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Knowledge Awareness of Depression Screening in Individuals with Chronic Liver Disease among Healthcare Providers in Miami, Florida: A Quality Improvement Project

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Knowledge Awareness of Depression Screening in Individuals with Chronic Liver
Disease among Healthcare Providers in Miami, Florida: A Quality Improvement Project

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By

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Abstract

Depression is a significant public health issue that affects over 350 million people worldwide. Depression has been associated with decreased cognitive function and medication compliance in individuals with chronic liver disease (CLD); however, research indicates a lack of depression screening in this population among healthcare providers in the United States (U.S.). The purpose of this quality improvement project was to increase knowledge awareness of depression screening in individuals with CLD among healthcare providers in Miami, Florida. A descriptive, cross-sectional, pre- and posttest design was employed to conduct this project. Convenience sampling technique was utilized to recruit $N = 18$ participants and access data at a large hospital in Miami, Florida. The project, including the research-based educational intervention, was conducted remotely and participants completed demographic, pre-, and posttest surveys using Qualtrics and the modified Late-Life Depression Quiz (LLDQ) to assess their knowledge of awareness of depression screening in individuals with CLD. Results revealed a significant difference between pre- and posttest results, with an overall increase in knowledge awareness among healthcare providers after an educational intervention, $t(17) = 4.533$, $p = 0.001$, ($p < 0.05$). Healthcare providers should receive training in this area to reduce depression and improve health outcomes in populations with CLD.

Keywords: nursing research, depression, screening, chronic liver disease, knowledge awareness

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INTRODUCTION

Depression is a significant public health issue that affects over 350 million people worldwide (Lotfaliany et al., 2018). It is also considered the most important risk factor for suicide and disability (Lotfaliany et al., 2018). Depression is on the rise globally, affecting nearly 10% of older adults (Ni et al., 2020). Furthermore, depression is three times more common in individuals with chronic diseases (Haddad et al., 2017). Both the World Health Organization and the National Institute of Health have highlighted the significant role of depression screening in individuals with chronic conditions; however, individuals with chronic liver disease (CLD) are under screened for depression (Lotfaliany et al., 2018). Healthcare providers overlook depression in patients with CLD due to knowledge deficits, time constraints, and social stigma associated with mental illness (Christensen et al., 2020).

Chronic liver disease (CLD) is a health condition where individuals are significantly affected by depression. The disease damages the liver over time and could lead to liver fibrosis, cirrhosis, liver failure, or hepatocellular carcinoma (Huang et al., 2017). Etiologies associated with CLD include alcoholism, chronic hepatitis B and C virus infection, non-alcoholic fatty liver disease (NAFLD), hemochromatosis, autoimmune hepatitis, Wilson's disease, primary biliary cholangitis, and primary sclerosing cholangitis (Zhou et al., 2014). Over the past decade, NAFLD has become the leading cause of CLD in the United States (U.S.; Zhou et al., 2014). Individuals with CLD do not only suffer from medical complications, but they also struggle with depression and anxiety (Huang et al., 2017). Although depression could lead to disability,

suicide, or mortality, this population is it often underscreened for depression (Huang et al., 2017).

Other consequences of depression include cognitive and behavioral problems. Depression has been associated with poor cognitive function in individuals with liver cirrhosis (Anand & Selvi, 2017). In addition, cognitive impairment from depression is one of several contributing factors for increased mortality in this population (Anand & Selvi, 2017). Depression could also lead to medication nonadherence and medical complications in individuals with CLD (Anand & Selvi, 2020). Health complications in individuals with CLD include portal hypertension and hepatic encephalopathy, both of which could cause alterations in mental status. Therefore, medication compliance is essential in this population to prevent medical complications and reduce hospital admissions (Korean Association for the Study of Liver Disease, 2020; Seraj et al., 2017). Healthcare providers should particularly screen for depression in individuals with CLD who are noncompliant with treatment (Anand & Selvi, 2017).

Major depressive disorder (MDD) negatively affects an individual's mood, thoughts, and behaviors. Anhedonia or anergia is present in individuals with depression for a minimum of two weeks (Maurer et al., 2018). Other signs or symptoms of depression include sleep disturbances, changes in eating habits, irritability, agitation, anxiety, social isolation, or suicidal ideation (Maurer et al., 2018). Over $210 billion were spent on treating depression in 2018 in the U.S. (Maurer et al., 2018). From 2012 to 2013, the American Academy of Family Physicians (AAFP) conducted a survey of 33,000 patient encounters resulting in less than 5% of patients being screened for depression (Maurer et al., 2018). Given these facts, depression screening is essential in

individuals with CLD. The purpose of this quality improvement project was to increase

healthcare providers' knowledge awareness of the importance of screening for depression

in individuals with chronic liver disease (CLD) at a large hospital in Miami, Florida.

Problem Statement

Current literature indicates a lack of depression screening in individuals with

CLD among healthcare providers in the U.S. (Anand & Selvi, 2017; Christensen et al.,

2020; Huang et al., 2017). Depression, considered a leading disability globally, has been

associated with poor cognitive function and low medication adherence in individuals with

CLD (Anand & Selvi, 2017; Lotfaliany et al., 2018). Although depression contributes to

adverse health outcomes including suicide mortality rates, individuals with CLD are

underscreened for depression in the U.S. (Huang et al., 2017). This quality improvement

project was conducted to assess healthcare providers' knowledge awareness of depression

screening in individuals with CLD.

