

DEPRESSION IN PRIMARY CARE: ATTITUDES OF
NOVICE ADVANCED PRACTICE NURSES

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ABSTRACT

The burden of depression across the globe is estimated to be a leading cause of disability. In the U.S., a considerable portion of mental healthcare is delivered in the primary care setting. Barriers to achieve best practices are often magnified during the transition for nurses entering advanced practice. Rosswurm and Larrabee's evidence based practice change model was utilized to develop a project aimed to improve novice APN's attitudes about depression screening and management for adult patients in the primary care setting. The project used a purposive sample of 100 novice APNs from across the nation utilizing a quasi-experimental, one group, pre-test/post-test design to measure attitudes, professional confidence and perspectives of novice providers caring for patients experiencing depression before and after an online educational offering. The Revised Depression Attitude Questionnaire (R-DAQ) was the validated instrument used in the study. Statistical significance was achieved across all three domains of the R-DAQ. Twenty-six of the 100 participants agreed to take the R-DAQ a third time in order to synthesize the content from the educational module in practice. Mean scores returned almost to pre-test levels in all domains ($p > 0.05$). The diagnosis and treatment of depression in a primary care setting demands an awareness of the significance of the problem, an understanding of the tools available for use in screening and a reasonable systematic approach to ensure that a patient-

centered evidence-based treatment plan is followed. Future implications for practice will need to address educational efforts that promote sustainability in the practice setting.

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Chapter 1 - Introduction

The burden of depression in the worldwide population continues to accelerate. The World Health Organization (WHO) estimates depression to be among the leading causes of disabling disease across the globe in 2016. Additionally, studies that assess the global burden of depression also attribute major depressive disorder (MDD) as contributing to burden allocated to suicide and ischemic heart disease (Ferrari et al., 2013). Those who suffer from depression also may experience disproportionately higher rates of mortality, and in certain populations some estimates show depressed patients with an almost 2.5-fold increase in all-cause mortality (Katon, 2011; WHO, 2013). In the United States, the prevalence of depression is estimated to be between 5% and 13% of the general population (O'Connor, Whitlock, Beil, & Gaynes, 2009). Furthermore, in the population of patients with comorbid conditions the prevalence can be as high as 23% or almost one in four patients (Katon, 2011). Evidence reported suggests that a majority of mental healthcare in the United States is addressed by a primary care provider (PCP) and that evidence-based care is less likely to be followed compared to psychiatrists (Manning & Jackson, 2015; Rost, 2009). Moreover, when referral to a mental health specialist is initiated only about 50% of the patients referred have more than one visit. This often leaves the patient to return at a later time to the PCP without improvement of symptoms (Ford, 2006).

Chapter 1 will examine the particular challenges that novice clinicians experience when caring for patients who are depressed in a primary care setting. An organizational needs assessment related to care of such patients is explicated. Using an evidence-based practice model to guide an improvement in practice will offer the necessary support needed to move toward

evidence-based practice in depression screening and management. Finally, the clinical question that undergirds the project is articulated.

Statement of the Problem

Depression continues to exhibit significant challenging familial, societal and economic impacts despite continued efforts to screen and manage appropriately at the community level. The burden of depression may spread far beyond the individual disorder. Family stability may be disrupted by decreased incomes and financial stress resulting from missed work or disengagement from family obligations. Depression has also often been associated with separation and divorce (Lepine & Briley, 2011). Impairment in actual life functions and social relationships can affect not only the home but also the domain of work. Poor performance and increased risk of absenteeism have a higher potential for unemployment and ultimately loss of productivity. It is reported that the monetary burden of depression for employers in the United States may reach a cost as high as \$24 billion dollars a year in lost productivity (Mitchell et al., 2013).

Additionally, the functional impairment associated with depression may negatively affect health promotion and disease prevention efforts as well as chronic disease management, which ultimately will impact the health of patients and their families throughout their lifetime. This becomes a cost to society as the financial burden of healthcare for patients with chronic illness continues to escalate. For example, in depressed patients with Type 2 Diabetes Mellitus overall healthcare cost estimates are predicted to be at least 50% higher than for those without depression (Katon, 2001).

Further evidence also finds that depression is a strong risk factor for suicide. Suicide remains the second leading cause of death for young adults worldwide (Tait & Mitchell, 2014).

Research has shown that 45% of patients who completed suicide contacted a primary care provider within the month before their death. In primary care, it is estimated that nearly 10% of office encounters are depression related (Stafford, Ausiello, Misra, & Saglam, 2000). Tait and Mitchell (2014) conducted a systematic review and meta-analysis and discovered that suicide risk factors such as depression and other early warning signs of suicide often go undetected by primary care providers. The primary care encounter presents a logical and appropriate point of care to identify and engage in early intervention for patients exhibiting increased risk for depression and suicide.

Significance of the Problem

In contrast to the proposed disease burden, cost, and prevalence of depression, behavioral health problems in primary care remain underdiagnosed and under treated partially due to primary care providers' lack of confidence in recognizing and treating mental health disorders (Gilbody, House, & Sheldon, 2005). A multitude of research emphasizes that primary care practice needs to be re-engineered to not only screen patients for depression but also to monitor treatment adherence and symptom response over time (Gilbody et al., 2005; Manning & Jackson, 2015; Rost, 2009). The diagnosis and treatment of depression in a primary care setting demands an awareness of the significance of the problem, an understanding of the tools available for use in screening and a reasonable systematic approach to ensure that a patient-centered evidence-based treatment (EBT) plan is followed.

While the number of advanced practice nurses (APNs) entering the primary care workforce increases (Auerbach, 2012), it is important to identify barriers that may impede their ability to achieve best practices and optimize adherence to evidence-based care. The transition to an advanced practice role may be confusing and overwhelming. Lack of confidence as well as

self-doubt is a common experience in the first years of the advanced role (Maclellan, Levett-Jones, & Higgins, 2015). Furthermore, the translation of scientific evidence into practice is a constant challenge as guidelines continue to change and time allotted for patient encounters is often insufficient. The professional development needed to maintain the best standards of care may be particularly problematic for novice APNs, who are overwhelmed, trying to adjust to a new role, and feel unprepared to care for patients with complex chronic conditions (Brown & Olshansky, 1997; Sargent & Olmedo, 2013).

The literature addresses numerous barriers to practice, but it is deficient in addressing educational preparation of novice APNs, their transition into practice, and how this may influence their efforts in identification and care of a depressed patient (Kosowski & Roberts, 2003; Sargent & Olmedo, 2013). It is estimated that 64% of depressed patients in primary care go unrecognized and subsequently untreated (Cepoiu et al., 2008). Concern regarding the increased incidence of depression, especially in a complex comorbid patient who is already a challenge for a novice, puts a new focus on the urgency of improving knowledge of evidence-based guidelines for clinicians on the front lines of primary care.

Improving adherence to clinical guidelines is a complex process. Moreover, it has been observed that it takes many years for evidence in research to impact consumers of healthcare (Scott & Lewis, 2014). Although there are often extenuating circumstances that force clinicians to deviate from following the recommended practice guidelines, non-adherence to such guidelines may predispose patients to significant health consequences. Research has demonstrated that treatment which adheres to clinical guidelines decreases years lived with disability, and reduces cost (Smolders et al., 2010). Ultimately, adherence to guidelines can greatly improve the quality of care. APNs are an integral part of the fabric of front line primary

care across the nation and the examination of how to best achieve the knowledge and confidence to identify and care for depressed patients can only improve the public health of all patients who experience depression.

The challenges of mental health disorders are an important aspect of care that requires an astute and informed clinician to identify and manage according to the most current available evidence. The Institute of Medicine (2011) recommends that APNs should practice to the full scope of their educational experience. Current guidelines offer a map for APNs to include depression as one of the many chronic conditions treated in the setting of primary care. The guidance provided by evidence-based guidelines such as the United States Preventive Services Task Force (USPSTF) and the Institute for Clinical Systems Improvement (ISCI) for the screening and care of adult patients with depression offers providers some reasonable options to manage patients in the primary care setting without always needing specialist referral, although a collaborative care approach is a preferred option whenever feasible (Mitchell et al., 2013; USPSTF, 2016). Professional development obtained from continuing educational offerings may serve as a first step for new providers to achieve the knowledge and confidence necessary for screening and treating depressed patients.

Organizational Needs Assessment

This DNP project did not focus on a single organization, but instead addressed needs in a broad sense for APNs practicing in settings across the U.S. There is a great responsibility for providers of medical care to continuously develop their knowledge and refine their skills (VanNieuwenborg, Goossens, Lepeliere & Shoenmakers, 2016). There is little doubt that APNs provide safe and efficacious care and are key stakeholders in the evolving healthcare system (Hutt et al., 2013; Kosowski & Roberts, 2003). However, novice providers of care may lack the

years in practice needed to accumulate the knowledge and confidence necessary to address the complexities of behavioral health. Furthermore, it is not enough to rely only on experience. Davis, Davis, and Bloch (2008) demonstrated that learning objectives should range from acquiring knowledge to attitudinal change. They further purported that knowledge acquisition is only meaningful if it offers an opportunity for changes in practice.

There are many steps required to maximize the use of EBP. Enhancing organizational culture to a “culture of inquiry” is one possibility that could shift the beliefs surrounding the benefits of evidence-based care (Melnyk, Gallagher-Ford, Long & Fineout-Overholt, 2014). It is further suggested that for practicing professional nurses, knowledge must remain as up-to-date as possible with familiarity and implementation of EBP. For clinicians who have long hours in practice it may not be easy to find the time or opportunity to engage in a structured educational program.

An alternative approach to offer continuing education relies on a practical and accessible intervention. Although traditional lectures and conferences contribute to increased knowledge (VanNieuwenborg et al., 2016) they may not be possible for a novice who has just started employment and may not have adequate time off or financial resources to attend. The development of an online educational offering may address the needs of the novice with flexibility, ease of use, and subject matter that focuses on a known practice gap. Existing learning needs in relation to care of the depressed patient in the primary care setting include knowing how and when to screen for depression and familiarity with a measurement based care approach that aligns with current EBP standards. Knowledge generation, reinforcement of competence and development of professional expertise may enable novice APNs to deliver a higher quality of care (Brown & Olshansky, 1997). Some research has identified inconsistencies

in the adoption of EBP and implementation in clinical practice (Heiwe et al., 2011; Melnyk et al., 2014). Enhancing strategies to encourage novice clinicians to follow evidence-based practices will serve to benefit all stakeholders including providers and their organizations, patients, families, and the public at large.

Evidenced-Based Practice Model

For a comprehensive and formative approach, an EBP model served to guide the development of a plan for practice change. The utilization of an EBP model allows stakeholders to stay informed and integrates the best available evidence with clinical expertise and patients' preferences in order to positively improve patient outcomes (Melnik & Fineout-Overholt, 2011). There are many models for EBP utilization and application in practice. The model for evidence-based practice change utilized for this doctoral project is Rosswurm and Larrabee's (1999) model. There are six steps associated with this EBP model. The following section will outline the use of the model to structure a project which aimed to improve novice APNs' attitudes, competence and perspectives about depression screening and management in their individual practice setting.

Step one. The first step examines the need for change in practice (Rosswurm & Larrabee, 1999). This began with a broad overview of the available literature regarding the significance of the problem of depression in the primary care setting. An informal query with practice colleagues across the nation also validated the problem as significant for those currently practicing in primary care. The identification of a practice gap pertaining to screening adults for depression and offering adequate evidence-based treatments in the primary care setting was outlined.

Step two. The next step links the identified problem or practice gap with an intervention and outcomes based on extensive literature review (Rosswurm & Larrabee, 1999). A link between patients with depression and providers' attitudes and confidence was explored to facilitate a practice change. Attitudes and beliefs about depression and EBP were examined. Select outcomes pertained to enhanced knowledge and confidence regarding identifying and treating a patient for depression.

Step three. This step involved a critical appraisal of the literature. Strengths and weaknesses of the reviewed studies helped identify gaps in the available knowledge and research literature. An appraisal quality rating scale by Ebell et al. (2004) was utilized in this project to address the quality, quantity and consistency of the body of research and translate the evidence as it relates to the topic of depression screening and management in primary care. The synthesis of the research brings together existing evidence and determines if an actual practice change is necessary and feasible (Rosswurm & Larrabee, 1999).

