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Use of the Geriatric Depression Scale to Improve Screening, Identification and Intervention for
Depression Among Older Adults in the Primary Care Setting

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Abstract

The purpose of this quality improvement project was to determine whether increased use of an age-specific depression screening tool, the Geriatric Depression Scale (GDS 15-item), improved screening for depression in elderly patients and improved identification of and intervention for depression among elderly patients in a selected primary care setting. Depression affects approximately two million older adults and has been found to be a common yet frequently undiagnosed condition among geriatric patients in the primary care setting. The extent of undiagnosed depression helps to justify the need to improve geriatric depression screening in the primary care setting. A review of the literature demonstrates the efficacy of the GDS tool in screening for geriatric depression. Theoretical frameworks used to underpin the structure and guide this project include the Shannon-Weaver Model of Communication and Lewin's Change Theory as they provide the elements vital to effective communication and change, respectively. The project design and methods included a pre- and post-intervention data analysis to examine the implementation of the GDS 15-item tool into the primary care practice setting. The results of this project support the importance of screening for depression in patients 65 years and older more frequently (ideally at six month intervals) and utilizing an age-specific depression screening tool such as the GDS-15 in the selected primary care setting. Future work should focus on increasing the frequency and standard use of the GDS 15-item in geriatric patients in primary care settings.

Keywords: Geriatric depression, Geriatric Depression Scale, and primary care setting

Introduction and Background

In the United States, depression is considered a serious public health problem as it is found to be the most common mental health issue seen in the older adult population (Espinoza & Unützer, 2015). Currently, one in eight Americans or approximately 50 million people are 65 years and older. By the year 2050, there will be one in five Americans more than 65 years of age (Ellison, White, & Cisneros Farrar, 2015) and the percentage of the population over 65 years of age will exceed 20 percent, or over 70 million people (Heflin, 2015). Depression affects approximately two million Americans aged 65 years and older, who are suffering from either dysthymia (minor depression/chronic) or from major depression (Thomas & Chan, 2012). It is also one of the leading causes of disability among older adult patients (Park & Unützer, 2011). The consequences of depression include chronic mental illness, social withdrawal, substance abuse, cardiovascular damage, and increased mortality including an increased risk of suicide.

The major risk factors for depression in elderly patients includes female gender, age greater than 75 years, family history of depression or other mental illnesses, grieving the loss or death of a loved one, alcohol or substance use, limited social contact, presence of chronic or terminal illness, functional decline, and limited support systems (Cahoon, 2012). Conditions and diseases that place the older adult at a high risk for depression include Parkinson's disease (40 percent), dementia (17 to 31 percent), and stroke (30 to 60 percent) (Park & Unützer, 2011). The prevalence of depression among older adults from 65 years and older is approximately 15 to 19 percent (Cahoon, 2012) and the highest prevalence of depressive symptoms were found among the "very old" (aged 80 years and older), those living in nursing homes, and patients with dementia (Conradsson et al., 2013). The presence of late-life depression is persistent with

evidence suggesting that only one-third of patients recover within one year of diagnosis and the majority of patients experience depressive symptoms two or more years later (Mitchel, Bird, Rizzo, & Meader, 2010). The most common symptoms of depression include depressed mood, loss of interest, lack of enjoyment, limited energy, fatigue, difficulty concentrating, low self-esteem, guilt, negative views, difficulty sleeping, and ideas or acts of self-harm (Thomas & Chan, 2012). Depression is also a major risk factor for suicide in the elderly, with elderly men having the highest suicide rate at 28.9 per 100,000 (Espinoza & Unützer, 2015).

The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) defines the standard criteria for diagnoses of depressive disorders (American Psychiatric Association, 2013). A major depressive disorder is characterized by a history of one or more major depressive episodes and no history of mania or hypomania. A major depressive episode manifests with five or more of the following symptoms for at least two consecutive weeks; at least one symptoms must be either depressed mood or loss of interest or pleasure: depressed mood most the day, nearly every day; loss of interest or pleasure in most or all activities, nearly every day; insomnia or hypersomnia nearly every day; significant weight loss or weight gain (eg, 5 percent within a month) or decrease or increase in appetite nearly every day; psychomotor retardation or agitation nearly every day that is observable by others; fatigue or low energy, nearly every day; decreased ability to concentrate, think, or make decisions, nearly every day; thoughts of worthlessness or excessive or inappropriate guilt, nearly every day; recurrent thoughts of death or suicidal ideation, or suicide attempt.

Conradsson and colleagues (2013) found that the majority of depressive disorders are treated by general practitioners in primary care, nursing homes, or general hospitals. Depression is one of the most common conditions treated in primary care with about 80 percent of older adult Americans receiving their depression management in this setting (Park & Unützer, 2011). It has also been identified that about 10 percent of older adults present with clinically significant depression; however, only half are recognized and only one in five depressed older adults receive proper treatment in the primary care setting (Park & Unützer, 2011).

Depression is often undetected, undiagnosed, or untreated (Park & Unützer, 2011). Those with the greatest risk of unrecognized depression are usually older men or older African Americans and Hispanics (Espinoza & Unützer, 2015). Diagnosis is often challenging in this population because of the changes that occur with the aging process. For example, the physical or emotional changes that result from the aging process may overlap those of depression. Physical and emotional changes may include changes in eating habits due to loss of taste buds or decreases in processing speed with age (Taffet, 2015). This decreases the possibility for an accurate and timely diagnosis of depression. It is a challenge for many providers to properly diagnose and treat depression in geriatric patients due to symptom ambiguity, limited provider experience caring for depressed patients, and lack of treatment availability (Mojtabai, 2014).