Advanced Literature Review

The purpose of this quality improvement project was to increase knowledge

awareness among healthcare providers regarding the importance of screening for

depression in individuals with chronic liver disease (CLD) at a large hospital in Miami,

Florida. A literature review was conducted to identify gaps in the literature related to the

research problem using the Cumulative Index to Nursing and Allied Health Literature

(CINAHL) ($n = 17$), Public/Publisher Medline (PUBMED) ($n = 30$), and PsycINFO ($n = $

8). Key terms included "depression screening," "depression screening knowledge,"

"chronic diseases," and "CLD." The search was limited to full-text articles published

within the last 5 years (from 2016 to 2021) and written in English. Articles with relevant

concepts, such as depression screening, healthcare provider knowledge, and depression in individuals with CLD or other chronic diseases were selected. Twelve articles addressed the problem of interest, PICO clinical questions, and purpose of the quality improvement project. Based on these articles, gaps in the literature and three content areas were identified: (a) depression in individuals with CLD or other chronic diseases; (b) depression screening among healthcare providers in the United States and internationally; and (c) knowledge awareness of depression screening among healthcare providers.

Depression in Individuals with CLD or Other Chronic Diseases

This content area analyzes depression in individuals with CLD and other chronic conditions. Investigators examined the incidence of depression in CLD populations in Africa, Asia, Europe and the U.S. Five studies were identified in this content area. The studies were placed in chronological order by year. Peng et al. (2019) used Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) to conduct a systematic literature review and meta-analysis and assessed depression and anxiety symptom prevalence among individuals with end stage liver disease in the United Kingdom. Relevant literature from 1980 to 2018 was searched, with no language restrictions. A total of 80 observational studies were included in the study, 35 of which addressed depression and anxiety symptom prevalence while 41 assessed quality of life as it related to health. The results revealed that the prevalence of depression was as high as 64% and the prevalence of anxiety was as high as 45% in individuals with end stage liver disease. Although other symptoms were reported, depression and anxiety were significant symptoms in this population, affecting their quality of life. Peng et al. (2019),

therefore, recommended healthcare providers to screen for mental health conditions in patients with end stage liver disease.

Hsu et al. (2019) analyzed major depressive disorder (MDD) and associated risk factors among individuals with CLD in Taiwan. Researchers collected data from 766,427 patients over the age of 18 years from 2006 to 2010. Data were extracted from the National Health Research Institute database. Hsu and colleagues employed an empirical, quantitative research design. Data analysis also included logistic regression, which was used to calculate the prevalence of CLD among those with MDD and the general population. Cox regression was employed to calculate the incidence of CLD in patients with MDD according to age group and sex. Results revealed that that those with MDD had a higher prevalence of CLD, especially older males with diabetes, hypertension, and hyperlipidemia, all of which are also risk factors for nonalcoholic fatty liver disease (NAFLD) (Lotfaliany et al., 2018). These findings thus suggest that there is indeed a high incidence of MDD in patients with CLD. Hsu et al. (2019) recommended for early detection through depression and anxiety screening as well as for comprehensive treatment of the conditions once identified.

Heranez et al. (2020) conducted a quantitative, cross-sectional study to assess the prevalence of depression and anxiety among patients with liver cirrhosis in three hospital systems in Texas. Patients were identified using ICD-9 and ICD-10 codes; patients who spoke languages other than English and Spanish were also included. The PHQ-9 was used to screen patients for depression and interviews were conducted over the telephone. A total of 2,875 patients were identified, of whom only 1,021 completed the initial mailed survey. Multivariate logistic regression was used to analyze factors associated

with depression and anxiety. The median PHQ-9 score for the cohort was 7. Moderately severe depression was found in 11.3% of the patients, while severe depression was found in 4.3%. A multivariable analysis was conducted, with the results showing that those who reported having bad health, being a widow, or having a fear of suffering from hepatocellular carcinoma were associated with having moderate to severe depression. The study concluded that 1 in 6 patients with liver cirrhosis also had moderate to severe depression, and almost 50% had moderate to severe anxiety. Heranez and colleagues (2020), therefore, recommended that patients with liver cirrhosis should be screened for depression and anxiety to assess their potential need for mental health counseling.

Wang et al. (2019) conducted a quantitative, randomized control trial to investigate the extent to which an educational program on anxiety and depression improved quality of life among 136 patients with hepatocellular carcinoma who had undergone resection in a hospital in Wuhan, China, from January 2014 to December 2015. Subjects were randomly assigned to control and experimental groups in a 1:1 ratio. The intervention group received health education, training in care practices, telephone condolences, and psychological care. Anxiety and depression were assessed using the Hospital Anxiety and Depression Scale (HADS), and quality of life was assessed using the European Organization for Research and Treatment of Cancer (EORTC) quality of life questionnaire. The results of Wang and colleagues' study were displayed using means and standard deviations, and comparisons between the intervention and control groups were performed via an independent-samples t-test and chi-square test. The researchers concluded that the median overall survival rate was higher in the intervention group than in the control group: 37.0% and 32.0% ($p = 0.26$), respectively. Overall, the

researchers recognized that depression is a salient issue in patients with CLD, one that affects quality of life and, if not properly addressed, can increase mortality. Wang et al. also recommended healthcare providers develop educational interventions for patients with CLD and cancer to improve their quality of life.

Buganza-Torio et al. (2019) conducted a quantitative, non-experimental, observational analytic, prospective cohort study to evaluate the prevalence of depression in patients with cirrhosis using the Mini International Neuropsychiatric Interview (MINI) versus the Hospital Anxiety and Depression Scale (HADS). The study was conducted in Edmonton, Alberta, Canada. Overall, the authors hoped to develop a screening nomogram for use in depression screening among patients with liver cirrhosis. The authors also set out to describe the association between depression, morbidity, and mortality. Patients were recruited from tertiary centers. A total of 305 patients, of whom 62% were male, were recruited. The patients were given two different surveys to complete. Statistical analysis was conducted using STATA v12.0. Results were used to develop a nomogram to identify the probability of depression in patients with liver cirrhosis. Future studies should developed nomograms to predict the probability of depression in patients with liver cirrhosis. Depression screening should be included in the assessment of patients with chronic conditions. The study also contended that screening questionnaires should be different for patients with liver cirrhosis in order to account for the component of hepatic encephalopathy.