Step four. The next step was to design the practice change (Rosswurm & Larrabee, 1999). This step required the collaboration of an expert in the mental health field to assist with the design and rigor of the educational model to increase awareness and competence of depression screening and management for adults in the primary care population. The authors of the EBP model used for this project also did a similar study using a pre-test/post-test design to evaluate the influence of an educational program on home care nurses' and aids' resourcefulness, competence and knowledge of geriatric care. Although the basis for the formation of the study was the same, a different framework was used based on the concept of learned resourcefulness (Rosswurm, Larrabee & Nunley, 2003). Measured outcomes were evaluated on the providers' knowledge, competence and resourcefulness before and after an educational program.

Step five. The evaluation of the practice change is indicated as step five in the Rosswurm and Larrabee (1999) model. To evaluate change there was a post surveillance of the study participants with a validated questionnaire to assess whether the educational module improved attitudes regarding depression screening and treatment for the novice APNs in practice. A summative assessment offered guidance to facilitate future research and interventions for practice.

Step six. The final step within the Rosswurm and Larrabee (1999) EBP model relates to sustainability and maintenance of the practice change. Implementation of step six was operationalized in the form of a third arm (called T3) of the project. This third arm assessed participants of the study after incorporating the learned principles in their practice for a period of several weeks. Dissemination of the findings allows stakeholders to gain confidence in the effectiveness of change and the feasibility of making this type of change in their practice setting (Rosswurm & Larrabee, 1999). Subsequent integration and maintenance of the change will most likely require updates to the educational module as guidelines change and update over time.

Definition of Terms

Major depressive disorder. Clinical manifestations of depression may vary by gender, age, comorbid conditions or cultural background (Sharp & Lipsky, 2002). For the purpose of this project MDD was conceptually defined as a mental health condition which is characterized by five or more of the following symptoms for a minimum of two weeks: diminished interest in activities (anhedonia), depressed mood, fatigue, poor sleep, changes in weight and/or appetite, persistent feelings of guilt or hopelessness, decreased concentration, psychomotor slowing and thoughts of suicide. At least one of the first two symptoms listed must be present for the diagnosis to be made (American Psychiatric Association, 2013). Childhood depression, bipolar

depression and postpartum depression were not included in the literature search for the project and are not specifically addressed in the educational module. Postpartum patients however, are included in the current screening guidelines by the USPSTF (USPSTF, 2016). Screening for MDD was operationalized through the use of the rating scale known as the Patient Health Questionnaire-9 (PHQ-9).

Novice APN. The term novice in this study referred to clinicians who have held their advanced practice nursing license for three years or less. For the purpose of this project, APNs were either nurse practitioners (NPs) or certified nurse midwives (CNMs) who practice in the United States.

Educational module. The educational module referred to as the intervention for this project was developed after rigorous literature review. It was presented in a 30 minute online narrated Power Point format. Objectives outlined for the module included improvement of perceived professional competence, attitudes, and perceptions of depression when caring for patients in primary care. Content areas addressed within the educational module included: incidence of depression seen in primary care, current practice guidelines, suicidality and risk factors, means of screening for depression, and best practices for the treatment of depression.

Research Question

Major depressive disorders are seen frequently within the primary care setting. Inexperienced APNs often lack the knowledge and confidence to appropriately screen and manage patients using evidence-based guidelines. Therefore, this doctoral project evaluated whether participation in a depression awareness educational module, delivered online, improved attitudes, self-reported competence and perspectives about depression screening and treatment in a sample of novice APNs. Identifying a clinical question with an evidence-based framework

helped locate the best evidence available to influence positive practice outcomes. PICOT is an acronym used to identify five key components to a clinical research question (Terry, 2015). The PICOT question for this project was: For novice advanced practice nurses (NPs/CNMs) (P) does participation in an online evidence-based depression awareness educational module (I) improve attitudes, self-reported competence and perspectives toward depression screening and management (O) of adults 19 and over in primary care following a 12-week research study (T)?

Conclusion. This chapter introduced the problem under study and the significance of that problem. Further, a needs assessment was explicated. The EBP model by Rosswurm and Larrabee (1999) guided a practice improvement project to raise awareness of depression screening and evidence-based management of depressed patients in the primary care setting. Key definitions were introduced and the clinical (PICOT) question was articulated.

Much of the existing research literature identifies physicians' attitudes that may affect screening and management of patients with MDD in practice. However, in the extensive literature review initiated for this project few studies have focused on the APNs who practice in primary care and manage patients with MDD. The background and significance of the problem make it clear that a clinician in primary care, such as a novice APN, will require confidence, up-to-date knowledge, and an understanding of his or her views and perceptions of the depressed patient in order to meet the demand of enhancing EBP strategies. The next chapter of the paper will include a review and synthesis of the current body of evidence related to the topic under study. The research study was completed with approval from the Institutional Review Board at Georgetown University.

Chapter 2 – Review of the Literature

A review of the available literature regarding the current standard of care for screening and managing depression in primary care served to inform the development of this project. A methodological analysis and synthesis of quality literature outlined the overall prevalence of depression, what screening tools were utilized and what evidence-based management practice criteria were studied and evaluated. Special attention to a search for novice advanced practice nursing clinicians challenged with caring for depressed patients demonstrated no discoverable findings in the literature search.

Chapter 2 will not only summarize the primary pieces of literature retrieved during the search, but will also synthesize the overall body of evidence. Additionally, the quality of literature cited is scrutinized using an appraisal tool for this purpose.

Introduction to Search Criteria

A broad initial search using PubMed, PsychINFO, and Google Scholar was performed in order to build important concepts for the project. Databases were chosen based upon their primary content focus and their relationship to the clinical question. Quality research literature from peer-reviewed journals was the predominant source for the literature review. The literature provided some theoretical background as well as many leads for additional references.

Inclusion criteria and search terms included adults, major depression, depressive disorder, screening, primary care, guidelines, novice nurse practitioners, physicians, adherence and attitudes. The elements described in the project's PICOT question helped guide the initial search and keyword choice. Initial searches were narrowed from an original list of 475 publications.

Exclusion criteria included pediatric patient populations, postpartum depression, psychosis, bipolar depression, and patients not treated in primary care. The English-only language filter was used in the search. The use of a broad approach to inclusion criteria for eligibility used in the literature search together with a limited number of exclusion criteria made the findings generalizable to adult patients who are screened and managed for nonpsychotic major depressive disorder (MDD) in a primary care setting. When possible, articles in the last 10 years were filtered although some older references were utilized if subject matter did not require the most recent findings. Ultimately, 13 articles were identified as foundational articles with multiple remaining articles retained for background information. The final sample of 13 articles chosen for inclusion to structure the project addressed five general themes; depression screening in adults, depression management, attitudes and adherence to evidence-based guidelines related to depression care, online continuing education, and novice advanced practice clinicians.

Critique and Synthesis of Previous Evidence

For the determination of the highest quality of evidence available there must be a consistent approach in the critique and appraisal of the available research literature. For the purposes of this literature review the rating of evidence utilized the strength of recommendation taxonomy (SORT) described by Ebell et al. (2004) (Appendix A). Permission to utilize the taxonomy was obtained (Appendix B). The strength of the recommendations and level of evidence rating pertains to patient-oriented outcomes. The quality of evidence for individual studies is rated 1, 2, or 3 and is dependent on whether the study measures patient outcomes and if the study is of good or limited quality. Level 1 studies demonstrate good quality patient-oriented evidence while level 3 studies may describe disease oriented outcomes or consensus opinions.

The taxonomy also includes letters A, B, and C, which are used to determine the strength of a recommendation based on the body of evidence (Ebell et al., 2004).

Depression screening. In order to assess current screening recommendations and barriers to providers' adherence, three foundational articles focused on depression screening. The first article utilized a systematic evidence review in order to offer a consistent guideline for screening depression in the primary care setting (O'Connor et al., 2009). This systematic review informed the current United States Preventive Services Task Force (USPSTF) policy recommendation for adults to ensure safe and optimal treatment (USPSTF, 2016).

Data collection involved 4088 articles initially, and subsequently 33 additional articles that met inclusion criteria and were appraised by two investigators. Four key questions were addressed in the systematic evidence review using an analytic framework:

1. Does screening for depression among adults and elderly patients in primary care reduce morbidity and mortality?
2. In the primary care setting are there disadvantageous effects caused by screening for depressive disorders in adults and elderly patients?
3. Are health outcomes of elderly depressed patients in primary care improved by antidepressant and/or psychotherapy treatment?
4. What are the negative effects of antidepressant treatment (particularly selective serotonin reuptake inhibitors [SSRIs] and other second-generation drugs) for depression in adults and elderly patients?

Data sources used by the authors include the Database of Abstracts and Reviews of Effects, the Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled

Trials, MEDLINE, and PsychINFO. Primary studies published in the English language between 1998 and 2008 were investigated.

O'Connor et al., (2009) utilized this systematic review to update the literature since the original 2002 review by Pignone et al. The O'Connor systematic review also investigated further questions which did not have enough evidence at the previous review to be examined. This included the harms of SSRIs in older adults, the benefits of depression treatment in older adults and the harms of depression screening.

The authors concluded that depression-screening programs should only be conducted when there are sufficient depression care supports in place; otherwise the screening is unlikely to improve outcomes. They found that young adults (age 18-29 years) had a high incidence of suicidal behavior (but not deaths) particularly in the early course of treatment when using second-generation antidepressants. There were no increased or decreased suicidal behavior or deaths reported in the middle aged population with second-generation antidepressant use. Older adults prescribed second-generation antidepressants were found to have lower suicide risk, but increased risk of gastrointestinal bleeding particularly when combined with non-steroidal anti-inflammatory medication (NSAIDs).

Limitations of this study included the use of older systematic reviews that were used to investigate harms or adverse effects of screening. Some of the evidence related to older adults may not be generalizable to the broad primary care population since the large-scale trials reviewed patients considered high risk for multiple comorbidities. Some of the evidence surrounding harms related to antidepressant treatments may not be generalizable to primary care since they involved short-term randomized controlled trials (RCTs) and recruitment of motivated patients. Also sponsorship for many of these trials came from the pharmaceutical industry, which

may introduce bias into the results. Furthermore, definitions across the 33 studies differed considerably, especially related to the terms such as suicidal behaviors and depression care supports. According to the SORT appraisal by Ebell et al. (2004) this constitutes level 1 evidence. It is good-quality patient centered evidence based on randomized controlled trials and serves as solid evidence to inform a practice change.

Another article to address depression screening by Arroll et al. (2010) involved the validation of 2 and 9-question Patient Health Questionnaire (PHQ-2 and PHQ-9) using 2,642 primary care patients. The PHQ-2 is comprised of the first two questions in the PHQ-9 (Appendix C). This randomized controlled study reported data from one arm of a three-arm trial. The researchers used a standardized depression reference interview and compared it with those patients who completed the PHQ-9 survey to assess the validity of the screening tools.

The reference standard utilized was a computerized Composite International Diagnostic Interview (CIDI) administered immediately following the screening test. The PHQ-2 has good sensitivity meaning that 86% of patients with major depression will be found positive using the PHQ-2. However, 79% will have a false positive finding making the utility of this test alone questionable. The PHQ-9 by comparison had similar sensitivity to the PHQ-2 but improved specificities and gave less chance of false positive results. The results of this study inform the authors' recommendation that if the patient has a positive PHQ-2 a PHQ-9 should be administered to improve the specificity of the test by limiting the number of false positives. The funding for the study came through the Research Council of New Zealand through a grant, which does not seem to imply bias. The use of the PHQ-2 and PHQ-9 is potentially valuable for diagnostic as well as surveillance of on-going management of depression.