Problem Statement

The overarching problem can be stated as follows: the occurrence of undiagnosed and untreated depression among geriatric patients in the primary care setting is indicated by 1) low detectable rates of depression among elderly patients and 2) results from the limited or infrequent use of an age-specific geriatric screening tool for patients in the primary care setting.

Review of the Literature

The need for improving geriatric depression care has been identified in the previous sections of this paper. One identified gap in practice regarding depression care is the presence of inadequate screening among geriatric patients. This review of the literature will demonstrate potential solutions or interventions that can be implemented to help ameliorate the problem. The focus is standardized use of depression screening tools such as the Geriatric Depression Scale (GDS). Research shows there are various versions of the GDS that can be used including GDS 30-item and GDS 15-item. Six research articles will be used to compare and contrast the two GDS tools.

Methods

A comprehensive search of the literature for evidence on geriatric depression included the following databases: CINAHL and PubMed. The following Medical Subject Headings (MeSH) terms were used for the CINAHL and PubMed search: depression AND geriatric AND primary care. The inclusion criteria included only research articles in the English language from the past five years (2009 to 2014). The exclusion criteria included research articles that focused on chronic illnesses other than depression or other unrelated topics; research studies that were not randomized controlled trials (RCTs); and articles that were inaccessible to view or download. In the CINAHL search, 66 research articles were retrieved but 63 research articles were excluded leaving only three research articles left to be examined. In the PubMed search, 54 research articles were retrieved but 51 research articles were excluded leaving only three research articles left to be examined. As a result, there was a total of six research articles left to be considered for this literature review.

Results

GDS 30-Item. Lopez, Quan, and Carvajal (2010) discussed the reliability of the GDS 30-item in a study of a large group of elderly patients which included those who were cognitively intact and cognitively impaired based on the Folstein's Mini Mental State Examination (MMSE) (Folstein, Folstein, & McHugh, 1975). The mean age was 78.35 years with only 20 patients less than 65 years of age. The total sample gender composition was 93 percent male and 7 percent female with 68 percent Caucasian, 16 percent African American, 8 percent Latino, and 8 percent unknown. Psychometric software was used to analyze data from the questionnaire. There was no significant difference on the GDS 30 item tool between the values for patients with MMSE scores >17 and <17 . As a result, this indicates that cognitive status does not effect the criterion-referenced reliability of the GDS 30-item tool.

Debruyne and colleagues (2009) discussed the reliability of the Geriatric Depression Scale (GDS 30-item) for the screening of depressive symptoms among patients with dementia or mild cognitive impairment by comparing it to the Cornell Scale for Depression in Dementia (CSDD). The study population consisted of 156 older adult patients with mild cognitive impairments (MCI) and 247 patients with probable Alzheimer's disease (AD). The AD group was split into three subgroups including mild AD ($MMSE \geq 18$) ($n=17$), moderate AD ($MMSE < 18$ and ≥ 10) ($n=89$), and severe AD ($MMSE < 10$) ($n=38$). The student's *t*-test was used to compare demographic, clinical, neuropsychological, and behavioral data of both the AD and MCI group. The findings demonstrated that the GDS 30-item was a reliable screening tool for depressive symptoms in patients with mild cognitive impairments but not for patients with Alzheimer's disease.

GDS 15-item. The Geriatric Depression Scale 15-item (GDS 15-item) version was examined in a population of very old people with varying levels of cognitive function by Conradsson and colleagues (2013). The study included 834 patients from ages 85 years and older who were assessed for cognitive function. Patients were separated into groups according to cognitive function assessed with the Mini-Mental State Examination (MMSE). 651 patients (78 percent) completed the GDS 15-item version. The group with MMSE scores of 10-14 had the highest completion rate of the GDS scale compared with any other group. The internal consistency of the GDS 15-item and the PGCMS did not differ from that for people with higher cognitive function. The GDS 15-item demonstrated to be a useful tool to assess depressive symptoms among very old people with an MMSE score of 10 or more.

Nyunt, Fones, Niti, and Ng (2009) discussed the reliability and validity of GDS in a diversified population with different ages, ethnicities and comorbidities. The study was conducted on a large heterogenous population of elderly in the community. In 42 social service sites, elderly patients ages 60 years and older were invited to participate in the screening. Those with dementia, hearing, visual and speech impairment, and severe illnesses were excluded from the study. English, Chinese, and Malay versions of the GDS 15-item were provided and administered by face-to-face interview with trained and experienced nurses in the preferred language. The test-retest of the GDS 15-item was done by administering the questionnaire to the same patients (n=1000) two weeks later. Data analysis was done by using Cronbach's alpha coefficient to assess internal consistency of the GDS 15-item. The results of the study showed that there was no significant difference in test performance among those of various age groups,

genders, ethnicities, and comorbidities. The GDS 15-item was found to be reliable with a Cronbach's alpha of 0.7 and valid to screen across various populations in the community setting.