A synthesis of the literature related to depression in individuals with CLD or other chronic diseases indicates a high incidence of depression among CLD patients, as demonstrated in the study by Hsu et al. (2019) in the context of Taiwan. This correlation

has also been recognized in the U.S. Likewise, Heranez et al. (2020) also provided evidence for the high prevalence of depression in patients with CLD. Further, Peng et al. (2019) demonstrated that depression negatively affects quality of life in patients with CLD in the UK. In addition, Buganza-Torio et al. (2019) reported that screening tools should be diverse among patients with CLD. Therefore, it is of great importance to screen patients with CLD for depression, as routine screening and educational interventions have been shown to improve their overall survival rate (Wang et al., 2019).

Depression Screening Among Healthcare Providers in the US and Internationally

This content area examines depression screening in the U.S. and worldwide. Researchers evaluated the incidence of depression screening performed by healthcare providers. The three articles in this content area were listed in chronological order by year.

Moise et al. (2019) conducted a randomized control trial aimed at comparing depression screening strategies among those with acute coronary syndrome to assess quality of life and cost outcomes over the course of 18 months. The study was conducted in New York but included patients from partner hospitals in Minnesota, North Carolina, and Oregon. A total of 1,500 patients were randomly assigned to groups: (a) received depression screening and provider notifications linked to depression treatment; (b) received depression screening and only notification with no linkage to care; and (c) received no depression screening. The PHQ-8 and PHQ-9 were utilized to assess and screen for depression. The primary outcome of the trial demonstrated differences in quality of life among subjects from baseline through 18 months. Depression was discovered in 7.7% of those in the first group and 6.6% of those in the second group. As

patients with known depression were excluded, a lower incidence of depression was reported among those with acute coronary syndrome following an episode. Moise et al. highlighted the importance of depression screening interventions among those with chronic diseases and the impact of depression on quality of life.

Akincigil and Matthews (2017) conducted a secondary data analysis using the results from the 2012 and 2013 National Hospital Ambulatory Medical Care Survey (NHAMCS) of 33,653 physician-patient encounters in the primary care setting in the U.S. Univariate statistics were used to describe the study, and bivariate differences in rates of depression screening were calculated using Pearson's chi-squared test. In addition, multivariate logistic regression was used to estimate the probability of screening based on sex, gender, and race or ethnicity. Results revealed that providers with electronic medical records (EMRs) were more likely to screen for depression and that depression rates were consequently lower than those without EMRs. However, only 4.2% of adults were actually screened for depression, of whom 47% were newly diagnosed with depression. Akincigil and Matthews (2017) also concluded that African Americans were 50% less likely than non-Hispanic Whites to be screened, and individuals ages 65 or older were also less likely to be screened. Additionally, females were likely to be screened more often than males as well as those with multiple medical conditions. The authors recommended more comprehensive and inclusive screening in the primary care setting, where the bulk of depression care is provided. Screening was shown to be influenced by the suspicion of depression or the observance of symptoms but was not part of a standardized process.

Huang et al. (2017) conducted a quantitative, observational analytic, cross-sectional study to assess how frequently patients with CLD engage in health-promoting lifestyles and how such lifestyles affect quality of life. The study was carried out at a medical university hospital in Taiwan and included 148 patients with liver cirrhosis. The Taiwanese version of the Short Form Health Survey questionnaire (SF-36) was distributed to patients for self-administration. Hierarchical linear regression was used to identify the effects of health-promoting lifestyle modifications on the quality of life of patients. The mean age of patients, most of whom were married males, was 50. Huang et al. (2017) found that patients with a high depression score also suffered from poor physical health and shared common characteristics, such as being unmarried, divorced, or widowed, in addition to having lower income and educational levels. Furthermore, the study supports the assertion that those with chronic diseases experience high levels of psychological distress. Huang and colleagues (2017) concluded that to properly manage and improve quality of life in patients with liver cirrhosis, healthcare providers should screen for depression and work to develop health-promoting interventions aimed at improving mental health.

A synthesis of the literature related to depression screening among healthcare providers in the U.S. and internationally suggests that such screening is insufficiently conducted. It has been recognized in the relevant literature that to improve quality of life in patients with CLD, depression screening should be routinely performed in clinical settings. According to Huang et al. (2017), healthcare providers should actively and routinely screen for depression and develop programs that promote a healthy lifestyle.

Moise et al. (2019) found that when depression screening is conducted and patients with chronic diseases are provided with sufficient care, their quality of life can be improved.

Knowledge Awareness of Depression Screening Among Healthcare Providers

This content area examines knowledge awareness of depression screening among diverse healthcare providers. Researchers analyzed knowledge awareness of depression among healthcare providers. Four studies were identified under this content area. The studies were placed in chronological order by year. Depression screening is often overlooked in the management of patients with chronic diseases due to barriers such as lack of adequate knowledge of the topic or social stigma of psychiatric illness (Christensen et al., 2020). Ni et al. (2020) conducted a cross-sectional study to assess knowledge of late-life depression as well as attitudes toward depression among nurses at three hospitals in Taiwan. A total of 307 nurses were included in the study via convenience sampling and were asked to complete a self-reported questionnaire. The authors used the Late-Life Depression Quiz and the Revised Depression Attitude Questionnaire (R-DAQ). Ni and colleagues (2020) used step-wise regression to explore associations between nurses' attitudes toward depression, demographic factors, and knowledge of late-life depression; a p-value less than 0.05 was considered statistically significant. The researchers found that most of the nurses were women (98%) and had a bachelor's degree (61.2%). Around 66.4% had never taken depression classes while in school and, in the last year, 72.6% had not attended an in-service course or class on depression. Only 62.2% of the nurses had provided care to patients with symptoms of depression. Overall, only 55.15% of the nurses had knowledge of late-life depression, which was considered insufficient by the researchers. The researchers concluded that

nurses' attitudes toward caring for depression patients were significantly different when they had attended a class or an in-service course on depression. Ni et al. (2020) also identified a positive relation between the level of interest in nursing and knowledge of late-life depression. Ni and colleagues (2020) recommended in-service training to improve knowledge concerning depression screening, which could, in turn, improve the nurses' attitudes toward depression.