There are many depression screening options available such as the Beck Depression Inventory, the Geriatric Depression Scale, the Edinburgh Postnatal Depression Scale and Hospital Anxiety and Depression Scale. For the primary care provider, the breath of choices offered can be confusing. The PHQ-9 is popular because of its brevity and ease of scoring (Deneke, Schultz & Fluent, 2014). The PHQ-9 can be used free of charge with multiple translations available to the clinician and has been studied in different patient populations including Blacks, Latinos, non-Hispanic whites and Chinese Americans (Chen et al., 2009). It has also been validated in postpartum and geriatric patient populations (Deneke, Schultz, & Fluent, 2014). The broad application of the PHQ-9 tool and its validation for screening as well as monitoring treatment makes it a useful tool for use in primary care. This study is considered level 1 evidence according to the SORT algorithm (Ebell et al., 2004) since it is a strong randomized controlled and blinded trial and the reference standard (PHQ-2/9) determined patient-oriented outcomes.

An additional article to address depression-screening practices in primary care focused on a two-part quantitative study (Fuchs et al., 2015). Results were analyzed with descriptive statistics. The first part included a retrospective chart review to identify patients who scored positive for depression by the PHQ-2 screening tool and to identify what was subsequently done following the positive screen. The second part of the study involved a survey of physicians in this clinic and their attitudes regarding the use of the PHQ-2 and PHQ-9, as well as their management and treatment of depression. The authors related findings consistent with previous research that physicians often rely more on their clinical judgment to make treatment decisions. This was concerning since most of the physicians in the study were residents with potentially less experience at diagnosing depression. The authors felt that in addition to being a valuable

screening tool the PHQ-9 (which was not consistently or frequently used by physicians in this study) may assist in assessing depression severity and inform treatment decisions as well as monitoring treatment over time. Another notable finding in this study was that only 21% of patients who screened positive on the PHQ-2 presented with a mental health issue as their chief complaint. This may justify the need for all patients to be screened due to insidious behavioral health manifestations.

The implementation of the screening tools in this study did not show improvement in patient outcomes and so did not warrant the cost of staff time and effort according to the authors. However, there were multiple limitations with this study. The chart review used consecutive patients over a one-month period only and other confounding factors such as comorbidities or concurrent medications may have affected treatment decisions or taken up the allotted time for the scheduled visit. Attrition was also a factor. Although the physician documented a follow up appointment to be completed in one month's time, only 16.5% of patients returned. The self-report survey by physicians reported a higher use of the PHQ-9 than was actually verified with the patient chart review, suggesting that the physicians overestimated the use of the PHQ-9. The study was limited to one university clinic and, thus, may not be broadly generalized to family practice staffed by NPs or CNMs. There was no evidenced bias from the funding source. This study correlates with level 2 evidence as described by Ebell et al (2004) since it was not blinded or randomized and demonstrated limited quality patient-oriented evidence.

Synthesis related to depression screening. The foundational studies described above emphasize the utility and validity of screening adults for depression in the primary care setting. The consistent use of the SORT taxonomy by Ebell et al. (2004) allows the clinician ease in analyzing and synthesizing the research used to address the issue of screening for depression in

primary care. The strength of the body of evidence has informed the current recommendation by the USPSTF for screening adult patients in primary care for depression and should be considered a level A recommendation due to the large sample sizes, randomization, and consistent and good quality patient oriented outcomes (Ebell et al., 2004).

Depression management. The recent updated guidelines for management of depression in primary care by the Institute of Clinical Systems Improvement (ICSI) was identified in the literature review to inform evidence-based practice (Mitchell et al., 2013). This guideline served as the basis for the development of the educational portion of the doctoral project. The Appraisal of Guidelines Research and Evaluation (AGREE) tool was used to appraise the recent guideline and it scored highly across domains (AGREE, n.d.). One notable limitation may have been the absence of advanced practice nurses in the developing working group. There was only a women's health NP, but considering the increasing numbers of advanced practice nurses practicing in primary care this may be considered an oversight. The guidelines addressed depression screening, diagnosis and management for adult depression in primary care. Cultural considerations were also addressed. There is a broad application including postpartum depression. This correlates with new updated guidelines recommended by the USPSTF for universal depression screening of all pregnant and postpartum women.

A study by Finkel, Yano, Parker, and Rubenstein (2009) used a cross sectional design with a case comparison across 10 primary care clinics in the Veterans Administration (VA) system. Data were retrieved from qualitative descriptions of care processes and key informant interviews with clinical leaders. The results demonstrated the most similarities across all clinics around depression screening for which routine processes were in place at each clinic. However, the varying degrees of assessment, diagnosis, treatment and follow up were concerning. The lack

of confidence by some PCPs to treat patients for depression, the non-detection of suicidal threats, and the inability to track symptom severity led to gaps in treatment where mental health resources for referral were lacking. The authors concluded that increasing the ability of PCPs to accomplish formal assessment and diagnosis while also making other treatment modalities available in primary care would improve guideline adherence and evidence-based care. The clinics used in the study were geographically diverse but may not represent the wide variation in primary care clinics across the United States and, thus, findings may not be generalizable. This study was utilized for the project because it was one of the few to document and compare processes for depression management at the clinic level. It correlates with level 3 evidence according to Ebell et al. (2004) as there are no patient related outcomes reported and the study was descriptive qualitative.

Synthesis of depression management. A consistent and defined approach to EBP for depressed patients seen in the primary care setting allows the clinician to improve individual care and improve effectiveness of clinical practice overall. Referencing a guideline to inform the educational module for the project will assist novice APNs to develop effective screening, diagnosis and ongoing management for adults in their care suffering from depression (Mitchell et al., 2013). The ability to embed best practices in the care of patients will promote a move closer to EBP. The review of a clinic level process study across several primary care sites helped to identify some common barriers to efficacious depression management. The SORT appraisal was not utilized in this section because the guideline was appraised with the specific AGREE tool and the only other article used was a qualitative, level 3 study.

Attitudes and adherence to guidelines. Several articles critically appraised for this project involved clinicians' attitudes and adherence to guideline-based care for depression.

Haddad et al., (2015) developed a revised validated screening tool for use in measurement of clinicians' attitudes to depression. This article was primarily important since served as the foundation for measuring opinions and attitudes across the workforce for novice nurse practitioners in primary care.

The Haddad et al. (2015) study included two phases to test and revise the original Depression Attitudes Questionnaire (DAQ) (Bottega, Mann, Blizard, & Wilkinson, 1992). The first phase used a pooled review of findings from the use of the questionnaire in studies over time. The analysis revealed issues with the psychometric properties of the tool; therefore, a revised version was created. The revision of the original instrument aimed to improve the internal consistency of the tool, the reliability, readability, and the utilization to measure clinicians' attitudes across the primary care workforce and not just within the United Kingdom (Haddad et al., 2015). With a consensus agreement using a Delphi panel, the revised DAQ (R-DAQ) was tested with 1,193 healthcare providers to determine its psychometric properties for the second phase of the study.

The authors concluded that the R-DAQ will determine the need and also impact a wide range of interventions for the identification, support and subsequent treatment of depression in primary care (Haddad et al., 2015). Some of the negative stigmatizing viewpoints regarding depression exist even among the healthcare professionals that are designated to help the population suffering from this debilitating condition. It is clear that recognizing attitudes which inform clinicians' practice may serve to improve outcomes by highlighting the barriers to evidence-based care. The improvement of the psychometric properties of the DAQ, with the development of the R-DAQ, enhanced the reliability and validity of the tool for a broader application. This methodological study would be considered a level 3 rating according to Ebell et

al. (2004) since there were no patient-oriented outcomes. The use of the Delphi method to establish consensus for the instrument development also suggests a level 3 evidence rating.

Another study that reviewed clinicians' attitudes for depression management in primary care used interventions based on Wagner's chronic care model (CCM) to address identified barriers in practice. A qualitative design with semi-structured interviews of 23 primary care physicians across the United States identified themes using a grounded theory approach. Six barriers emerged from the interviews. Themes identified include: "difficulty diagnosing depression, patient resistance, fragmented mental health system, insurance coverage, lack of expertise, and competing demands and other responsibilities as a primary care provider" (Henke, Chou, Chanin, Zides, & Scholle, 2008, p 1). CCM-based interventions such as the use of care managers and integration of on-site mental health as well as patient education were all viewed as acceptable and embraced by the group.

This study was important when developing interventions to increase adherence to guidelines as it identified commonly associated barriers to care recognized by primary care providers who care for patients being screened and diagnosed as depressed. This suggests that these types of interventions should be prioritized when designing depression care since the buy-in of the clinicians is paramount to the success of the interventions. System-related barriers such as the fragmented healthcare system and insurance limitations for mental health were not completely addressed by the interventions and according to the authors require further study. There were no measurable patient-oriented outcomes and the study was qualitative in nature. Therefore, SORT appraisal by Ebell et al. (2004) is noted as a level 3 since it is based on analysis identifying broad concepts and the team members who did the coding were not blinded.

Research that reviews guideline adherence in depressive disorders suggested that adherence may be influenced by individual characteristics of the provider and the patient as well as organizational factors (Smolders et al., 2010). The cross sectional cohort study, conducted in the Netherlands, by Smolders et al. (2010) collected data across various settings and across various disorders. Their intent was to detect providers' professional characteristics and the potential influence on guideline adherence that affects their practice. The original DAQ was used in this study to determine physicians' attitudes toward depression diagnosis and management. There was a high response rate from participants, but only involved 62 General Practitioners (GPs) and 665 patients.

The authors concluded professional characteristics of the providers did not influence adherence to guidelines suggesting in fact, factors such as time limitations and external organizational factors play a bigger role. The application in the United States may also vary, as the structure for primary care delivery as well as the guidelines used in practice may be significantly different than in the Netherlands. Since it was a cohort study without strong patient-oriented outcomes it is rated a level 2 study (Ebell et al., 2004), however the fact that it was prospective data from the electronic medical record (EMR) the authors avoided recall bias.

Another study hypothesized that adherence to guidelines would be improved by designing interventions based on barriers identified by GPs in the Netherlands (Sinnema et al., 2015). This study was a non-blind randomized controlled trial with an intervention and a control arm. The study sample size was 396 patients in 22 general practices. It demonstrated that focused interventions for the GP that address barriers to adherence to guidelines will improve overall patient outcomes. The study was not solely focused on unipolar depression. Anxiety was also

included and therefore the interventions used to address barriers to guideline adherence could not be strictly related to only patients with depression.

The recruitment of the participating GPs may have contained some bias, as they were providers associated with the insurance company that funded the study. Again the results may not be generalizable to NPs/CNMs in primary care practicing in the United States. Tailoring interventions to specific barriers identified by the participating GPs offer potential guidance to achieve guideline concordant care. The evidence in this study is considered level 1 (Ebell et al., 2004). since it is a large-scale strong quality RCT and although the GPs were not blinded to the control or intervention group they were unaware if their patients were participating in the retrieval of outcome measures.

Synthesis related to adherence to guidelines. Many of the studies used in the literature review for this project were based on physician's perspectives and may differ with application to the NP/CNMs practicing in a primary care setting. Additionally, a number of the studies reviewed for the doctoral project were completed outside of the United States making generalization to US providers more challenging. Although none of the studies reviewed specifically used an online educational intervention to address barriers for providers' guideline adherence, research demonstrates similar improvements of knowledge comparing online versus on-site training (Aggarwal et al., 2011).

A collaborative care model which is frequently promoted in NP education may be an important factor to improve guidelines adherence overall. Cost advantages and accessibility make the online option a reasonable consideration to reach a broad population of providers at a convenient time and place for their learning needs. The SORT taxonomy rating for the body of

evidence related to adherence to guidelines should be considered level B based on inconsistent and limited-quality patient-oriented evidence (Ebell et al., 2004).

Online Learning

Practicing in healthcare with the demand for optimal patient outcome creates a responsibility for the provider to continuously develop and refine his or her skills. Continuing medical education (CME) is crucial to obtain the improvement in knowledge and professional performance (VanNieuwenborg et al., 2016). To provide a framework for the educational portion of the doctoral project, two studies were reviewed to assess an online learning option versus a more conventional approach of continuing education.

The first study evaluated web-based multimedia training for primary providers related to screening, brief intervention and referral to treatment for alcohol, tobacco and other drugs. Stoner, Mikko, and Carpenter (2014) recruited 77 physicians, physician assistants, and NPs via email and then randomized subjects to either the control or intervention group. The evaluation of the online training was compared to comparable reading materials. The two types of training showed equally strong positive effects, but the hypothesis that the multimedia training group would improve knowledge more than the control was not realized. Participants randomized to the control group were significantly less likely to complete the training than those randomized to the multimedia education group which indicates that an online platform may be more appealing to the target audience. The participants were incentivized with a monetary bonus through an email campaign so this may minimize generalizability for a nationally representative sample. There were no patient-oriented outcomes for this study making it a level 3 quality study according to Ebell et al., (2004).

