care for the stroke patients with a copy of the project and outcomes, presentation to medical neurology interns, and presentation at the medical grand rounds meetings which are held monthly at this facility. Dissemination to nursing and neuroscience journals will allow for a broader audience to receive the information. Annual conferences will also allow for a variety of healthcare personnel to become educated to the findings of this project.

Analysis of Self

Caring for patients in the acute phase post stroke has been one of the largest impacts of my nursing career and helped me understand the importance of this project. Although I have been a preceptor for novice nurses in the past, being the lead project manager has enlightened me to new experiences within the development of education. Examples of this include how to develop a learning plan that incorporates a variety of learning styles and having development meetings with input from more than one person. To approach the various learning styles, I worked with the group to cover the material for visual, tactile, and auditory learners. The information was provided in written form, it was discussed in learning sessions, and nurses were able to work together in the sessions to practice the material. Prior projects I participated in were not on this scale and the

implications were not the magnitude of this project. The amount of research that goes in to understanding prior studies, development of a program, and leading a diverse group of individuals in training nurses with a baseline knowledge at different levels was a challenge I was exposed to for the first time during this project. Leading the advancement of knowledge that may impact the care a patient receives by screening for depression, and in turn assist in their recovery with early intervention, has led me to reflect on my future nursing goals. My short-term goals now include becoming an advocate for stroke patients and poststroke depression, and long-term goals include being a professor and guiding other nursing students to make their impact on the profession.

As a DNP student, I was given the advice to select a topic I would be passionate about. The most difficult portion was the proposal and oral defense. The gathering and analysis of many peer reviewed articles, and the frequent desire to impose my personal thoughts, was a slow process. It was a learning experience to discern my thoughts from the facts of each study and article. This process allowed me to self-reflect on how I interpret information I am reading and being open to learning as a continuum of the nursing profession. The completion of this project has empowered me to take on new challenges, such as research and development of future nursing education, and step out of my comfort zone of public speaking.

Summary

In summary, it is important for nurses to be acutely aware of depression in poststroke patients. With nearly one third of stroke patients being diagnosed with depression post stroke, screenings should take place as soon as possible (Winstein et al.,

2016). The signs and symptoms of depression & implementation of the PHQ-2 and PHQ-9 within the EHR are important aspects of assessments. The bedside nurse in acute care hospitals are able, with minimal training, to perform the PHQ-2 and PHQ-9 and implement nurse driven interventions. The use of continued education in the nursing profession is not only necessary but also welcomed by novice and experienced nurses (Price & Reichert, 2017). In conclusion, continuing education for nurses & implementing screening tools for depression provide early identification & nurses the information to advocate for prompt depression treatment.

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Appendix A: Johns Hopkins Nursing Evidence-Based Practice Model