Prakash, Gupta, Singh, and Nagarajarao (2009) explored the screening for depressive symptoms by using GDS 15-item in medical clinics. The sample included 104 randomly selected patients that visited a geriatric clinic. There were 84 men and 16 women from ages 60-90 years old that completed the screening interview. Patients were screened from depression using the GDS 15-item. A score of more than five indicates depressive symptoms. Evaluating psychiatrists performed an interview and another two weeks after the first interview. The results showed that 23 patients scored above the GDS 15-item cut off (>5) for significant depressive symptoms. The psychiatric evaluation using ICD 10 criteria demonstrated that out of 23 patients, 18 of them met diagnostic criteria for depression. The study confirmed the value of the GDS 15-item tool in helping recognize and diagnose depression in the outpatient setting.

de Waal and colleagues (2010) assessed whether self-administration of the GDS 15-item gives comparable results than interviewer-administration when used to screen patients in primary care practice. The study population included 82 patients from ages 75 years or older, 59 were male, and 82 lived alone. MMSE scores demonstrated that 23 subjects had low cognitive functioning. The GDS 15-item was administered twice in one month with one self-administered by mail and another interviewer-administered during home visits. When the GDS 15-item was self-administered, 33 subjects left answers blank. However, the self-administered total GDS scores were 0.70 points higher than those interviewer-administered.

As indicated by Lopez and colleagues (2010), cognitive status does not effect the criterion-referenced reliability of the GDS tool. The GDS 15-item was shown to be a useful tool

to assess depressive symptoms among very old people with an MMSE score of 10 or more (Conraddson et al., 2013). The GDS 15-item was found reliable and valid to screen across various populations in the community setting (Nyunt et al., 2009). The GDS 15-item tool was shown to help recognize and diagnose depression in the primary care setting by Prakash and colleagues (2009). In addition, the results of the GDS 15-item were higher if self-administered as shown by de Waal and researchers (2010).

The six research articles that were presented in this literature review demonstrate that the GDS tool is reliable and valid among various ethnicities and genders. The GDS 30-item and GDS 15-item show utility for patients with cognitive impairment. However GDS 30-item was found to have limited ability to properly screen patients with mild, moderate, and severe Alzheimer's dementia. The GDS 15-item tool demonstrates effectiveness in screening patients with varying cognitive impairments and in very old people. It was also effective among varying demographics including different genders, ethnicities and comorbidities. The GDS 15-item also demonstrates increased effectiveness when self-administered.

The findings from the review of literature support the benefits of using the GDS to screen for depression in elderly patients in the primary care setting. The GDS 15-item screening tool was found to be an effective method to recognize depressive symptoms among geriatric patients. In addition, the tool is effective among patients with varying cognitive impairments and those considered old-old. Evidence also shows that the tool is most effective when it is self-administered and has been found to be a culturally competent tool as it is widely used in diverse cultural groups and has been implemented in more than 30 different languages (Kim, Decoster, Huang, & Bryant, 2013). The GDS avoids questions about physical depressive symptomatology

which are poor determinants between depression and physical illness (Thomas & Chan, 2012). The GDS 15-item version has demonstrated to be equally effective in differentiating between those with and without depression as the GDS 30-item (Conradsson et al., 2013). The shorter versions have been suggested to help decrease issues with completion of the screening due to fatigue or concentration difficulties (Conradsson et al., 2013). The utilization of an evidence based practice intervention may improve the outcomes of screening of geriatric depression in the primary care setting. The goal for screening will be to increase screening and improve identification of and intervention for depression among elderly patients in the primary care setting.

Theoretical Framework

Theory-guided practice is the process of using theoretical concepts to guide practice changes (Zaccagnini & White, 2014). The use of theory-guided practice allows physicians, nurses, and other health care professionals learn and understand their patients better. Theories give a base from which we can understand patients and their health issues as well as plan interventions to improve patient outcomes (Zaccagnini & White, 2014). Advanced practice nurses who use theory to guide their practice and care, are able to achieve higher quality care as well as improve or increase nursing's professional standards, accountability, and autonomy. In addition, theory-guided care can be used as a coherent tool among inefficient and disorganized care. Theory can help improve nursing care because it provides structure and flow (Zaccagnini & White, 2014). Theory-guided care is necessary for addressing a clinical practice problem; such as, implementing a population-specific depression screening tool in a primary care setting. The goal was to implement a policy or protocol into the practice so that all patients 65 years and

older were screened for depression with the GDS 15-item. Providers and staff members of the primary care office were involved in the discussion and process of implementing the screening tool into practice. Two theories that addressed the clinical practice problem included the Shannon-Weaver Model of Communication and Lewin's Change Theory.

Shannon-Weaver Model of Communication

The Shannon-Weaver Model of Communication which is also known as the Communication Theory (Shannon & Weaver, 1949) proposes six elements that are vital to the process of effective communication between the sender and receiver (Underwood, 2010). The source is the person or group of persons who engages in communication. The encoder is the transmitter which formulates the ideas or message of the source into signals. The message is what is communicated. For example, anything that is communicated is considered the message. The channel is how the message is communicated. The channel choice must be appropriate as this plays a huge role in effective communication. For example, communicating with a person who is deaf with the auditory channel would not be appropriate, whereas the visual channel would be. Physical noise is the distractions that may occur during the message transfer. Examples of physical noise may include sounds from bells, horns, thunder, and music. Semantic noise is related to a person's educational level, their abilities to communicate, their previous experiences, and their opinions. These are mismatches of social class, cultural background, experience, and attitudes that introduce noise into communication. Some examples of semantic noise may include a receiver who has an opinion towards the sender or the message being received. The decoder is the process that is used by the receiver which decodes the message and retranslates it into something that is understood. The receiver is the person who receives the

message from the sender. The feedback concept is a pertinent piece to the communication process as it helps to verify the message was received and understood. This can include facial, postural, or verbal reactions which may indicate understanding (Underwood, 2010). The Communication Model is outlined in the Appendix in Figure 1.