Another study that compared online versus on-site training randomly assigned scientists to attend a 3.5 day on-site course or attend an online course with the same duration. Equal improvement in knowledge was demonstrated in both training formats (Aggarwal et al., 2011). The study limitations included the inability to accurately assess cost and the lack of information regarding application of the learned knowledge and skill. Both of these studies would be rated as level 3 evidence by Ebell et al. (2004) since there are no reported patient care outcomes.

Online education has many potential benefits. The need and demand of numerous professionals across the globe ensures opportunities for those that may not have the chance for a more traditional educational setting. Online education may provide a cost-effective and efficient alternative to on-site classroom teaching. Research has demonstrated that online medical education courses may result in knowledge gains similar to those seen in a traditional teaching environment (Aggarwal et al., 2011). The logic which underpins the use of an online format focuses on the flexibility and potential for reduced cost. However, there are some disadvantages to an online educational offering. Although online learning has been shown to have similar improvement in knowledge, some empirical studies have suggested that an interactive method such as peer review, role play or practice sessions may offer better outcomes than a video podcast or narrated Power Point such as was used in the educational intervention for this project (Schreiber, Fukuta & Gordon, 2010; VanNieuwenborg et al., 2016). The reduced interaction between the educator and the learner, the inability for the viewer to ask questions, and the inability of the educator to gauge understanding and non-verbal cues from the learner are a few of the disadvantages to the use of an online delivery for an educational intervention (Schreiber et al., 2010).

Synthesis of online learning. The preparation needed to initiate an online course may require an initial investment but the sustained costs will be lower (VanNieuwenborg et al., 2016). The advantages of an online format for continuing education are numerous. Adult learners are self-directed and autonomous (VanNieuwenborg et al., 2016). The online format allows some amount of control over timing and achievement goals. For clinicians who are busy, unstructured literature review, internet searches, and free non-scientific medical journals may not meet their professional goals for CME. Some of the benefits of an online format include flexibility, individualized learning and decreased cost (VanNieuwenborg et al., 2016). It is an attractive option for reaching a broad and extensive audience to promote consistent evidence-based practice recommendations.

Disadvantages noted in the literature regarding internet-delivered learning suggest there may be certain characteristics associated with less effective training (Stoner et al., 2014). The lack of interactive discussion allows users to skip, fast forward and avoid real time feedback that would not occur in an on-site learning environment. Interaction should be a concept taken into account when designing an online method of delivery in order to engage the learner and offer the maximal benefit (VanNieuwenborg et al., 2016). Although the articles used for informing the choice of an online platform for the educational module were valuable the SORT taxonomy would rate the body of evidence for online learning a C due to the lack of patient-oriented outcomes reported.

Novice Nurse Practitioners

There were two foundational articles reviewed for the formation of this project that were specific to novice NPs. First, a study by Brown and Olshansky (1997) addressed the challenges to professional practice for a novice NP in the first year of practice. The study examined 35

novice NPs who recently finished a university program in the Northwest. It was a longitudinal exploratory study based on grounded theory and qualitative data were obtained. The researchers used both axial and open coding, as well as theoretical integration revealing a process of professional development. The theoretical model “From Limbo to Legitimacy” was originated and four major categories were identified. In order to completely understand practice barriers for guideline adherence when diagnosing and caring for depressive patients it is important to also understand the transition underlying the early professional development of the prospective participants in the current doctoral project. “Laying the foundation, launching, meeting the challenge, and broadening the perspective” (Brown & Olshansky, 1997 p. 5) are important aspects of a novice NPs experience that can enhance understanding and recognition when developing interventions to improve practice.

The authors of this study used the data to support the concept of transition as a framework for the experience of entering the advanced practice role. The importance of knowledge expansion and skill repetition was emphasized and encouraged to strengthen role transition and improve patient outcomes. Although this study was not recent, it builds on prior research work by authors like Benner who have provided guidance surrounding professional development in nursing. The understanding of early role transition for advance practice nurses will help guide any interventions that will be utilized for future study of this particular group.

Another study was specific to novice NPs. Kosowski and Roberts (2003) explored interpretive phenomenology to discuss experiences of using intuition in practice. Six themes were recognized and with an iterative process a pattern emerged for decision making by this group of novice NPs. The authors emphasized critical thinking and intuitive decision making as important essential skills. This also reinforced what much of the recent literature has purported,

which is that a mentorship program for novice NPs should be studied. Efforts to maintain a holistic philosophy remain a crucial aspect of the transition to advanced practice. There were no patient-oriented outcome data directly addressed in the studies and both studies are qualitative in nature; thus they are leveled as a 3 according to Ebell et al. (2004).

There have been other articles that highlight the transitional and evolving process experienced by the novice NP but they build on the earlier work by Benner's model, *From Novice to Expert: Excellence and Power in Clinical Nursing Practice* (Benner, 1984) and author's like Brown and Olshansky reviewed for this project. Faraz (2016) focused exclusively on the first position following graduation as an APN and how the first year is the most difficult. Most of the works reviewed reported predictable stages of the transitional period in the new role as an APN.

Synthesis related to novice nurse practitioners. The review of the literature for novice nurse practitioners offered a qualitative understanding of the role transition experience. Interpretation of barriers facing novice practitioners can help to shape interventions that will enhance evidence-based practice and improve overall patient outcomes. Educational offerings that aim for improvement of clinical judgment and critical thinking by improvement of attitudes, knowledge and competence will help to overcome the challenges of practice as a novice in the field. The SORT rating pertaining to the overall body of evidence for the articles regarding novice nurse practitioners would be considered C (recommendations based on usual practice and opinion) (Ebell et al., 2004).

Rationale for the Project

The literature review and critical appraisal for depression screening and management in the primary care setting highlighted not only a practice gap but a reasonable approach to reach a

broad sample of participants with an online learning module. The significance of clinicians' attitudes influencing the care provided to patients with mental health complaints also plays a role in the ability to achieve evidence-based practice. The vulnerability for the novice APN in the role transition emphasizes the challenge for those providers to achieve self-perceived competence in caring for complex patients such as those with behavioral health problems.

Conclusion. This chapter of the paper examined the overall synthesis of the body of literature relating to depression screening, management, overall adherence to guidelines, and online learning with an additional focus on novice APNs in practice. The use of screening in the primary care setting as well as measurement-based management in the treatment of MDD were strongly validated in the body of literature used for the doctoral project. Adherence to evidence-based guidelines, particularly pertaining to novice APNs who may lack confidence and experience demonstrated a potential area of weakness for the utilization of the recommendations for practice. Based upon the critique of existing literature and the practice gap identified related to challenges with guideline adherence a sound rationale for this doctoral project was provided. The next chapter of the paper will describe the overall methodology for this project. It will explain how an educational offering, as an intervention, addressed the practice gap of novice APNs adhering to EBP while caring for depressed patients in primary care.

Chapter 3 – Methods

The following section of the paper will provide the information about how the doctoral project was implemented. Scientific inquiry demands that a methodical method and clear description of the research is presented. The literature review offered a broad overview on the current use of screening and management of depression in the primary care setting. This section seeks to define a study to evaluate the influence of an online educational intervention on novice APNs' attitudes, knowledge and perspectives in caring for depressed patients in the primary care setting.

Design/Implementation Framework and Plan

This study used a quasi-experimental, one group, pre-test/post-test design. Pre-test data were collected by survey prior to initiating the online educational intervention. Research subjects were not randomized to groups and an experimental design was not feasible due to the limited number of participants available in the online sample. In addition, there were six demographic items asked of the participants.

A qualitative question was utilized in the pre-test to understand the mental health resources available to the novice practitioners at their individual work site. The educational intervention was embedded and delivered as part of the survey package containing both the pre- and post-tests.

Recruitment was conducted over a period of 12-weeks, from February 2016 through May 2016. An invitation letter was sent electronically (via email) to all of the prospective participants with a link to a Survey Monkey© (Ebersman, 2016) packet, which contained the informed consent, a demographic survey and pre/post-test questionnaires. Specifically, a single group of

participants took a pre-test (T1) at baseline, participated in an online educational intervention, and then took a post-test (T2) to evaluate factors related to depression attitudes of novice NP/CNMs in the clinical setting. The initial data collection period continued for six weeks, during which time weekly email reminders were sent to all potential subjects to encourage participation. McPeake, Bateson, and O'Neill (2014) demonstrated that using electronic reminders versus no reminders improved the response rate for internet-based surveys. Respondents were asked to complete each component of the survey package before moving on to the next. Although variables in the study were not designed for cost analysis the overall interpretation of the cost of depression should be discussed.

Cost/Benefit Analysis

The focus of identifying depression in the primary care population is clearly important. In addition to the disability associated with depression the disease is usually chronic in nature with episodes of relapse and tends to often be present during the most productive time in a person's life (Pincus, 2006). The long term impact on professional and educational development may have significant repercussions for a patient, family and society at large. Additionally, the societal impact of suicide and the increased utilization of healthcare services for people suffering from depression have astounding cost implications (Pincus, 2006).

A study by Greenburgh et al. (2015) estimated the economic burden of depression in the United States in the year 2010 to be \$210 billion dollars and it continues to rise every year. This was attributable to a summation of direct costs, suicide related costs, and workplace costs. The comparative view demonstrated a large and increased economic burden associated with depression over time. The complexity of factors that contribute to the available cost estimates makes extrapolation of individual factors challenging. Comorbidities associated with depression

account for the largest portion of the total economic burden (Greenburgh et al., 2015) of the disease making the primary care gatekeepers an integral part of addressing this economic burden. The potential for reduced cost associated with a collaborative or integrated model of care are an important and necessary direction for future research in this area.

Project Sponsors and Resources

The University Registrar's office allowed access to the potential participants for the study. Although no monetary incentive was offered to participants, the motivation for participation was portrayed as practice improvement. The use of novice clinicians in the field may have influenced study participation as the initial years of transition in professional practice is typically when new professionals develop their abilities and seek needed educational support (Brown & Olshanski, 1997, Sargent & Olmedo, 2013).

Population: Sample and Setting

Eligible participants were drawn as a purposive sample (Terry, 2015) of alumna from an accredited online advanced practice nursing program in the mid-Atlantic region of the United States. The sampling method utilized allowed results to be generalized to a larger population due to the diverse geographical locations of participants. The total pool of potential participants was 638 and was retrieved, with permission, from the University's registrar. APNs were eligible to participate if they were novice clinicians with less than 3 years of experience in the advanced practice role, were practicing as NP/CNMs in the United States, and agreed to take part in the online intervention offered through the survey package. Geographical region identified by respondents was well represented across the United States. The total number of participants that responded to the email invitation and opened the survey package and completed the R-DAQ for the first time was 163 (n=163).

Human Subject Review

The study was conducted in accordance with the Institutional Review Board (IRB) protocol for research on human subjects at Georgetown University. The doctoral project obtained an expedited review due to the minimal level of risk to the research participants. All participants in the study provided informed consent. Federal regulations inform the guidelines for participants in a research study and the following rights were evident in the protocol for IRB application: the participants were informed of the purpose of the research, the participants had the rights to ask questions with the principal investigator's contact information available, they were informed that they had the right to withdraw at any time from the project without consequence, and they were not subject to any form of coercion or forced to participate (Terry, 2015). Anonymous participation for the first and second arm (T1/T2) of the study was ensured by an anonymous setting on the Survey Monkey © data collection with no identifiable information collected. The number of participants who completed both T1 and T2 was 100 (N=100). The third arm of the doctoral project (T3) was clearly explained to all participants. Data collection for this arm was not anonymous once volunteers agreed to take the survey a third time. The third arm (T3) occurred after applying the principles learned from the educational offering in their various practice settings for at least three weeks.

Data were collected through Survey Monkey © and were only accessible by the principal investigator. Data were stored on a password protected computer and will be kept for three years following the study as was described in the IRB application for approval. The same questionnaire was used for all arms of the study. Coding of the participant's responses were de-identified so only the principal investigator had access to the email addresses that were provided

by the volunteers for the third arm of the study (T3). Total participants who completed the T3 of the survey was 26 (n=26).