Mulango et al. (2018) conducted a cross-sectional, quantitative study intended to assess knowledge of and attitudes toward depression screening among primary healthcare providers in Fako Division, Cameroon. Participants were selected using consecutive convenience sampling. A total of 400 primary healthcare providers were initially selected, of whom only 226 returned a completed self-administered questionnaire. The authors used the Depression Attitude Questionnaire (DAQ) to collect information from nurses, pharmacy attendants, social workers, and practitioners. Statistical analysis was conducted and associations were assessed using chi-square and Fisher's exact tests, with statistical significance set to $p < 0.05$. The majority of the respondents were nurses ($n = 184$). Mulango and colleagues concluded that primary healthcare providers had limited knowledge about depression and negative attitudes toward depression screening. The vast majority of respondents (85.8%) agreed that depression could be treated with both medication and psychotherapy. However, almost two-thirds (67.3%) believed that depression could be resolved without treatment. Furthermore, only 12% were actively screening for depression, and only 1.8% used a standardized tool to assess and screen for depression. The authors therefore recommended increased training in depression screening and improved management of the condition.

Long et al. (2019) conducted a systematic review of different interventions among healthcare providers to improve screening for postpartum depression. PRISMA was used to select research articles for the review. Only works conducted in the U.S. were selected, with the search yielding a total of 25 articles. All of the selected studies had implemented an intervention intended to improve postpartum depression screening. The majority of the studies (21%) targeted an educational intervention. Notably, these studies reported positive screening rates. The educational interventions ranged from educating mothers to training healthcare providers in order to improve screening for postpartum depression. Long and colleagues (2019) identified one main methodological weakness: a lack of pre-post intervention assessment. Those studies that focused on educational interventions for healthcare providers identified an increase in referrals for and receptivity to screening models or other tools for depression. Long et al. (2019) revealed the clinical problem, a lack of depression screening, and the need for interventions to improve knowledge among healthcare providers concerning depression screening. The authors argued that future studies on educational interventions should include a pre-post intervention assessment.

Lee et al. (2020) conducted a cluster-randomized, controlled clinical trial to assess the effectiveness of multiple brief in-person training sessions to improve nurses' knowledge of, attitudes toward, and confidence in treating individuals with depression in long-term care facilities in northern Taiwan. The authors included 67 nurses, all of whom were over 20 years old and had worked as a nurse for at least one month. The subjects were randomly placed into an intervention group ($n = 30$) and a control group ($n = 37$). Lee et al. (2020) administered the Late-Life Depression Quiz and the R-DAQ to assess

nurses' knowledge pre- and post-intervention. The intervention group was given three 30-minute training sessions. The results of the study were expressed using descriptive statistics and included demographic data and work characteristics. According to Lee and colleagues, all 67 nurses were female, and although over one-half (59.1%) had a bachelor's degree in nursing, these nurses had never taken any classes on the topic of depression. Additionally, 63.6% had never received in-service training on depression. Lee et al. found that the mean gain score, represented in standard deviations, for the intervention group was significantly higher than that for the control group for all three variables: knowledge (3.37/0.03), attitude (6.93/ -1.50), and confidence (5.87/1.33). In conclusion, the mean Late-Life Depression Quiz and R-DAQ scores increased among those in the intervention group after receiving the intervention. The authors thus recommended the administration of brief in-person training sessions to improve nurses' knowledge of, attitudes toward, and confidence in care practices for those with depression.

The literature recognizes the importance of depression screening in patients with CLD due to the increased incidence of depression in this population as well as the detrimental effects on their quality of life. Additionally, the literature acknowledges that insufficient screening is being conducted by healthcare providers. A lack of knowledge awareness, negative attitudes toward depression, and a lack of training in depression screening contributes to the clinical problem. Several studies in this area focused on late-life depression or general depression among pediatric or post-partum populations. In addition, those studies that emphasized the importance of interventions for improving knowledge awareness of depression screening were mainly conducted outside of the U.S.

Therefore, more research needs to be conducted in this area to improve health outcomes in CLD populations in Miami, Florida and the U.S.

As Miami is a melting pot of multiple ethnicities, particularly those of Hispanic descent, it would be especially valuable to discover differences between healthcare providers' ethnicity and knowledge awareness of depression screening. With this in mind, the researcher intends to increase knowledge awareness of depression screening in individuals with CLD among healthcare providers in Miami, Florida. The purpose of this quality improvement project was to increase knowledge awareness among healthcare providers regarding the importance of screening for depression in individuals with chronic liver disease (CLD) at a large hospital in Miami, Florida. This type of quality improvement project has not yet been implemented in Miami, Florida to this researcher's knowledge. If a quality improvement project is not conducted to increase healthcare provider's knowledge awareness of depression screening in individuals with CLD, then depression and suicide mortality rates could rise in this population.

<div align="center">**Significance**</div>

This project was significant in the discipline of nursing. It had implications for nursing practice, research, and health policy.

Significance to Nursing Practice

Nurses are frontline healthcare workers as they interact more with patients both in inpatient and outpatient settings than any other healthcare provider. Therefore, nurses are in a unique position to screen for depression in individuals with CLD. However, the literature suggests knowledge deficits among healthcare providers regarding the significant role of depression screening in individuals with CLD (Christensen et al.,

2020). This researcher was committed to improving healthcare outcomes in populations with CLD. This quality improvement project increased knowledge awareness of depression screening in individuals with CLD among healthcare providers at a large hospital in Miami, Florida. The hospital is striving for magnet status and excellence in patient care; therefore, this quality improvement project contributed to the hospital's goal.