The Shannon-Weaver Model was applied addressing this clinical practice problem as follows. Communication between staff members as well as patients and the DNP student played a pertinent role in the implementation of the GDS 15-item tool into primary practice protocol. Each concept of the theory influenced positive communication and assisted in the implementation of the new screening tool. As the model supports, the source was the DNP student. The encoder was the process used by the DNP student to encode the source so that receivers were able to understand the message or what was being expressed. In this case, the message was the plan to implement the GDS 15-item tool into practice to members of the primary care staff. The messages for the project were provided by both visual and auditory channels to staff. Any physical and semantic noises; such as, phone calls that may hinder communication were recognized and avoided, if possible. Physical and semantic noises were prevented providing the message in a closed space with minimal outside noises and using terms that the staff was able to understand. The receivers who are the members of the primary care team decoded and translated the message which was received. After the message was received, it was important for the DNP student to assure that staff provides feedback and understanding.

Kurt Lewin's Change Theory

Change Theory was described by Kurt Lewin (1951), known as one of the founders of modern social psychology and studied group dynamics and organizational development. Lewin

developed a framework to identify and examine the factor or forces that influence a situation called the Force Field Analysis (FFA) (Shirey, 2013). Lewin's belief identifies the potency of driving forces in helping to understand why individuals or groups act a certain way and better understand what needs to be strengthened or diminished to implement change (Shirey, 2013). This FFA framework provides the foundation for Lewin's Change Theory. Lewin's theory includes three stages. The first stage is unfreezing which involves preparing for a change. For example, this stage includes a nursing leader who recognizes a problem exists in practice which requires improvement or modification. The nursing leader then helps others in the process of viewing the need for change. The unfreezing stage may include a gap analysis which demonstrates a distinction between the current and desired state (Davis-Ajami, Costa, & Kulik, 2014). A solution is then developed or constructed which will help steer away from the current state of practice. The FFA identifies the factors that may oppose change as well as identify those factors that will drive forces. The second stage of Lewin's theory is the moving or transitioning stage. The transitioning stage is the process of unfreezing and moving to a new change or way (Shirey, 2013). In this stage, a plan of action is required to engage and motivate people towards the new change. During this stage, fear and uncertainty is very common. It is important to help others overcome these fears and to focus on the desired target. The third stage is the refreezing stage of the theory which is the process of solidifying the new change so that it can become a part of the present and future system. In this case, the nurse leader refreezes the new change into practice policies and makes it the new standard of practice. The Kurt Lewin Model is outlined in the Appendix in Figure 2.

Lewin's Change Theory underpinned the process of addressing the clinical practice problem of this project. The concepts of unfreezing, transitioning, and refreezing helped structure how to implement the GDS 15-item into practice. The concept of unfreezing was the process of recognizing a problem exists in practice, identifying a need for change, and selecting a solution to the problem. A gap analysis was done to determine discrepancies of the desired and current state. The unfreezing stage includes problem identification and problem solution. In this case, the identified problem was no current use of an age-specific depression screening tool for geriatric patients and a frequency of depression screening to only annual physicals. The problem solution was the implementation of a protocol so the office will use the GDS 15-item in practice among geriatric patients more often than at annual visits. The concept of unfreezing also required that each member of the office recognized the need for change. The transitioning concept helped guide the process of making a plan and implementing the GDS 15-item tool. This included resolving fear and uncertainty among group members who didn't want to add a new screening tool to practice. The refreezing concept helped in the process of solidifying the tool into practice. In this case, refreezing placed the GDS 15-item tool as the screening tool to use for geriatric patients in the primary care office. The GDS 15-item screening tool was administered at each visit for patients 65 years or older to help increase recognition of depression among geriatric patients. Overall, Lewin's theory assisted in the process of designing action plans and initiating change in practice. These two models worked together and influenced the other to implement this quality improvement project. For example, the Communication Model helped improve communication among staff and patients to fulfill a change in practice supported by the Change Theory Model.

Project Design/Methods/Implementation

Goals, Objectives, and Expected Outcomes

Goals are broad statements that identify future outcomes, provide direction to the project, and point to the expected outcomes of the project (Zaccagnini & White, 2014). Goals do not incorporate a quantifiable measure but refer in broad terms the most anticipated effect of the program (Issel, 2014). Objectives are clear, realistic, specific, measurable, and time-limited statements of the actions that move the project toward its goals. Expected outcomes state the desired outcomes (Zaccagnini & White, 2014). The goals, objectives, and expected outcomes for this capstone project are presented in Table 1.

Table 1

Goals, Objectives, and Expected Outcomes

Goals	Objectives	Expected Outcomes
The first goal was to inform health care providers, nurses, and general staff at the primary care office on the availability of an evidence-based depression screening tool specific for geriatric patients.	Implement the first focus group during practice hours to demonstrate the importance of depression screening in geriatric patients and the need for the GDS 15-item tool.	The expected outcome was that 75 percent of the primary care staff attend the focus group and agree that the GDS 15-item should be implemented into practice protocol.
The second goal was to monitor and collect data of the current depression screening protocol with the use of the PHQ-9 at the site among patients 65 years and older.	Patients 65 years and older were screened for depression as usual (at annual visits only) over four days on October 5th to October 8th (2015).	The expected outcome was that only 25 percent of patients 65 years and older were screened using the current depression screening protocol.