Measurement Tools: Validity and Reliability

R-DAQ scale. The pre-test for the project utilized the R-DAQ 22 item questionnaire, six multiple choice demographic questions, and one open-ended question. The R-DAQ is a revised tool developed by Haddad et al., (2015) to measure attitudes of healthcare providers caring for patients who are screened and managed for depression. The scale developer's permission was obtained for use in the doctoral project (Appendix D). See Appendix E for the R-DAQ scale. The 22-item questionnaire was developed as a Likert-type scale with five response options from a 1 (*strongly disagree*) to 5 (*strongly agree*). A neutral response option (3) was also possible.

There are three domains to be measured with the R-DAQ instrument. The first domain of professional confidence in depression care comprises seven of the items in the survey. The domain of professional confidence pertains to feeling comfortable, confident, and well-trained to recognize and manage depression as an individual clinician. The second domain measures therapeutic optimism about depression and items are negatively framed and scored as reverse items. There are ten questions addressing the second domain. The last five items comprise the third domain of the questionnaire and address the clinicians' perspective about depression recognition and management (Haddad et al., 2015).

Cronbach's alpha for internal consistency of the 22-item scale was reported as 0.84, within the subgroup of general practitioners and adult nurses used to validate the tool. Content validity and reliability of the R-DAQ was also established by examination with 38 health professionals in the second phase of the validation study by Haddad et al., (2015).

Demographic questionnaire. The demographic questions asked of the participants involved background information such as age, gender, and ethnicity. Also, questions about area of specialty, years of practice, and location in the United States established the descriptive statistics for the study group participants (Appendix F).

Open ended question in T1. Primary care providers need not only skills, but also ample resources to appraise and incorporate evidence into practice. An open ended question, used only in T1, investigated how the respondents viewed available resources at their prospective practice sites for management of depressed patients. Barriers to treatment of depression exist on multiple levels, but the lack of resources may prevent patients from receiving appropriate care. There is little integration of services between primary care providers and mental health providers often leading to short-term management of depression rather than prevention and ongoing maintenance treatment for this chronic disease (Pincus, 2006). The inclusion of an open ended question for qualitative data collection allowed for subjective data to be gathered that is unique to each participant's individual perspective (Terry, 2015). Limitations of this type of question may be the researcher's interpretation of the context in which the participant describes resources. The final interpretation of results from the open-ended question allowed the researcher insight into correlations between identified themes and the results of the post-test R-DAQ after taking part in the educational offering.

Intervention

The education intervention for the project was conceptualized and created by the principal investigator who also made the slides and completed the narration. A great deal of time was dedicated to build the educational module into a format that offered participants the option of choosing from a variety of devices on which to access the material. The intervention was

comprised of an evidence-based learning module with a focus on depression recognition and management by advanced practice nurses in healthcare settings that provide care to patients with depression. Objectives for the educational offering encompassed increasing awareness of depression, facilitating strategies to integrate screening and diagnosis of depression, recognition of a risk level to prevent suicide, and finally examination of a measurement-based care approach for managing depression.

The intervention was delivered in a 30-minute Power Point lecture viewed online at the participant's convenience and on their choice of device (i.e. personal computer, tablet, or smart phone). In order to achieve an efficient and accessible continuing education intervention, certain conditions that relate to the participant's needs should be addressed (VanNieuwenborg et al., 2016). With a target population of novice APNs from across the United States, an intervention that underscores the importance of evidence-based screening and management of a commonly seen condition in primary care encourages participation. Also, the ease of access to the material at the participant's convenience allowed for a program structure that was flexible and easy to access. Findings in the literature suggest that continuing educational programs do not need to be elaborate in order to be effective (Stoner et al., 2014). However, the lack of interaction with a strictly online module may hinder the cooperation of the end user and ultimately decrease the effectiveness of the intervention overall.

Procedures and Timeline

All potential participants were sent an email invitation with a link to a Survey Monkey © package. The first page of the package contained the informed consent for the project which was obtained electronically by the participant moving forward through the survey package. T1 was the pre-test and demographic questionnaire, an open-ended question, as well as the R-DAQ. All

data collected during T1 were anonymous. The participants could enter and exit the survey package at their convenience, but all questions required an answer before they were able to progress to the next section. After completing the pre-test, participants were given a web link for a 30-minute educational narrated Power Point educational module. This also could be stopped and started at the participant's discretion.

At the end of the educational module, participants were instructed to complete the post-test (the same R-DAQ) which was allocated as T2. Participants were allotted six weeks for the completion of T1 and T2. There was no logic placed in the survey package that disallowed participants to complete the post-test if they had not participated in the educational intervention for a specific time frame. Furthermore, the Survey Monkey © platform had no means to track whether participants entered the online educational module but then walked away from their monitor or device. Thus, there was no way to confirm participants who completed the post-test at T2 viewed the full online educational module. Although empirical data suggests that online self-directed learning is as effective as a conventional face to face approach to obtain knowledge, analysis indicates that blended learning or an interactive approach combined with the online component may be preferential and keep the learners' attention and interest at a higher level (Jacob & Rhandai, 2016).

Participants were asked to volunteer for the third arm of the study (T3) after applying the principles learned in the educational module to their various practice settings for three weeks. This part of the study involved the participants supplying their email contact information so they could receive the questionnaire one final time. Contact information was necessary to adequately match participant's data from the pre-test and the post-test. The T3 portion of the study remained opened for three weeks, making the whole survey project 12 weeks in total. The process for the

analysis and outcome measures used for the data will be described in the next section. Figure 1 demonstrates the overall data collection process flow of the study.

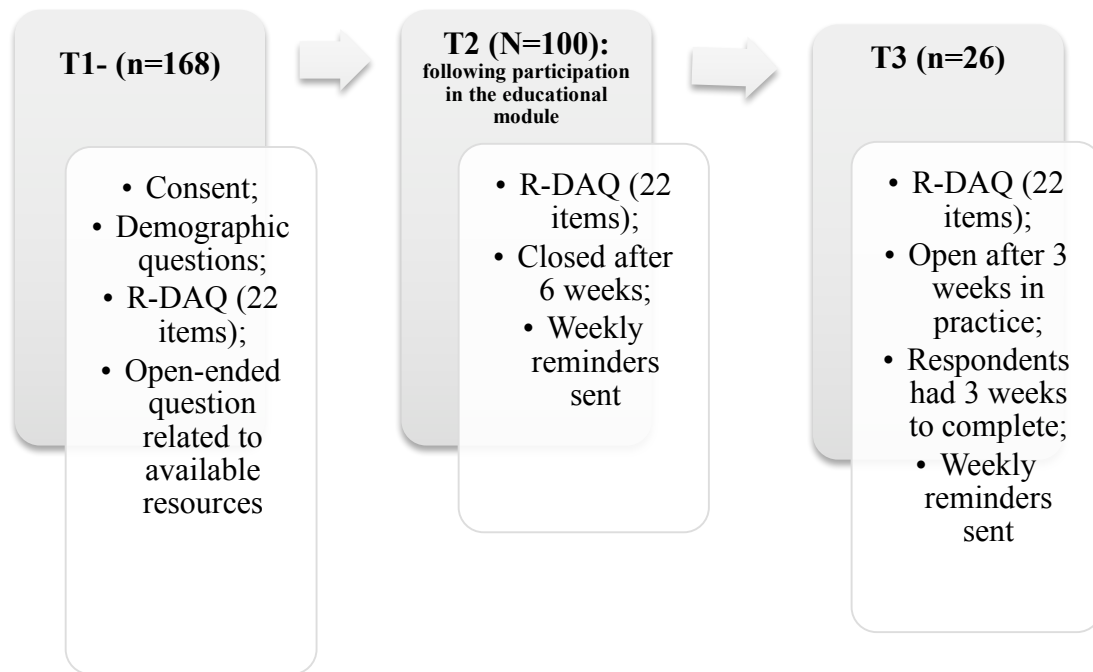


Figure 1. Data Collection Process Flow

Outcome Measurements and Data Analysis Plan

Descriptive analysis was utilized for the close-ended quantitative measures using Statistical Package for the Social Sciences (SPSS) software. The mean, standard deviation, and the frequency of the variables was reported for the sample and categorized into three domains of the scale identified by the R-DAQ scale developers. A paired *t*-test measured the respondents before and after the educational intervention. A *t*-test is appropriate when the researcher wishes to compare the performance of two groups on mean scores of one measure before and after a particular intervention to observe if any difference exists (Terry, 2015). A Repeated Measures Analysis of Variance (RM-ANOVA) test measured respondents who agreed to put the learned principles into practice and complete the survey a third time. This statistic takes into

consideration measures taken by the same participants at multiple points in time as well as the variation present among the groups (Terry, 2015).

Content thematic analysis was completed on the qualitative data from the one open-ended question. It identified 10 consistent themes reported by participants regarding their resources for depression management at their practice site. The specific question was as follows: *“Please describe the resources available to you to care for depressed patients in your practice site.”*. The themes were identified and reviewed by the principal investigator and committee chair. Themes identified are displayed in a table in the next chapter of the paper.

Conclusion. The implementation of an evidence-based educational intervention in order to positively influence attitudes, perceived competence, and beliefs about care of the depressed patient demonstrated a successful effort to raise awareness and promote best practice by the APN participants of the study. Although the statistical significance does not necessarily translate into clinical meaningfulness, the next section of the paper will report the results of the project to encourage a practice change and promote further study for a relevant practice challenge. The use of the one group pre-test /post-test design allowed conclusions based on participation in the study.

Chapter 4-Evaluation of Results

Findings from data collection and analysis afford the researcher the ability to gauge the impact and effectiveness of the proposed intervention to be studied. The purpose of this chapter of the paper is to report the data utilizing statistical techniques to highlight what is evident and what is lacking in order to evaluate the doctoral project in its entirety. A broad analysis allowed for interpretation to drive recommendations for future study. Most healthcare researchers consider a probability less than 0.05 to be considered statistically significant (Beyea & Nicoll, 1997), therefore, these analyses used an alpha of 0.05 as the cut-off for statistical significance.

Analysis of Data

There were 638 novice APNs invited to participate in the project with an initial response rate of 168 participants or approximately 26% of the total who were originally invited to access the survey. The average reported response rate for an online survey is approximately 24% (Sheehan, 2001), however the completion rate (for pre/post-test) for this DNP project was 100 participants (N=100) or 15.5% of the total participants initially invited. It has been reported that the response rate to email surveys is somewhat less than those sent with traditional mail (Shaheen, 2001), however the potential of using this more convenient form should not be ignored. The use of an email survey has both advantages and disadvantages over traditional modes for survey collection and the use of an internet savvy group such as graduates of an online program made it a desirable alternative.

The third arm of the study (T3) was completed by 26% (n=26) of the total participants who completed both the pre- and post-test (N=100). Demographic characteristics of the study participants showed no statistically significant differences ($p > .05$) in terms of survey

completion status with the exception that all participants in the final arm of the study (T3) were family nurse practitioners. No certified midwives completed the survey after implementing in practice what they learned in the online educational module.

The sample of respondents who completed the pre- and post-test, but not T3 (n=74) demonstrated a preponderance of females (91.9%) and individuals who identified themselves as white (75.7%). The results when adding in the participants who completed T3 (n=26) were similar and did not exhibit any notable differences. Regions across the United States were evenly represented and respondents' ages demonstrated the majority between 26 and 45 years. Over 80% of the participants were in practice 2 years or less. Table 1 summarizes the demographic sample characteristics.

Table 1. Demographics

Categories	Pre only n=55 (%)	Pre and Post n=74 (%)	Pre, Post and T3 n=26 (%)	$\chi^2(df), p$
Gender				0.32(2) = .85
Male	5.5	8.1	7.7	
Female	92.7	91.9	92.3	
Refused	1.8	0.0	0.0	
Race/Ethnicity				3.95(6), .68
White	78.2	75.7	88.5	
African American	5.5	8.1	3.8	
Hispanic	5.5	5.4	3.8	
Other	9.1	10.8	0.0	
Refused	1.8	0.0	3.8	
Region				1.99(6), .92
Northeast	20.0	23.0	23.1	
Midwest	14.5	16.2	15.4	
West	23.6	27.0	30.8	
South	40.0	33.8	23.1	
Refused	1.8	0.0	7.7	
License				2.44(2), .30
Nurse Practitioner	90.9	93.2	100.0	
Certified Nurse	9.1	6.8	0.0	
Midwife				

Table 1. Demographics (cont.)