Significance to Nursing Research

To this investigator's knowledge, there was limited nurse practitioner-led research on depression screening among healthcare providers in Miami, Florida. More specifically, there was no nurse practitioner-led research on depression screening in individuals with CLD at a large hospital in Miami, Florida. If nurses do not conduct research in this area, then the profession will fall short on nursing interventions in the care of CLD populations. The National Institute of Health Nursing Division is currently prioritizing nursing research and translational science that investigates health behaviors, quality of life, and health disparities (National Institutes of Health [NIH], 2020). This project filled in clinical gaps in the area of depression in individuals with CLD.

Significance to Health Policy

Based on the findings of this study, the hospital should develop a policy or protocol mandating healthcare providers to screen for depression in patients with CLD. Healthcare providers should screen this population for depression and refer patients to mental health specialists in a timely manner by following the new protocol. Instituting a protocol will facilitate and improve the care of patients with CLD all while improving healthcare outcomes in CLD populations.

Purpose

The purpose of this project was to increase knowledge awareness among healthcare providers regarding the importance of screening for depression in individuals with chronic liver disease (CLD) at a large hospital in Miami, Florida.

Population, Intervention, Comparison and Outcome (PICO) Clinical Questions

1. Is there a significant difference between pre- and posttest scores among healthcare providers at a large hospital in Miami, Florida after an educational intervention?

    Ha1: There is a significant difference between pre- and posttest scores among healthcare providers at a large hospital in Miami, Florida after an educational intervention.

2. Do healthcare providers 30 years or older have higher knowledge awareness of depression screening than younger healthcare providers at a large hospital in Miami, Florida after an educational intervention?

3. Do female healthcare providers have higher knowledge awareness of depression screening than male healthcare providers at a large hospital in Miami, Florida after an educational intervention?

4. Is there a difference between ethnicity and knowledge awareness of depression screening among healthcare providers at a large hospital in Miami, Florida after an educational intervention?

5. Do healthcare providers with a bachelor's degree or above have higher knowledge awareness of depression screening than healthcare providers

without a bachelor's degree at a large hospital in Miami, Florida after an

educational intervention?

Definition of Terms

The variables of this project were knowledge awareness, healthcare providers,

age, gender, ethnicity, and level of education. The project variables are described in the

subsequent paragraphs.

Knowledge Awareness

This variable referred to healthcare providers' knowledge awareness of

depression screening in individuals with CLD at a large hospital in Miami, Florida. The

researcher used the Late-Life Depression Quiz (LLDQ) developed by Pratt et al. (1992)

to quantify this variable. Three additional questions were included to measure healthcare

providers' knowledge awareness of depression screening in individuals with CLD.

Healthcare Providers

This nominal variable referred to employees that provide direct patient care to

patients with CLD at a large hospital in Miami, Florida The study variable was classified

as follows: (a) medical assistant (MA); (b) licensed practical nurse (LPN); (c) registered

nurse (RN); (d) advanced practice registered nurse (APRN); (e) physician assistant (PA);

and (f) physician (MD or DO).

Age

This variable referred to the age of the healthcare provider at a large hospital in

Miami, Florida. Age is a ratio variable. This demographic variable was grouped as

follows: (a) 18 to 29 years old; (b) 30 to 44 years old; and (c) 45 years and older.

Gender

This nominal variable referred to sex of the healthcare provider at a large hospital in Miami, Florida. This demographic variable was categorized as follows: (a) female or (b) male.

Ethnicity

This variable referred to the ethnicity of the healthcare provider at a large hospital in Miami, Florida. Ethnicity is a demographic and nominal variable. This variable was categorized as follows: (a) non-Hispanic White; (b) non-Hispanic Black; (c) Hispanic; and (d) Other Ethnicity.

Level of Education

This variable referred to the highest degree attained by the healthcare provider at a large hospital in Miami, Florida. It was a nominal variable. The demographic variable was categorized as follows: (a) vocational certificate or diploma; (b) associate degree; (c) bachelor's degree; (d) master's degree; or (e) doctoral degree.

Conceptual Underpinning of the Project

This project was conducted under the positivist paradigm. The researcher measured knowledge awareness of depression screening in individuals with CLD among healthcare providers at a large hospital in Miami, Florida before and after an educational intervention. As a positivist, this researcher assumed that knowledge awareness of depression screening increased among healthcare providers at a large hospital in Miami, Florida after an educational intervention. This researcher used the scientific method to analyze data and examine results of this project.

Theoretical Framework of the Project

The researcher used Jean Watson's theory of caring to guide the quality improvement project. Watson developed the theory in 1979 during her doctoral studies (Sitzman & Watson, 2018). Watson's theory of caring is held by 10 constructs or "caritas processes:" embrace, inspire, trust, nurture, forgive, deepen, balance, co-create, minister, and open (Sitzman & Watson, 2018).

According to Petiprin (2020), Watson's model has seven assumptions: (a) caring can be effectively demonstrated and practiced only interpersonally; (b) caring consists of carative factors that result in the satisfaction of certain human needs; (c) effective caring promotes health and individual or family growth; (d) caring responses accept the patient as he or she is now, as well as what he or she may become; (e) a caring environment is one that offers the development of potential while allowing the patient to choose the best action for him or herself at a given point in time; (f) a science of caring is complementary to the science of curing; and (g) the practice of caring is central to nursing.

The discipline of nursing is a field of caring, and as such, nurses and healthcare providers will be driven to increase depression screening in individuals with CLD. With this in mind, increasing depression screening in individuals with CLD could improve patient outcomes in this population as described in Watson's theory of caring (Sitzman & Watson, 2018). The passion to care inspires the healthcare provider to increase healthcare outcomes in individuals, families, and communities. In addition, teaching healthcare providers about the significant role of depression screening in individuals with CLD correlates with Watson's concept of improving health outcomes (Sitzman & Watson, 2018).