Goals	Objectives	Expected Outcomes
The third goal was to implement the geriatric depression screening tool (GDS 15-item) into practice protocol.	Patients 65 years and older coming in for a visit, regardless of the reason for the visit, be given the GDS 15-item tool at check-in by the secretary over a total of four days hours on October 13th to October 16th (2015).	The expected outcome was that 75 percent of patients 65 years and older coming in for a visit be screened.
The fourth goal was to provide patients who screened >5 on the GDS 15-item screening tool be provided an intervention.	The patients noted to have >5 on the GDS 15-item or possible depression be provided a comprehensive depression assessment, referral, treatment, psychotherapy, or follow-up.	The expected outcome was that 100 percent of those noted with a score >5 on the GDS 15-item tool were provided the appropriate interventions by the physician.
The fifth goal was to demonstrate the results of the project to the family practice providers and staff members.	Implement the second focus group during practice hours to demonstrate the importance of the GDS 15-item in geriatric patients more frequently (at six month follow-ups) instead of annually.	The expected outcome was that 75 percent of the primary care staff agree that the GDS 15-item is important for screening and identifying depression in geriatric patients as well as should be administered more frequently (at six month follow-ups).

The outcome evaluation was the process of identifying whether the program helped improve or benefit the overall practice setting and patient outcomes (Zaccagnini & White, 2011). In choosing the methods for data collection and evaluation, it was important to identify which methods of measurement are appropriate for the project outcomes (Zaccagnini & White, 2011). The project developer determines how to collect data and demonstrate the outcomes. The evaluation plan can consist of quantitative methods, qualitative methods, or both. A quantitative method helps to identify how many, how often, how much, or an average response. A qualitative method helps to identify what worked, how the project was useful, what the project meant to the

patients, or what factors influenced success and failures (Zaccagnini & White, 2011). In the case of this capstone project, the potential methods of evaluation were mixed. The chosen quantitative evaluation method included a comparison of the baseline and post-implementation screening scores. For example, the number of patients who were screened for depression before implementing the GDS 15-item with the PHQ-9 and after implementing the GDS 15-item tool were calculated and compared. There was a comparison of the baseline and post-implementation intervention scores. For example, the number of patients who scored a 15-27 on the PHQ-9 and provided an intervention were calculated. The number of patients who scored >5 on the GDS 15-item and provided an intervention were calculated. The chosen qualitative evaluation method included focus groups before and after project implementation. The focus group method involved conducting an interview or discussions with a group of individuals. The discussion in the group setting was more efficient than in-depth individual interviews (Issel, 2014).

Description of the group, population or community

The capstone project took place in a primary care setting in Merrimac, Massachusetts (MA). This practice cared for patients from pediatric to older adult age groups. However, the health care providers at this primary care practice cared for a larger number of patients in the older adult age group than any other age group. Geriatric patients 65 years and older often seen in this setting were primarily Caucasian from various socioeconomic backgrounds and with different insurance coverages. Patients seen in this setting mostly lived in Essex county which included rural Massachusetts towns of Amesbury, Merrimac, and the more urban area of Haverhill. In 2013, the estimated population in Essex county was 762, 550. The percentage of persons in this area under 5 years was 5.7 percent and the percentage of persons 65 years and

over was 15.2 percent. The percentage of Caucasian white, Hispanic or Latino, African Americans, and Asians was 87.2 percent, 18.0 percent, 6.0 percent, and 3.6 percent, respectively. The percentage of persons with high school degrees was 89.0 percent and the percentage of persons with a bachelor's degree was 36.6 percent. The median household income was \$67, 311. The percentage of persons below the poverty line was 11.2 percent (U.S. Census Bureau, 2015). The sampling method was convenience sampling. All patients who came in for their annual visit, focused problem, or follow-up visit were included. The week prior to the implementation of the GDS 15-item in the practice, the DNP analyzed the current depression screening tool use in geriatric patients with a total sample size of 30 patients. During project actualization and GDS 15-item implementation, patients 65 years and older of both genders and English speaking were included with a total sample size for screening of 30 patients.

Ethics and Human Subjects Protection

Before implementing evidence into practice, the project leader needed to determine whether a review from the IRB or human subjects committee was required (Zaccagnini & White, 2014). The review is performed in order for the IRB to confirm that human subjects are protected and have been given informed consent, if necessary. The determination of human subject research application form was submitted to the IRB. After submission of this form, the project was exempted from IRB review. In this project, there was no patient contact but a need to identify how many patients were provided the previous depression screening tool, the GDS 15-item tool, and treatment or referral after screening was required. This information was obtained by the DNP student. Confidentiality was maintained throughout the project

implementation process. There was no patient identifiers and aggregate data was stored in a locked laptop which was kept in the DNP student's home.

Implementation Plan

The implementation plan was the step initiated before project implementation occurred. There was clear and frequent communication between the leader and team members. For example, the dates and times for starting the project were selected in collaboration with the team (Zaccagnini & White, 2014).