Categories	Pre only n=55 (%)	Pre and Post n=74 (%)	Pre, Post and T3 n=26 (%)	$\chi^2(df), p$
Age				18.7 (12), .10
20-25 years	0.0	2.7	3.8	
26-30 years	29.1	16.2	7.7	
31-35 years	20.0	27.0	11.5	
36-40 years	18.2	18.9	23.1	
41-45 years	10.9	17.6	11.5	
46-50 years	12.7	8.1	11.5	
51 or older	9.1	9.5	30.8	
Years in Practice				1.12(4). 89
Less than 1 year	47.3	54.1	57.7	
1-2 years	36.4	32.4	26.9	
2-3 years	16.4	13.5	15.4	

There are three domains of the R-DAQ; therapeutic optimism, professional confidence, and perspectives of depression care and management by the clinician. These were analyzed utilizing a paired sample *t*-test to compare mean pre- and post-intervention scores for all those who completed both pre- and post-surveys. The SPSS analysis found statistical significance from pre- to post-intervention across all three domains of the R-DAQ. Scores in all domains were higher following the educational intervention than before. In addition, RM-ANOVA analyses were run to compare mean scores at all three times (pre, post, T3) for the subsample who completed T3. The following breakdown of each of the domains compares the results in this sample of participants.

R-DAQ Therapeutic Optimism

There was a significant effect of the intervention on mean scores for pre/post participants (N=100) regarding the domain of therapeutic optimism. On a 5-point Likert scale, scores increased significantly from a mean score of 4.30(SD = 0.42) before the educational module to 4.50(SD = 0.36) after the educational intervention. This was a statistically significant change,

$t(99) = 4.49, p < .001$.

RM-ANOVA test was used for the smaller sub group ($n=26$) of the participants who did all three arms of the study, indicating significant changes across time, Wilks Lambda = 4.29, $p = .026$. Pairwise comparisons using Bonferroni adjustment indicated that the significant statistical difference was between mean pre- and post- scores related to therapeutic optimism ($p = .044$). There were no statistically significant differences between mean post scores and T3 ($p = .10$). Note there was a slight decline in mean scores at T3, but not large enough to be statistically or practically meaningful. The post hoc power calculated for the portion of the analysis was .69 so it is possible a larger sample would have shown a significant decline.

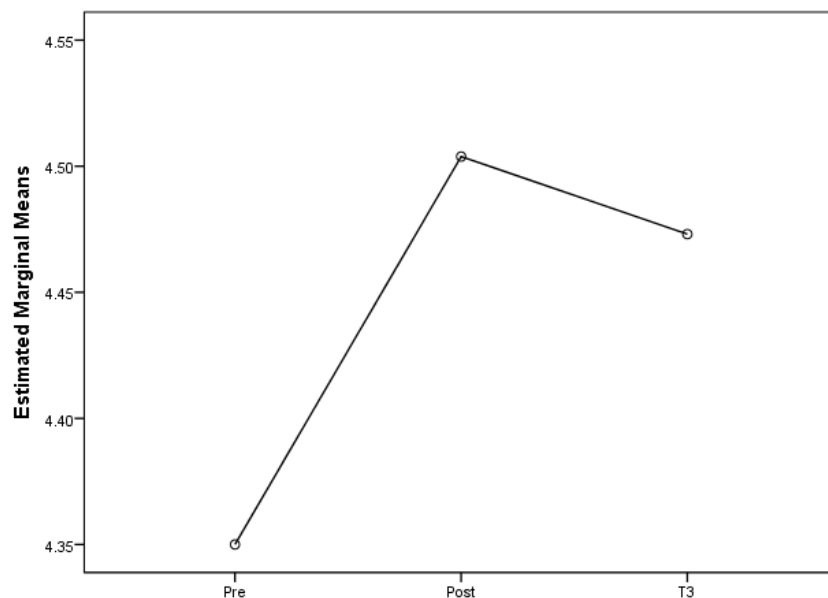


Figure 2. Therapeutic Optimism

R-DAQ Professional Confidence

Professional confidence is the second domain identified in the R-DAQ and there was a significant increase in scores exhibited in the paired sample after the participants engaged in the online educational intervention. The mean scores changed from 3.53 (SD = 0.46) before the

educational module to 3.78 (SD = 0.44) after the educational module; $t(99) = 7.27, p < .001$. This indicates that the information in the educational offering improved professional confidence regarding screening and caring for patients who are depressed.

The RM-ANOVA for the subgroup who completed the pre-test, the post-test, and T3 demonstrated statistically significant changes (Wilkes Lambda = 3.55, $p = .045$). Pairwise comparisons for each arm of the study showed the most effect between pre (T1) and post (T2), $p = .036$, with a return to nearly baseline for the participants who took the survey at T3, although a drop at T3 was not significantly significant $p = .26$.

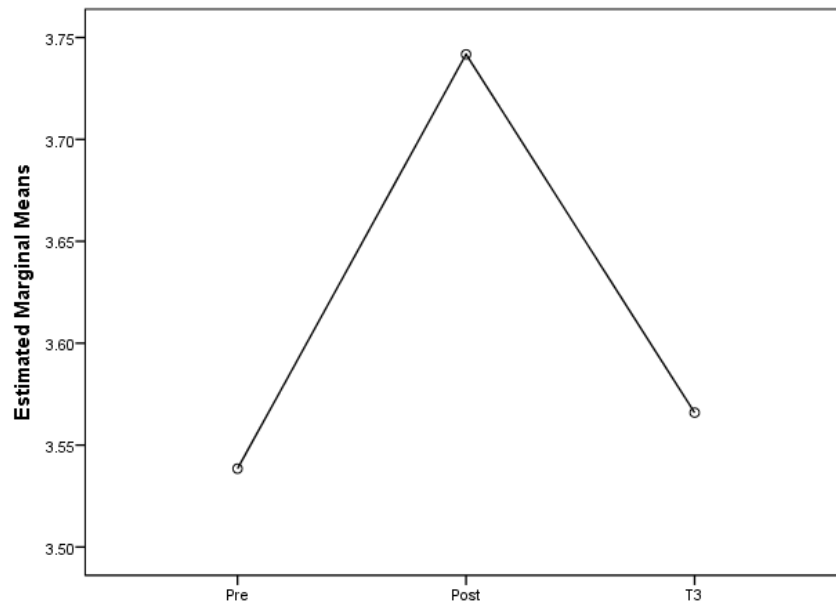


Figure 3. Professional Confidence

R-DAQ Clinician Perspective

There was a significant difference in pre- to post scores in the last domain of the R-DAQ, which is clinicians' perspective of depression care and management. The mean scores improved from 4.60 (SD = 0.49) before the educational module to 4.70 (SD = 0.33) after the educational

module; $t(99) = 2.52, p = .013$. Note that both scores are relatively high indicating high agreement overall with this particular domain of practitioner perspective.

There was no significant change in mean scores when looking across all three arms of the smaller sample (pre, post, and T3), using RM-ANOVA, Wilkes Lambda=.69, $p = .51$.

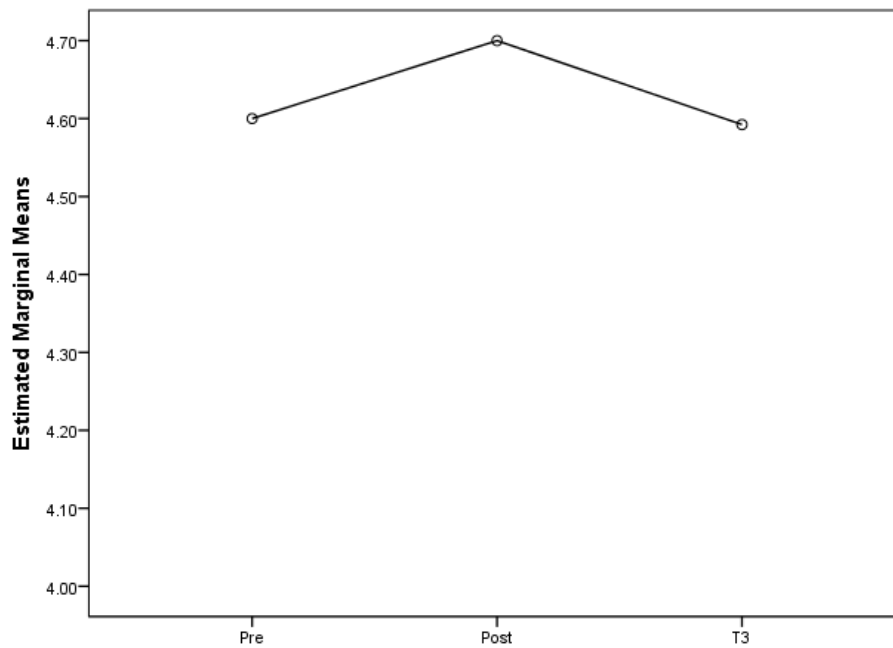


Figure 4. Clinician Perspective

Analysis of Specific Items

The individual paired samples were computed when broken down by each question of the R-DAQ. This analysis allowed for a more detailed inspection of each of the various items in the questionnaire. Interestingly, a review of individual questions rather than the domains as a whole identified both strengths as well as potential gaps that may prompt further study in the population of novice APNs. Two questions pertaining to suicide were analyzed to understand the impact that the educational module had on professional confidence as well as underlying beliefs related

to this high stakes challenge in primary care. Other individual questions that looked at the scope of practice for the APN and how underlying perspectives and attitudes may influence care were also reviewed.

Item #10. *All health professionals should have skills in recognizing and managing depression.* This question pertaining to scope of practice achieved high scores at baseline (T1) indicating the value that the respondents placed on this position. The pre-test score had a mean of 4.63 (SD=0.75) on the 5-point Likert scale. The scores continued to improve following the educational intervention with a post-test mean of 4.79 (SD = 0.48), $t(99) = 2.264$, $p = .026$.

Item #17. *I feel confident in assessing suicide risk in patients presenting with depression.* Confidence in assessing suicide risk had a relatively low mean score at baseline (T1) of 3.71 (SD = 0.94), but also showed a statistically significant improvement following the educational information provided with a mean post-test score of 4.00 (SD = 0.74), $t(99) = 3.718$, $p < .001$.

Item #13. *Once a person has made up their mind about taking their own life no one can stop them.* In contrast to the other question on the survey relating to suicide, item 13 did not show a significant change with participation in the educational intervention, with a mean pre-test score of 4.31 (SD = 0.95) and a mean post-test score of 4.47 (SD = 0.82), $t(99) = 2.491$, $p = .073$.

Two of the lowest mean pre-test scores on the survey addressed the domain of professional confidence, which validates the importance of studying a group of novice APNs. The impact of an educational module demonstrated statistically significant changes with the items in this domain of the R-DAQ.

Item #1. *My profession is well trained to assist patients with depression.* A mean pre-test score of 3.51 (SD = 0.88) improved to a mean post-test score of 3.91 (SD = 0.78) following the

educational offering; $t(99) = 6.00, p < .001$. The statistical significance of this item was demonstrated in pairwise comparisons from pre to post with a significant statistical change at all three time points ($p = .028$).

Item #15. *I feel comfortable in dealing with depressed patients' needs.* The mean pre-test score 3.40 (SD = 0.99) improving to a mean post-test score of 3.60 (SD = 0.99), $t(99) = 2.61, p = .01$ did not demonstrate sustainability over time. There was no statistical difference at the T3 time point ($p = .29$).

Changes from pre- to post-intervention were examined by demographics to see if some groups changed more than others. The assumption of homogeneity of variance was met in the demographic category of years in practice. Overall, there were no significant differences determined by number of years in practice with changes from pre to post, although for the domain of professional confidence the result was marginally significant ($p = .055$).