DNP PROJECT REPORT

METHODOLOGY

The purpose of this quality improvement project was to increase knowledge awareness among healthcare providers regarding the importance of screening for depression in individuals with chronic liver disease (CLD) at a large hospital in Miami, Florida**.** This researcher conducted an advanced literature review and identified gaps in the literature. Findings from the literature review were also used to develop PICO clinical questions and provide justification for conducting this quality improvement project. This section explores the design, setting, sample, inclusion and exclusion criteria, intervention, measures and instruments, data collection procedures, data analysis, and protection of human subjects.

Study Design

This researcher utilized a quantitative, descriptive, cross-sectional, pre and post-test design. These designs are described in the next paragraphs.

Quantitative Research

Polit and Beck (2017) outlined the focus of quantitative research as the gathering of numerical data through a scientific investigation of a phenomenon. This researcher investigated knowledge awareness of depression screening in individuals with CLD among healthcare providers at a large hospital in Miami, Florida. The investigator collected demographic data from healthcare providers, as well as used the modified Late Life Depression Quiz (LLDQ) to quantify knowledge awareness using Qualtrics. Differences between the variables were analyzed using the Statistical Package for the Social Sciences (SPSS) version 23.0.

Descriptive Design

According to Polit and Beck (2017), the main purpose of descriptive research is to observe, describe, and document a situation as it occurs. This researcher was interested in exploring depression screening in individuals with CLD among healthcare providers. The investigator collected data and explored this phenomenon to increase healthcare outcomes in this population.

Cross-Sectional Design

This researcher used a cross-sectional study design to survey participants at a single point in time. A cross-sectional study is an observational study that analyzes data from a population at a specific point in time (Polit & Beck, 2017).

Pre- and Posttest Design

A pre- and posttest design was utilized to measure changes in knowledge awareness of depression screening in individuals with CLD among healthcare providers. Knowledge awareness was measured before and after an educational intervention. The researcher used the modified Late-Life Depression Quiz (LLDQ) by Pratt et al. (1992) to quantify knowledge awareness.

Population, Intervention, Comparison, and Outcome (PICO) Clinical Questions

1. Is there a significant difference between pre- and posttest scores among healthcare providers at a large hospital in Miami, Florida after an educational intervention?

   Ha1: There is a significant difference between pre- and posttest scores among healthcare providers at a large hospital in Miami, Florida after an educational intervention.

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4. Is there a difference between ethnicity and knowledge awareness of depression screening among healthcare providers at a large hospital in Miami, Florida after an educational intervention?

5. Do healthcare providers with a bachelor's degree or above have higher knowledge awareness of depression screening than healthcare providers without a bachelor's degree at a large hospital in Miami, Florida after an educational intervention?

Setting

This researcher particularly conducted the quality improvement project at a large hospital in Miami, Florida.

Sample

The estimated sample size was $N = 30$ based on experience while working at the large hospital in Miami, Florida. A convenience sampling method was used to recruit participants and access data. Polit and Beck (2017) defined convenience sampling as a non-probability method in which the sample is obtained from a group of people that is easy to reach.

Inclusion Criteria

Healthcare providers who work at a large hospital in Miami, Florida and are over the age of 18 years were considered for the study. Only those who provide direct care to individuals with CLD were allowed to participate in the study. Only healthcare providers who were employed as MA, LPN, RN, APRN, PA and MD or DO were allowed to participate in the study.

Exclusion Criteria

Healthcare providers who did not work at this large hospital in Miami, Florida were not able to participate in the study. Individuals who were under the age of 18 years were excluded. Healthcare providers who worked as patient access were not allowed to participate in the study.

Intervention

Florida International University (FIU) Institutional Review Board (IRB) approval was obtained prior to data collection. In addition, IRB approval was also obtained from a large hospital in Miami, Florida prior to data collection. Permission from the nursing management team was obtained, and invitations to potential participants were sent via email. Technology was used to conduct this project; the purpose and objectives of this project were communicated via email to potential participants. Therefore, potential participants were provided with an overview of the project in advance and allowed to make informed decisions about participating in the study.

After they consented to participate in the project, participants completed an online demographic questionnaire and a pretest survey to assess their knowledge awareness of depression screening in individuals with CLD using Qualtrics. After completion of the

online pretest survey, participants watched a 7-minute voiceover PowerPoint presentation with the goal of increasing their knowledge awareness of depression screening in individuals with CLD. The voiceover PowerPoint presentation was research-based and stressed on the significant role healthcare providers play on depression screening in individuals with CLD. Immediately after the PowerPoint presentation, participants completed an online posttest survey to reassess their knowledge awareness of depression screening in individuals with CLD using Qualtrics. The pre- and post-test surveys were the modified Late-Life Depression Quiz (LLDQ).

Measures and Instruments

Demographic data was collected using a researcher-developed demographic instrument and included: age ((a) 18 to 29 years old; (b) 30 to 44 years old; and (c) 45 years and older); gender ((a) female or (b) male); ethnicity ((a) non-Hispanic White; (b) non-Hispanic Black; (c) Hispanic; and (d) Other Ethnicity); level of education ((a) vocational certificate or diploma; (b) associate degree; (c) bachelor's degree; (d) master's degree; or (e) doctoral degree); and years of experience in the current role ((a) 0 to 1 year; (b) 2 to 3 years; and (c) 4 or more years).

Knowledge awareness of depression screening in individual with CLD among healthcare providers at a large hospital in Miami, Florida was quantified using an instrument. The Late-Life Depression Quiz (LLDQ) developed by Pratt et al. (1992) was used to measure knowledge awareness. The initial LLDQ has a reliability of 0.85. Three additional questions were included to measure healthcare providers' knowledge awareness of depression screening in individuals with CLD: *1. Are patients with chronic liver disease (CLD) prone to depression?; 2. Can depression lead to poor medication*

compliance in individuals with CLD? 3. Is it important to screen for depression in

patients with CLD? The responses to the questions were (a) yes; (b) no; or (c) don't

know. One point was assigned to the correct answer, and zero points were assigned for an

incorrect answer. The lowest score passible was a zero and the highest score passible was

16. The modified LLDQ was used to collect and assess data before and after the

educational intervention.