The providers at the selected primary care setting in Merrimac, MA. were using a depression screening tool called the Patient Health Questionnaire (PHQ-9) for all their patients at annual visits only. The providers acknowledged a lack of use and a lack of specificity of this depression screening tool for the elderly population. As a result, the plan was to use the GDS 15-item screening tool for all patients 65 years and older, regardless of reason for the patient visit, in order to capture changes in mood and behavior that could indicate depression sooner than only at an annual visit. This implementation plan included a description of the pre-intervention, intervention, and post-intervention. The plan to start this project was June 30, 2015 which had been agreed on with the office manager. This starting time was when the DNP student performed the first focus group with the primary care staff. In this focus group, the DNP student discussed and demonstrated the importance of instituting an age-specific depression screening tool (GDS 15-item) into the practice setting. The focus group was also a great way to discuss the plan to implement the GDS 15-item tool. At the focus group, the DNP student provided sandwiches, salad, and desserts for the staff that attended. The focus group occurred during lunch time in the break room of the primary care office. The DNP student calculated the number of patients 65

years or older coming in for a visit who were screened with the PHQ-9 from October 5th to October 8th (2015) for a total of four days.

Once data of the current system was analyzed, the GDS 15-item depression screening tool was implemented into the practice setting from October 13th to October 16th (2015) for a total of four days. The tool was administered to all patients 65 years and older that came in for a visit, at the clinic, who could read and speak English. The GDS 15-item tool was provided at check-in from the secretaries as part of the standard care. The tool was completed by the patients while waiting in the waiting room and was brought into the exam room to be given to the provider. The provider reviewed the completed tool, scored it, and decided if an intervention was needed at this visit. This intervention followed the schedule of both providers from 8 AM to 5 PM. All the results from the screening were kept anonymous and only used in the aggregate.

After project implementation, the DNP student calculated the number of patients who were screened using the GDS, during the intervention days, were calculated. The number of patients who scored 5 to 15 on the GDS (scores greater than 5 equate to increasingly higher risk for depression) and who received an intervention such as a follow-up comprehensive assessment, referral, or therapy were calculated. All patient information and identifiers such as demographic information, insurance information, or medical record numbers were kept anonymous through this process using a coding process. Comparisons were made between pre-intervention and post-intervention screening and in a number of screenings and interventions ultimately completed during the project. The second focus group was performed by the DNP student on October 19, 2015 to communicate the results of the project to the staff and providers.

Results

Outcomes

In the preintervention phase, there were a total of 30 patients over four days (see Table 2). The age range was from 66 to 92 years with 47 percent male patients and 53 percent female patients. Reasons for the visit included a well visit or physical exam (7 percent), acute episodic care (7 percent), post hospitalization follow-up (30 percent), and 3 to 6 month follow-up (57 percent). Seventy-three percent had one to five past medical history (PMH) diagnoses, 23 percent had 6-10 diagnoses, and 3.3 percent had 11-15 diagnoses. Based on the most common primary medical diagnoses that affect older adults (Center of Disease Control and Prevention [CDC], 2013), 73 percent of patients had a diagnosis of CAD/hypertension/hyperlipidemia, 3.3 percent had COPD/asthma, 10 percent had gastrointestinal issues, and 10 percent had other problems such as chronic kidney disease (CKD), dementia, Parkinson's disease, or stroke. Seventy percent of patients had no history of a psychiatric diagnosis and of the 30 percent with a history of a psychiatric diagnosis, 22 percent had been diagnosed with depression and 78 percent with anxiety. Ninety-three percent of patients were not screened for depression and 7 percent were using the Patient Health Questionnaire (PHQ-9). None of the patients screened positive for depression.

In the intervention phase, there were a total of 30 patients over four days (see Table 2). The age range was from 66 to 93 with 58 percent male patients and 43 percent female patients. Reasons for the visit included a well visit or physical exam (13 percent), acute episodic care (13 percent), post hospitalization follow-up (30 percent), and 3 to 6 month follow-up (43 percent). Sixty-seven percent had one to five past medical history diagnoses, 27 percent had 6-10 diagnoses, and 6.7 percent had 11-15 diagnoses. Eighty percent had been diagnosed with

CAD/hypertension/hyperlipidemia, 3.3 percent had arthritis, 6.7 percent had chronic pain, and 10 percent had other problems such as CKD, dementia, Parkinson's disease, or stroke. Sixty-seven percent had no history of a psychiatric diagnosis and of the remaining 33 percent with a history of a psychiatric diagnosis, 30 percent had been diagnosed with depression, 60 percent with anxiety, and 10 percent with a psychotic disorder. Twenty-three percent of patients were not screened for depression and 76.7 percent were using the Geriatric Depression Scale (GDS-15). Thirteen percent of patients were screened positive for depression using the GDS-15.