In light of the large variations in group sizes (from T1 through T3), the use of the robust test was indicated to examine if professional confidence differed by length of time in practice. Post-hoc testing (pairwise comparisons) using Tukey adjustment, indicated that significant differences presented between those in practice for 1-2 years and those in practice for 2-3 years ($p = .044$). This is a surprising finding since it would be expected that the most inexperienced practitioners, those with less than 1 year in practice, would demonstrate the most significant change in level of confidence after viewing the educational module.

Open-Ended Question

One additional aspect of the pre-test survey only was an open ended question; the question was "*Please describe the resources available to you to care for depressed patients in your practice site.*". The principal investigator and the committee chair independently reviewed

each of the 157 responses to this question to identify categories and then independently identified broad themes. They identified a total of 10 distinct themes, presented in Table 2.

Table 2. Identified Categories for Resources

Categories	n=157
Behavioral health on-site	67
Behavioral health off-site (including hospitals and community clinics)	28
Screening instruments	28
None	21
Internet/written resources	26
Primary care colleagues	15
Use of medication	12
Other (telephone hotline, APN themselves)	10
Limited resources	9
Guidelines	6

***Numbers may add up to more than 157 due to multiple responses**

Less than half of the respondents reported available access to behavioral health providers on-site to care for patients at their clinical site who are depressed.

Summary of Findings and Outcomes

From the viewpoint of the novice clinician it is apparent that improvements are necessary and possible across the domains of professional confidence, therapeutic optimism and perspectives of caring for depressed patients. The statistical findings using paired samples of respondents were instrumental in demonstrating the effectiveness of an online educational

intervention offered to the group. The additional effect of time, using the third arm of the study (T3) after clinicians utilized what they learned in the educational module for approximately three weeks, offered a deeper understanding of the necessity of sustainability for these skills over time. Additionally, the use of one open-ended question to describe what the respondents identified as available resources at their prospective clinical settings, uncovered a potential lack of reliable assets to support the clinicians while caring for their depressed patients from a primary care environment.

Conclusion. The summary of the data collected and analyzed for the DNP project has provided some useful and meaningful insight into the necessity for a discussion on depression screening and management in the primary care setting. This chapter of the paper reported the analysis of the significant statistical findings as well as non-statistically significant findings, after participants viewed an online educational intervention. The use of a one group pre- and post-test design allowed paired samples for comparison across the three domains of a validated depression attitude questionnaire given to practicing novice clinicians. Additionally, analyses were reported about findings across the pre, post, and T3 time periods. Results from pertinent individual items were also reported. Lastly, results were explicated from the thematic analysis of the open-ended question. The final chapter of the paper examines the importance of the study, its limitations, and what direction further research should take.

Chapter 5 - Discussion and Conclusions

The final chapter will address the interpretation of the statistical analysis of the project and how the three domains addressed in the R-DAQ (therapeutic optimism, professional confidence, and clinician perspectives of depression management and screening) may affect how a novice clinician will synthesize evidence-based recommendations into clinical practice. The additional arm of the study (T3) addressed the potential for sustaining the principles learned in the educational module into a consistent practice improvement. Limitations of the project are outlined and implications for further research is explored.

Discussions of Findings

Raising awareness of the need for EBP within the practice of healthcare has been emphasized in nursing research, but evidence of its utilization in practice remains inconsistent (Williamson et al., 2015; Upton et al., 2014). Furthermore, in the primary care setting, research suggests that guideline adherence is not consistently followed by healthcare providers when caring for patients with MDD even though several effective screening measures and management strategies exist (Deneke, Shultz & Fluent, 2014; Henke et al., 2008; Mitchel et al., 2010; Scott & Lewis, 2014). Barriers to EBP identified in empirical studies to date suggest that a lack of knowledge and expertise, difficulty in diagnosing depression, a lack of confidence, a lack of resources, and misperceptions about depression can all affect implementation of best practice protocols (Henke et al., 2008, Williamson et al., 2015).

The current study employed a validated questionnaire (R-DAQ) to investigate whether an online educational offering could improve professional confidence, influence attitudes and improve clinicians' perspectives of care for adult patients experiencing depression in a group of

novice APNs across the nation. Results suggest that continuing educational offerings may help address adherence to guidelines and achievement of EBP related to adult patients with MDD in the primary care setting. However, barriers identified by an open-ended question regarding available resources to care for these patients should be considered as healthcare policy and practice reorganization takes shape in the coming years. These identified barriers may also explain why the improvement demonstrated by the project was not sustainable in practice.

Finding solutions to addressing barriers that affect the implementation of EBP also requires support to enhance the EBP process. Research demonstrates that nurses have positive attitudes towards EBP, however multiple factors need to be addressed. Ultimately the presence of a positive attitude can increase confidence in decision-making (Williamson et al., 2015). Attitude was measured by the R-DAQ with 22 questions involving three domains. The three domains measured were therapeutic optimism, professional confidence, and clinicians' perspectives of care and management of adult patients with depression. In a group of 100 novice APNs across the nation there was a statistically significant improvement in all three domains of the questionnaire following an educational offering that was delivered online through a narrated learning module by the principal investigator of the study.

The descriptive statistics between the various demographic categories (gender, ethnicity, region) showed no significant difference between the groups' responses. These findings should be interpreted cautiously due to the highly unequal sample obtained. Although the sample was taken from across the U.S in terms of geography, it may not be generalizable to a more extensive group of APNs who practice in primary care overall. Additionally, the use of respondents already experienced with online learning may not be consistent with the broader population of APNs who seek continuing education opportunities.

Therapeutic Optimism Domain

Uncertainty and therapeutic optimism may exhibit a complex balance when it comes to the delivery of mental healthcare. The influence of therapeutic optimism in clinical practice has been acknowledged in the literature. It is portrayed as an important and significant aspect in the provision and experience of healthcare (Hallowell et al., 2016) and may demonstrate a factor that is amenable to change with education and information.

Although popular media suggests that there are improvements within the general population in the acceptance, tolerance and understanding of mental health conditions (Wahlbeck, 2015) some views by the novice APN participants such as feeling confident that available treatments will be successful in the treatment of MDD showed little change. Specifically, the question regarding the inability to change the outcome if someone wants to take their own life is reflective of an underlying lack of knowledge, confidence and experience with suicide screening. This should be an important finding for educators and designers of continuing education to incorporate adequate resources to ensure that healthcare providers can address this high stakes challenge.

Professional Confidence Domain

The fact that respondents were novice APNs and lacked experience in years of practice may explain the lower scores on the pre-test questions reflecting confidence levels. This was not an especially surprising finding. The statistically significant improvement in professional confidence from the pre- to post-test following the educational intervention indicates the importance of continuing professional education pertaining to depression screening and management in the population of novice providers who may not be prepared adequately for the overall abundant population of patients with MDD. Findings from this DNP study are consistent

with the literature. Authors such as McCabe et al, (2012) suggest that many factors may influence confidence levels and skills at recognizing depression. Furthermore, some research suggests that in order to foster change and encourage EBP, clinical educators need to integrate emphasis on teaching the EBP process into clinical practice (Williamson et al., 2015). The participants had all recently graduated from a Master's program, and their lack of knowledge and confidence caring for depressed patients may also reveal a gap in preparation of the broader mental health issues facing patients in a community setting.

Clinician Perspective Domain

Not surprisingly, a sample of novice APNs also had a higher pre-test score in the domain of clinician's perspectives about depression. This indicates an overall positive perspective by novice providers perhaps not reflective of the discouragement that can occur in a more seasoned provider after many years in practice with ineffective outcomes experienced. Additionally, little change might be expected in the domain of clinicians' perspectives after only a 30-minute educational intervention. This domain may reflect a deeper held belief about depression recognition and management and hence change that is meaningful in a larger sample of participants may be more difficult to attain.

T3: Sustainability

The third arm of the study (T3) took place after some of the respondents had the opportunity to utilize the principles of the educational intervention in practice over a period of several weeks. Overall, this time related effect failed to maintain the significance level seen between the pre (T1) and post-test (T2). Findings of a return toward baseline in all three domains of the R-DAQ at T3 indicate that the use of a non-interactive narrated educational intervention may not attain needed sustainability of the educational principles learned. Recent findings in the

literature reveal that the requirements for effective, efficient and high-quality continuing educational activities are improved with a more interactive application such as peer-review, role play and/or practice sessions (Gooding, Blood, & Sharma, 2012; VanNieuwenborg et al., 2015)

There can be many lessons learned in regards to the lack of sustainability of the education provided. The acquisition of knowledge and improvement of perspectives can offer little support if a provider has no available resources. The complexity of the healthcare environment in which so many factors are impressed upon a healthcare provider in a short primary care encounter is a much broader issue. Leaders in the field will need to address the reorganization necessary to support an EBP approach. The open-ended question offered rich information about the lack of necessary resources and although limited in scope it may be important to frame continued research in order to achieve quality outcomes.

Open-Ended Question

With respect to the open-ended question, the findings may highlight improvements needed on the overall structural and organizational level of healthcare delivery and not necessarily changes in attitudes or professional confidence queried in the R-DAQ. The results of just this one question reveal that many respondents could not identify a specific and reliable resource available to them in practice. The answers provided by the respondents make it unclear if the identified behavioral health on-site consisted of a colleague actually “on” the premises who was trained in mental health. If a respondent answered the question with “psychiatrist” or “psychologist” it was assumed they were on-site. The principal investigator failed to make it clear if the actual referral was outsourced or at the same site. In hindsight, it is acknowledged that the open-ended question should have been worded with more specifics requested of the respondents to obtain a clearer result. Although the degree of usefulness in each specific

category was not determined alone by this question, it is apparent that some barriers may exist within the clinical setting to achieve timely and effective care for patients suffering from MDD (Forsner et al., 2010; Pincus, 2006). Perhaps the information from the open-ended question did not allow for the highest level of data collection, but it provided important insight into the challenges of addressing behavioral health in primary care across the nation.

Novice Advanced Practice Nurses

Findings from the present study address the need for effective, consistent, and available continuing professional education pertaining to patients with depression cared for by novice clinicians in the primary care setting. More broadly, it indicates that novice clinicians may not be prepared for the recognition and care that is needed in the primary care setting involving behavioral health challenges. Curricula for Master's level preparation should consider depression as a chronic illness and allow for the same emphasis that is afforded to diabetes mellitus, cardiovascular disease and other chronic illness across the spectrum in a primary care setting. Collaborative practice models should also be promoted to address barriers and enhance the care of this challenging demographic of patients in the community (Henke et al., 2008; Katon, 2011; Unutzer & Park, 2012). The consistent agreement in the literature regarding identified barriers to achieving EBP for depressed patients in primary care indicates the resounding awareness of the problem not just with APNs but physicians and other providers alike. The anxieties experienced by novice providers transitioning into a new role may be tempered by gaining professional confidence and improving attitudes in order to achieve quality care delivery. Continuing educational interventions, similar to the one implemented in this DNP project, can offer available, convenient, and low cost alternatives for this purpose. The findings from this DNP

study also reiterates the need for continued and repeated exposure to continuing education in order to enhance the sustainability of the educational principles learned.

Limitations

To the author's knowledge, this study is the first to examine a subset of novice APNs in the U.S. entering practice and how improvement in attitudes may enhance confidence in screening and caring for depressed patients. Although the use of an online format for continuing education offers the possibility to reach large sample sizes and a broad audience, the purposive sample obtained for the study does not lend itself to a diverse and generalizable sample of novice providers. The respondents are graduates of one online Master's level program and so they are familiar with the format of online learning. A more extensive sample may not have the same familiarity with an online platform seen in this small group from one online university program. Therefore, the improvement demonstrated across the R-DAQ domains seen in the DNP project may not achieve significance with a more diverse group.

Perhaps a limitation in the demographic tool would be that a question pertaining to prior experience in psychiatric nursing may have offered the researcher more information about the background of the participants. They only had to report their advanced degree, but it is possible that some of the respondents had significant experience in a psychiatric nursing position and so they would not benefit as much from the information offered in the educational module. This also may explain the attrition of participants between T1 and T2 of the survey.