Data Collection Procedures

Institutional Review Board (IRB) approval from FIU and from a large hospital in

Miami, Florida was obtained. This researcher also obtained permission from the nursing

managing team at a large hospital in Miami, Florida to conduct the quality improvement

project. Convenience sampling method was used to recruit participants and access data at

a large hospital in Miami, Florida. An email was sent to potential participants, explaining

the purpose and objectives of the quality improvement project with a link to the survey

via Qualtrics. Participants first completed an online demographic survey that collected:

age ((a) 18 to 29 years old; (b) 30 to 44 years old; and (c) 45 years and older); gender ((a)

female or (b) male); ethnicity ((a) non-Hispanic White; (b) non-Hispanic Black; (c)

Hispanic; and (d) Other Ethnicity); level of education ((a) vocational certificate or

diploma; (b) associate degree; (c) bachelor's degree; (d) master's degree; or (e) doctoral

degree); and years of experience in the current role ((a) 0 to 1 year; (b) 2 to 3 years; or (c)

4 or more years). The participants completed the online LLDQ pretest survey before the

educational intervention, which consisted of a 7-minute voice over PowerPoint

Presentation. The intervention was imbedded in the email and participants completed the

posttest survey online after the educational intervention. Participants took approximately

20 minutes to complete the demographic questionnaire, watch the voice over PowerPoint presentation, and complete the pre- and post surveys using Qualtrics. The researcher administered the project using Qualtrics for 4 weeks or until the estimated sample size of $N = 18$ was reached. This project was conducted over a period of 4 weeks from September 7, 2021 to October 6, 2021.

Data Analysis

The Statistical Package for Social Sciences Program (SPSS) was used for the following tasks: process of data entry, data coding, data cleansing, and data analysis. Data was analyzed using descriptive analysis. The mean (M); median (Mdn); mode; frequency; standard deviation (SD); and range were calculated for the variables. Significant differences between the variables were examined using the t-test. The t-test was used for identifying statistically significant differences between groups and mean values before and after the educational intervention. A p-value < 0.05 was considered statistically significant (Polit & Beck, 2017).

Protection of Human Subjects

Institutional Review Board (IRB) approval from FIU was obtained. In addition, IRB approval was also obtained from a large hospital in Miami, Florida. This researcher ensured research ethics and protection of human subjects was followed during the implementation of the quality improvement project. The investigator also completed the Collaborative Institutional Training Initiative (CITI) ethics certification for the protection of human subjects in social and behavioral research. Data collection was anonymous, and this task was achieved using Qualtrics. Participation in this project was voluntarily; participants could withdraw from the project at any time with no penalty. Potential

participants were provided with an overview of the project, including the purpose and

objectives of the project, prior to participation. No known risk or benefits were associates

with this study. Data was stored on a password-protected USB drive and kept in a locked

file cabinet in the home office of the researcher where only the researcher had access to

the data.

DNP PROJECT REPORT

RESULTS

The purpose of this quality improvement project was to increase knowledge awareness of depression screening in individuals with chronic liver disease (CLD) among healthcare providers at a large hospital in Miami, Florida. Potential participants were invited via e-mail to participate in this quality improvement project. Participants completed a demographic survey and pretest, the modified Late Life Depression Quiz (LLDQ), using Qualtrics. After watching the educational intervention, participants completed posttest surveys, the modified LLDQ using Qualtrics, to assess an increase in knowledge awareness of depression screening in patients with CLD. Data was collected anonymously using Qualtrics. The Statistical Package for Social Sciences Program (SPSS) version 23.0 was used for the following tasks: process of data entry, data coding, data cleansing, and data analysis. This researcher will provide demographic data and findings of the project related to the PICO clinical questions in the sections below.

This quality improvement project was conducted over a period of 4 weeks from September 7, 2021 to October 6, 2021. Two Qualtrics surveys were used; the first one contained the demographic questionnaire and the pre-test using the LLDQ. The second Qualtrics survey contained the post-test, LLDQ. A total of $N = 27$ participants completed the demographic survey and pretest. However, three pretests were incomplete and excluded from data analysis. A total 21 participants completed the posttest. However, one posttest was incomplete and excluded from data analysis. When comparing the unique identifier for the pretest and posttest in the Qualtrics surveys, only $N = 18$

participants completed all surveys. Therefore, the sample size consisted of $N = 18$ participants.

Age distribution varied among the participants (see Table 1). Nearly half of the participants were above 45 years and older. Less than 20% of the participants were 18 to 29 years old, and close to 40% of the participants were 30 to 40 years old.

Table 1

Age Distribution Among Healthcare Providers at a Large Hospital in Miami, Florida (N = 18)

Age	Frequency	Percentage
18 to 29 years	3	16.7%
30 to 44 years	7	38.9%
45 years and older	8	44.4%
Total	18	100.0%

The gender of the participant was classified as male or female. The gender distribution among participants was unequal (see Table 2). Most participants were females, and approximately 30% of males participated in this project

Table 2

Gender Distribution Among Healthcare Providers at a Large Hospital in Miami, Florida (N = 18)

Gender	Frequency	Percentage
Male	5	27.8%
Female	13	72.2%
Total	18	100.0%

Figure 1

Gender Distribution Among Participants (N = 18)