Table 2

Preintervention and Intervention Group Demographic Data

	PREINTERVENTION	INTERVENTION
Number of Patients (N)	30	30
Days of Data Collection	4	4
Age in years (range; mean)	(66-92; 78.5)	(66-93; 75.6)
Gender (n, %)		
Male	14, 46.7	17, 56.7
Female	16, 53.3	13, 43.3
Reason for Visit (n, %)		
Well visit/physical exam	2, 7	4, 13
Acute episodic	2, 7	4, 13
Follow up		
(Hospital	9, 30	9, 30
Discharge - 2 month		
(3 - 6 month)	17, 57	13, 43
Number of PMH diagnoses		
(n, %)		
(1-5)	22, 73	20, 67
(6-10)	7, 23	8, 27
(11-15)	1, 3.3	2, 6.7

	PREINTERVENTION	INTERVENTION
Primary medical diagnosis (n, %) -CAD/Hypertension/ Hyperlipidemia -COPD/Asthma -Arthritis -Chronic Pain -GI -Other	Based on most common affecting older adults (CDC, 2013) 22, 73 1, 3.3 0, 0 0, 0 3, 10 3, 10	24, 80 0 1, 3.3 2, 6.7 0, 0 3, 10
History of Psychiatric Diagnosis? (n, %) No Yes If yes: (n, %) Depression Anxiety Psychotic Disorder	21, 70 9, 30 2, 22.2 7, 77.8 0, 0	20, 67 10, 33 3, 30 6, 60 1, 10

Psych Screening Analysis

	PREINTERVENTION	INTERVENTION
Psychological Screening Completed? (n, %) No Yes If yes, instrument used	28, 93.3 2, 6.7 PHQ-9	7, 23.3 23, 76.7 GDS-15
Number of positive screens	0/2; 0%	3/23, 13% (those 13% would have been missed!)

Facilitators and Barriers

The implementation of depression programs such as screening, staff-assisted care support, and collaborative models of care, can be a challenging process with possible facilitators and barriers (Deneke, Schultz & Fluent, 2015). Possible facilitators in the implementation of this project included providers, staff nurses, and key stakeholders who were interested in evidenced-based practice and improving depression screening among their geriatric patients. One major facilitator for the implementation and success of this project was having a program leader. For example, a designated program leader who analyzes and oversees the project was very important to its success (Deneke et al., 2015). One major barrier to implementing the project in the primary care office setting was the presence of time constraints. For example, Mahli et al. (2013) asserts that an accurate diagnosis of depression is difficult in primary care settings due to time-limited consultations. Other barriers to implementing the screening tool into the primary care office setting was the lack of focus from provider, staff, and patients. For instance, barriers such as the secretaries forgetting to provide the tool to patients, the provider forgetting to review the results of the tool, and the patients refusing to complete it. Patient barriers include noncompliance, resistance, fear of stigmatization, and lack of knowledge about depression (Park and Unützer, 2011). To avoid these barriers, it was important to take the time to screen patients as well as help providers and patients see the importance of screening to increase depression recognition and treatment.

Discussion

In the first week, data was collected on the use of the existing depression screening tool (PHQ-9) for patients 65 years and older at the selected primary care setting. Seven percent of

patients 65 years and older were screened using their current depression screening tool (PHQ-9) in this primary care setting. The existing depression screening protocol at the practice requires providers to screen patients annually who present for a well visit or physical exams. The seven percent of patients who were screened in the first week included these patients presenting for a well visit or physical exams. Therefore, ninety-three percent of patients were not screened for depression with the PHQ-9 as they were coming in for follow-up appointments or acute episodic visits. This demonstrates that the existing depression screening protocol at this primary care practice was not screening all potential older adults at risk, missing some cases of depression. The expected outcome of this project was that at least 25% of patients 65 years and older would be screened using the PHQ-9 and the primary care practice was not in line with this goal. This may have been a result of the primary care practice's standard of only screening patients coming in for well visit or physical exams.

In the second week, data was collected on the use of the age-specific depression screening tool (GDS-15) for all patients 65 years and older at the primary care setting. After implementing the GDS-15 to screen for depression at the primary care practice, 77 percent of patients 65 years and older were screened using the tool. Twenty-three percent of patients did not complete the tool due to time limitations, participant refusal, or presence of an acute problem. The expected outcome for this project was met as more than 75 percent of patients 65 years and older coming in for a visit were screened using the GDS-15. In addition, those who were noted with a score >5 indicating risk for depression on the GDS-15 item were offered the appropriate resources.

Thirteen percent of patients in this sample of 30 (three) screened positive for depression using the GDS-15 screening tool. The first patient had a score of 7 on the GDS-15 suggesting the presence of possible depression. The physician further assessed the results of the screening tool with the patient. The patient who was a 69-year-old Caucasian female stated that it was the anniversary of her 30-year-old son's death from a drug overdose and she had been feeling down lately. The patient had a previous history of depression, anxiety, chronic pain disorder, and morbid obesity. The physician recommended she continue her treatment with Citalopram (Celexa) 20 mg daily as ordered and follow-up with her in three months in addition to referral to a social worker. A second patient scored a 7 on the GDS-15 suggesting presence of possible depression. The physician further assessed the results of the screening tool with the patient. The patient who was a 70-year-old Caucasian female stated that she was feeling this way because she had been experiencing a great amount of pain in her legs lately due to arthritis. The patient had a previous history of depression along with hypertension, diverticulosis, arthritis, renal insufficiency, hip replacement, sciatica, psoriasis, constipation, and asthma and medications included Trazadone (Desyrel) 50 mg to 100 mg tablets at bedtime and Venlafaxine (Effexor) 75 mg daily. The patient was provided a regimen for her arthritis. It was also recommended that the patient continue her other medications and to follow-up with the physician in two weeks.