Furthermore, email saturation may have played a role in the meager response rate for the study. The myriad of daily emails received by a busy clinician may have hindered motivation to participate. Moreover, the lack of a professional incentive such as continuing medical education credit hours toward licensure may also have played a role in the lower response rate. Obtaining a

random sample rather than a purposive sample of participants could have offered a better reflection of the characteristics of all novice APNs (Terry, 2015). Additionally, due to the small sample size the findings related to the third arm of the study (n=26) may not be especially meaningful and may be more significant with a larger group. The open-ended question offers important insight, however that question could be more reliable if worded more specifically.

Online Learning

Overall, the biggest limitation of the study pertains to the logistics of the online format for the educational module. As mentioned, it was a desirable alternative to traditional delivery due to the audience of past online learners. However, there is no logic placed in the Survey Monkey © package that tracks the respondents from one section to another making it impossible to know if respondents actually participated in the full 30 minutes of the educational intervention. Busy clinicians may not have had the time to view a 30-minute module during work time and it is also not likely that they would be motivated to do this outside of their designated work time. They were able to go out and into the survey and so the actual survey time was not a meaningful tracking device. Future application of an online unsupervised educational intervention may have more validity if it is evident that all respondents participate equally and that the results are a reliable indicator of the effects of the intervention itself. Additionally, the information from the R-DAQ is self-reported and so the validation of results after application in practice is limited. In order to demonstrate improvement in patient outcomes, a measurable variable at the clinic level of patient care would be more effective in rating a practice improvement.

Implications for Practice

The enormity of the challenge to improve depression screening and management for adults in the U.S. is consistent with similar goals for children and a global urgency is facing primary care providers (WHO, 2013). The vital need for enhanced knowledge about overcoming barriers to adherence to guidelines for adult patients with MDD is highlighted in this project and lays the groundwork for further study regarding continued professional development as well as how to sustain improvements in practice. Readers should be cautious about the results of a limited educational intervention in such a small and homogeneous group. Further study with larger sample sizes and comparison groups using a more interactive platform may improve the sustainability into the practice setting. The limited resources available to most clinicians in the study, as described in the open-ended question, should alert providers of care to acknowledge the challenge mental healthcare at this level may affect their practice. Designing protocols and reorganizing practice to encourage a more collaborative environment to care for patients with MDD should be a priority (Oxman, Dietrich, Williams, & Kroenke, 2002; Pincus, 2006; Unutzer & Park, 2012). However, the statistical significance of improving professional confidence, therapeutic optimism and clinicians' perspectives in the screening and management of MDD has implications for improvement toward enhanced EBP in this group of novice providers. Even a limited effort in the attempt to close the practice gap of adherence to guidelines for mental health screening and treatment in primary care will bring focus to an important and vital issue for the nations' health.

Recommendations for Practice and Further Study

This small translational study was intended to spark conversations about the challenges for patients suffering from depression and the barriers primary care providers experience with

adherence to guideline concordant care. The findings underscore the need for continued efforts to close the practice gap for a clear and challenging problem in population health. Application of the results pertaining to novice providers may encourage curricular improvements for the advanced practice programs to be more inclusive of mental health disorders that are so prevalent in day to day practice in the primary care setting. Understanding a few of the factors that may enhance professional development and continued learning for the novice provider is beneficial as the number of APNs entering practice continues to accelerate. Additionally, future research should investigate the emphasis of academic preparation dedicated to mental health that advanced practice nurses are exposed to, considering the global prevalence of depression and significant effect on comorbid conditions for patients with MDD.

Conclusion. The enormity of the problem recognizing and managing adult patients with MDD in the primary care setting is clear. The burden of disability caused by depression, the cost to individuals, families, and businesses, and the lack of available resources for clinicians at their practice site demonstrates a resounding need for renewed focus by all providers of healthcare. The complex nature of managing behavioral health in a consistent and evidence-based fashion while adjusting to a new role as an advanced practice nurse makes the population of novice APNs particularly vulnerable and in need of high quality, accessible and affordable continuing educational options.

The combination of a novice clinician with limited experience, the magnitude and prevalence of depression in the primary care population, and the reported lack of professional confidence noted in many respondents of this DNP project demonstrates the importance of a targeted educational intervention. The statistical significance of improved attitudes and professional confidence exhibited by the participants in the study following an educational

offering, highlights important and meaningful information to begin to build professional development activities that will move clinicians toward EBP. Efforts toward demonstrating guideline concordant care can assist with future endeavors to improve practice. There is a large body of literature that examines barriers and facilitators experienced by healthcare providers in achieving evidence based care and practice improvements. In order to begin to address the challenge of caring for depressed patients in a primary care environment, healthcare providers must reflect on their ability to accomplish change and bridge the gap between knowledge and effective recognition and management of MDD in the primary care population.

Appendices

Appendix A – Strength of Recommendation Taxonomy

Strength of recommendation	
Strength of recommendation	Definition
A	Recommendation based on consistent and good-quality patient-oriented evidence.*
B	Recommendation based on inconsistent or limited-quality patient-oriented evidence.*
C	Recommendation based on consensus, usual practice, opinion, disease-oriented evidence,* or case series for studies of diagnosis, treatment, prevention, or screening.

Use the following table to determine whether a study measuring patient-oriented outcomes is of good or limited quality, and whether the results are consistent or inconsistent between studies.

Study quality	Diagnosis	Treatment/prevention/screening	Prognosis
Level 1—good-quality patient-oriented evidence	Validated clinical decision rule SR/meta-analysis of high-quality studies High-quality diagnostic cohort study†	SR/meta-analysis of RCTs with consistent findings High-quality individual RCT‡ All-or-none study§	SR/meta-analysis of good-quality cohort studies Prospective cohort study with good follow-up
Level 2—limited-quality patient-oriented evidence	Unvalidated clinical decision rule SR/meta-analysis of lower-quality studies or studies with inconsistent findings Lower-quality diagnostic cohort study or diagnostic case-control study§	SR/meta-analysis of lower-quality clinical trials or of studies with inconsistent findings Lower-quality clinical trial‡ Cohort study Case-control study	SR/meta-analysis of lower-quality cohort studies or with inconsistent results Retrospective cohort study or prospective cohort study with poor follow-up Case-control study Case series
Level 3—other evidence	Consensus guidelines, extrapolations from bench research, usual practice, opinion, disease-oriented evidence (intermediate or physiologic outcomes only), or case series for studies of diagnosis, treatment, prevention, or screening		

Consistency across studies

Consistent	Most studies found similar or at least coherent conclusions (coherence means that differences are explainable) or If high-quality and up-to-date systematic reviews or meta-analyses exist, they support the recommendation
Inconsistent	Considerable variation among study findings and lack of coherence or If high-quality and up-to-date systematic reviews or meta-analyses exist, they do not find consistent evidence in favor of the recommendation

*—Patient-oriented evidence measures outcomes that matter to patients: morbidity, mortality, symptom improvement, cost reduction, and quality of life. Disease-oriented evidence measures intermediate, physiologic, or surrogate end points that may or may not reflect improvements in patient outcomes (e.g., blood pressure, blood chemistry, physiologic function, pathologic findings).

†—High-quality diagnostic cohort study: cohort design, adequate size, adequate spectrum of patients, blinding, and a consistent, well-defined reference standard.

‡—High-quality RCT: allocation concealed, blinding if possible, intention-to-treat analysis, adequate statistical power, adequate follow-up (greater than 80 percent).

§—In an all-or-none study, the treatment causes a dramatic change in outcomes, such as antibiotics for meningitis or surgery for appendicitis, which precludes study in a controlled trial.

Appendix B - Permission for use of Strength of Recommendation Taxonomy

From: Phillip Lupo <lupop@med.wayne.edu>
Subject: RE: Permission Request
Date: October 19, 2016 at 5:42:09 PM EDT
To: Sally Huey <swh33@georgetown.edu>

Dear Sally,

Thank you for your request. It has been approved by the American Board of Family Medicine, the copyright holder of this article.

Best wishes,
Phil Lupo, MLIS
JABFM Editorial Office

Appendix C – Patient Health Questionnaire - 9

	<i>Not at all</i>	<i>Several days</i>	<i>More than one half of the days</i>	<i>Nearly every day</i>
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 asleep 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 have noticed. Or the opposite—being so fidgety 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 in some way	0	1	2	3

If you have had any of these problems, how difficult have they 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
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Scoring instructions: The total PHQ-9 score is the sum of the scores for the responses to questions 1 through 9.

Interpreting the score to determine severity of depression:

- 0 to 4 = no symptoms or minimal symptoms
- 5 to 9 = minor symptoms
- 10 to 14 = moderate symptoms
- 15 to 19 = moderate to severe symptoms
- 20 or more = severe symptoms

Previously used criteria for diagnosing depression:

1. Depression diagnosis = symptoms frequency of “more than one half of the days” or “nearly every day” for Question 1 or 2 and Five or more of questions 3 through 9 (question 9 counts if answer is “several days” or more often). These criteria have a sensitivity of 73 percent and a specificity of 96 percent for depression.
2. PHQ-9 score $\geq$ 10. This score has a sensitivity of 88 percent and a specificity of 88 percent for depression.

Appendix D - Permission for use of Revised Depression Attitude Questionnaire

From: "Haddad, Mark" <Mark.Haddad.1@city.ac.uk>
Subject: RE: Permission for use of R-DAQ
Date: July 7, 2015 at 10:12:25 AM EDT
To: SWH33 <swh33@georgetown.edu>

Dear Sally,

Yes certainly. You are welcome to use this questionnaire.

I am attaching the scale and the article describing development, factor structure and scoring.
I hope your study goes well.

Best wishes, Mark

Dr Mark Haddad
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-----Original Message-----

From: SWH33 [mailto:swh33@georgetown.edu]
Sent: 06 July 2015 18:47
To: Haddad, Mark
Subject: Permission for use of R-DAQ

Hello,

I would like to request permission to use your tool the Revised DAQ for my capstone project that I will be doing for Georgetown University this upcoming fall. I intend to use the questionnaire on nurse practitioners in primary care in practice less than 3 years.

Thank you for your consideration.

Sally Huey FNP-BC

Appendix E – Revised Depression Attitude Questionnaire

	Please read the statement and tick/click the box that relates best to your personal opinion	Strongly Disagree	Disagree	Neither Disagree Nor agree	Agree	Strongly Agree
1	I feel comfortable in dealing with depressed patients' needs					
2	Depression is a disease like any other (e.g. asthma Diabetes)					
3	Psychological therapy tends to be unsuccessful with People who are depressed					
4	Antidepressant therapy tends to be unsuccessful With people who are depressed					
5	One of the main causes of depression is a lack of self-discipline and will-power					
6	Depression treatments medicalize unhappiness					
7	I feel confident in assessing depression in patients					
8	I am more comfortable working with physical illness than with mental illnesses like depression					
9	Becoming depressed is a natural part of being old					
10	All health professionals should have skills in recognizing and managing depression					
11	My profession is well placed to assist patients with depression					
12	Becoming depressed is a way that people with poor stamina deal with life difficulties					
13	Once a person has made up their mind about taking their own life no one can stop them					
14	People with depression have care needs similar to other medical conditions like diabetes, COPD, or arthritis					
15	My profession is well trained to assist patients with depression					
16	Recognizing and managing depression is often an important part of managing other health problems					
17	I feel confident in assessing suicide risk in patients presenting with depression					
18	Depression reflects a response that is not amenable to change					
19	It is rewarding to spend time looking after depressed patients					
20	Becoming depressed is a natural part of adolescence					
21	There is little to be offered to depressed patients who do not respond to initial treatments					
22	Anyone can suffer from depression					

Appendix F - Demographic Questions

1. What is your age?
 - a. 20-25
 - b. 26-30
 - c. 31-35
 - d. 36-40
 - e. 41-45
 - f. 51 or older
2. What is your gender?
 - a. Female
 - b. Male
3. Would you describe yourself as
 - a. Caucasian
 - b. African American
 - c. Hispanic
 - d. Other
4. In which geographical region do you practice?
 - a. Northeast
 - b. South
 - c. Midwest
 - d. West
5. How many years have you practiced as an advanced practice clinician?
 - a. Less than 1 year
 - b. 1-2 years
 - c. 2-3 years
6. What advanced practice license do you hold?
 - a. Family Nurse Practitioner
 - b. Certified Nurse Midwife

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