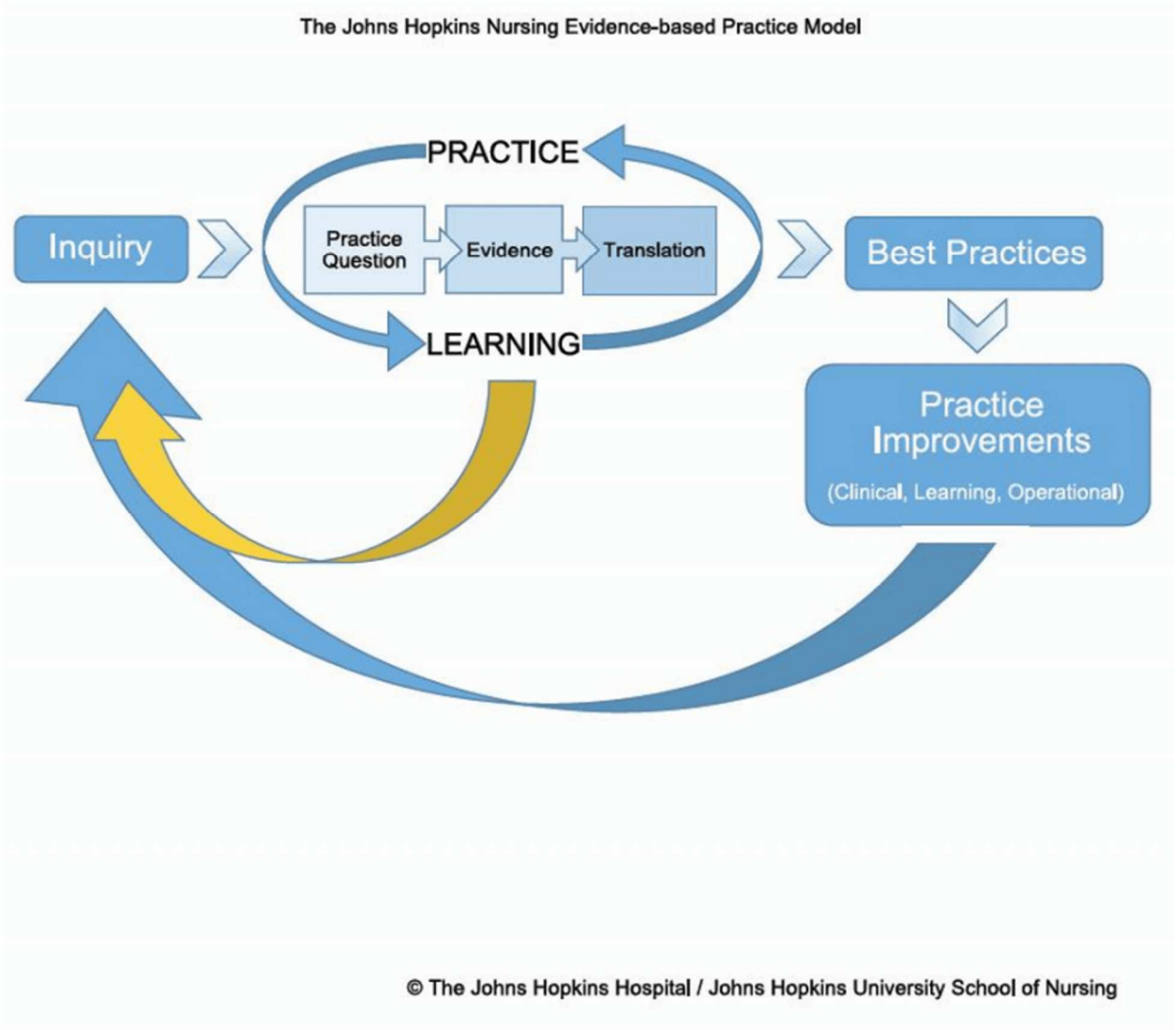

Figure A1. John Hopkins Nursing Evidence-Based Practice Model

Appendix B: PHQ-9

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: _____ **DATE:** _____

Over the last 2 *weeks*, how often have you been bothered by any of the following problems?
(use "✓" to indicate your answer)

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

(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card).

10. If you checked off *any problems*, how *difficult* have these problems made it for you to do your work, take care of things at home, or get along with other people?

- Not difficult at all _____
- Somewhat difficult _____
- Very difficult _____
- Extremely difficult _____

Appendix C: Poststroke Depression Pre- and Posttest

	Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree
Patients who have been diagnosed with a stroke are at risk for depression even if there is no history of depression					
I am comfortable in my ability to recognize depression symptoms in patients I care for					
I am able to name 3-4 symptoms of depression a patient may exhibit during hospitalization					
I am able to name 3-4 interventions a nurse can do without a physician order for patients at high risk of depression					
I know who to contact if I felt my patient may be depressed					
Early intervention in patients with post stroke depression has no impact on recovery					
I know how to complete the PHQ-2 and PHQ-9					

Appendix D: Education Agenda

Poststroke Depression
Agenda

Presenter: _____

0800-0810	Welcome & Introduction
0820-0845	Education Session • Statistics • Signs & Symptoms of Depression • PHQ-2/9 • Nursing Interventions • Where to go for Help
0845-0900	Practice sessions (PHQ-2/9)
0900-0930	Presenter available for questions

Appendix E: Education Survey

Program Title: Poststroke Depression

Educator: _____ Date: _____

1. The objectives were clearly defined

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Strongly Disagree Strongly Agree

2. The information was provided in a way I could understand

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Strongly Disagree Strongly Agree

3. The information was relevant to me.

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Strongly Disagree Strongly Agree

4. The content was easy to follow and understand

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Strongly Disagree Strongly Agree

5. The education experience will be helpful in my work

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Strongly Disagree Strongly Agree

6. The educator was knowledgeable about the topics

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Strongly Disagree Strongly Agree

7. The objectives were met for this program

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Strongly Disagree Strongly Agree

8. I would recommend this program to other nurses.

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☑ 5

Strongly Disagree Strongly Agree