A third patient scored a 15 on the GDS-15 depression screening tool indicating severe depression. The physician further assessed the results of the screening tool. The patient who was an 87-year-old Caucasian male had a history of type 2 DM, benign prostate hyperplasia, lumbar radiculopathy, anemia, osteoarthritis, hypertension, peripheral neuropathy, dyslipidemia, spinal stenosis, atrial fibrillation, and polymyalgia rheumatica. The patient's son stated that his

father had been feeling down lately and having trouble sleeping due to increasing complexity of his medical issues. The physician started the patient on Trazadone (Desyrel) 50 mg to 100 mg at bedtime to help with both his depression and sleep. The patient was encouraged to increase his activity and to spend more time outside of his home as well as a referral to social work. It was recommended that the patient follow-up with the physician in 4 weeks.

Once this data was collected, the DNP student held a second focus group to present the results to the staff and providers at the practice. At this focus group, the DNP student presented the results which supported the importance of screening for depression in patients 65 years and older more frequently and having an age-specific depression screening tool (GDS-15). Screening patients for depression more often than annually can help increase identification of depression early. An occurrence of a life changing issue such as a death of a loved one, loss of a job, presence of chronic pain, or multiple physical or mental health issues are major risk factors for depression in older adults and can occur at any time. Geriatric patients going through a difficult time or a major life changing event require early screening and treatment for depression to decrease the detrimental effects of depression. In addition, the age-specific depression screening tool (GDS-15) is more beneficial for geriatric patients as it asks questions that are more specific to this age group including lack of energy, dropping activities, and preference to stay home. The GDS 15-item is also a short culturally competent screening tool which reduces the possibility of fatigue or issues with concentration seen in geriatric patients and may be used among varying cognitive impairments. It also avoids questions about physical depression symptomatology and can be used among diverse populations. The expected outcome for the focus group was met as 100% of the primary care staff attended and agreed with the importance

of implementing the GDS 15-item into their practice and screening patients more frequently. The overall recommendations for the practice was to implement the age-specific depression screening tool (GDS-15) for patients 65 years and older more often than once a year or at least at six month follow-up visits to properly screen for depression in this high risk age group.

Conclusion

The older adult population will continue to significantly increase in the coming years. Improving the screening, diagnostic and treatment process of depression is imperative to enhance quality of life. As life expectancy increases, the risk for depression increases as well. The identification or recognition of depression becomes a challenging task for providers because of the changes that occur with aging, polypharmacy, chronic conditions, and cognitive impairment. These issues and challenges faced by health care providers when identifying or diagnosing depression in geriatric patients makes it so important to improve depression screening, diagnosis, and treatment. This capstone project focused on introducing an age-specific screening tool to increase identification and treatment of depression among geriatric patients in the primary care setting. Dissemination of this capstone project results will occur at the UMass Amherst College of Nursing Scholarly Presentation Day on May 5, 2016. The project will also be submitted to the Gerontological Advanced Practice Nurses Association at the annual conference.

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Appendix

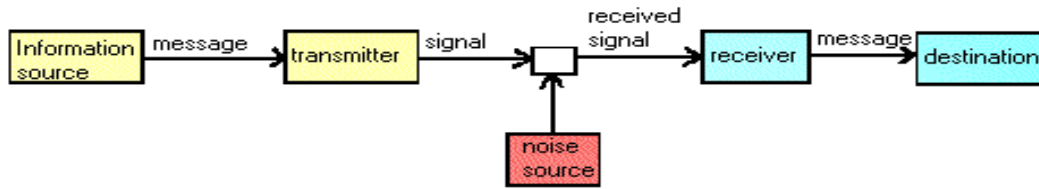


Figure 1. The Shannon-Weaver model of communication. This figure illustrates the six elements of communication from this model. An information source produces a message. A transmitter encodes the message into signals. A channel are where signals are adapted for transmission. A receiver decodes the message from the signal. A destination is where the message arrives. A noise is any interference with the message travelling along the channel.



Figure 2. Kurt Lewin's change theory model. This figure illustrates the three elements of change. The unfreezing stage is about reducing the forces that maintain the current state and preparing for change. The changing or transitioning stage is developing new behaviors, values, or attitudes and moving to a new change or way. The refreezing stage is the final stage of crystallizing and the adaptation of a new process so that it can become a part of the present and future system.

Geriatric Depression Scale: Short Form

Choose the best answer for how you have felt over the past week:

1. Are you basically satisfied with your life? YES / **NO**
2. Have you dropped many of your activities and interests? **YES** / NO
3. Do you feel that your life is empty? **YES** / NO
4. Do you often get bored? **YES** / NO
5. Are you in good spirits most of the time? YES / **NO**
6. Are you afraid that something bad is going to happen to you? **YES** / NO
7. Do you feel happy most of the time? YES / **NO**
8. Do you often feel helpless? **YES** / NO
9. Do you prefer to stay at home, rather than going out and doing new things? **YES** / NO
10. Do you feel you have more problems with memory than most? **YES** / NO
11. Do you think it is wonderful to be alive now? YES / **NO**
12. Do you feel pretty worthless the way you are now? **YES** / NO
13. Do you feel full of energy? YES / **NO**
14. Do you feel that your situation is hopeless? **YES** / NO
15. Do you think that most people are better off than you are? **YES** / NO

Answers in **bold** indicate depression. Score 1 point for each bolded answer.

A score > 5 points is suggestive of depression.

A score \geq 10 points is almost always indicative of depression.

A score > 5 points should warrant a follow-up comprehensive assessment.

Figure 3. Geriatric depression scale: Short form. This figure illustrates the questions on the screening tool, the answers which indicate depression, and how to score the tool.