Gender Distribution

■Male
■Female
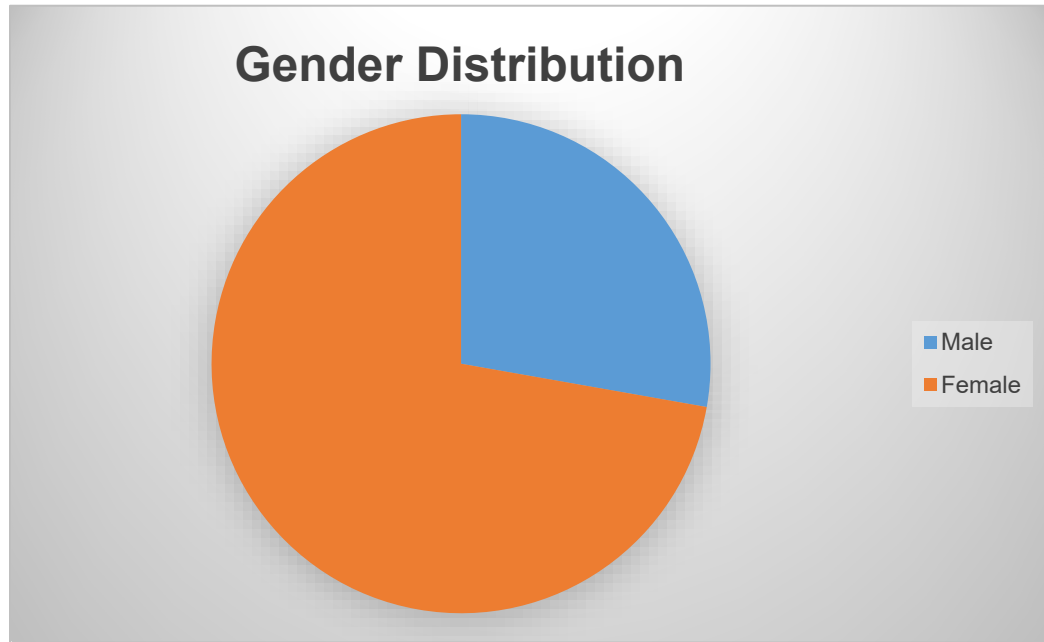
The ethnic distribution among participants varied (see Table 3). More than half of the participants identified as Hispanic. Over a quarter of participants identified as non-Hispanic White, while less than 20% identified as non-Hispanic Black.

Table 3

Ethnic Distribution Among Healthcare Providers at a Large Hospital in Miami, Florida (N = 18)

Ethnicity	Frequency	Percentage
Non-Hispanic White	5	27.8%
Non-Hispanic Black	3	16.7%
Hispanic	10	55.6%
Total	18	100.0%

Furthermore, the educational level of participants varied (see Table 4). Less than 20% of participants attained a vocational certificate, diploma, or associate degree. Nearly 25% of participants held Master's or doctoral degrees, while most attained a bachelor's degree.

Table 4

Educational Level Among Healthcare Providers at a Large Hospital in Miami, Florida (N = 18)

Educational Level	Frequency	Percentage
Vocational certificate or diploma	3	16.7%
Associate Degree	2	11.1%
Bachelor's Degree	5	27.8%
Master's Degree	4	22.2%
Doctoral	4	22.2%
Total	18	100.0%

Role of participants was also unequally distributed (see Table 5). Most participants were registered nurses (RNs). However, fewer than 15% of participants were medical assistants (MAs), licensed practical nurses (LPNs), and advanced practice RNs (APRNs), respectively. Physicians (MD or DO) represented 20% of the sample.

Table 5

Role Among Healthcare Providers at a Large Hospital in Miami, Florida (N = 18)

Role	Frequency	Percent
MA	2	11.1%
LPN	2	11.1%
RN	8	44.4%
APRN	2	11.1%
MD or DO	4	22.2%
Total	18	100.0%

The majority of the participants had been in their role for more than 4 years

(61.1%). Less than 20% of participants had 1 year or less of experience in their role,

while nearly a quarter had 2 to 3 years of experience in their role (see Table 6).

Table 6

Years in Current Role Among Healthcare Providers at a Large Hospital in Miami, Florida (N = 18)

Years of Experience in Current Role	Frequency	Percentage
0 to 1 year	3	16.7%
2 to 3 years	4	22.2%
4 or more years	11	61.1%
Total	18	100.0%

More than half (55%) of the participants reported not completing continuing education or recalling the last time they had continuing education about depression screening. The rest of participants completed continuing education on depression screening over a year ago (see Table 7).

Table 7

Recent Training on Depression Screening Among Healthcare Providers at a Large Hospital in Miami, Florida (N = 18)

Last Educational Intervention	Frequency	Percent
Within the last year	1	5.6%
More than one year ago	3	16.7%
2 or more years ago	1	5.6%
3 or more years ago	2	11.1%
4 or more years ago	1	5.6%
Never or do not recall	10	55.6%
Total	18	100.0%

PICO Clinical Question One

The PICO clinical question was:

1.   Is there a significant difference between pre- and posttest scores among healthcare providers at a large hospital in Miami, Florida after an educational intervention?

    Ha1: There is a significant difference between pre- and posttest scores among healthcare providers at a large hospital in Miami, Florida after an educational intervention.

Results revealed that there was an increase in knowledge awareness among

healthcare providers after a research-based educational intervention at a large hospital in

Miami, Florida (see Table 8 and Table 9). For a sample size of $N = 18$ healthcare

providers, the pretest mean (M) score for number of correct answers among participants

was 10.11. However, the posttest M score (14.28) for number of correct answers among

participants was higher than that of the pretest. These results indicate that participants

scored higher on posttests after an educational intervention than on pretests. Therefore,

participants had an increase in knowledge awareness of depression screening in

individuals with CLD after an educational intervention

Table 8

Paired Sample Descriptive Statistics (N = 18)

	N	Range	Minimum Correct	Maximum Correct	M	SD
Pretest	18	12	3	15	10.11	3.411
Posttest	18	4	12	16	14.28	1.179

A two-tailed paired samples *t*-test was conducted to discover significant differences

between pre- (*M*=10.11) and posttest (*M*=14.28) mean scores (see Table 9). Results

revealed a significant difference between pre- and posttest M scores, $t(17) = 4.53$, $p =$

0.001, ($p < 0.05$), among participants with higher scores on posttests after an educational

intervention. Moreover, based on the *t*-test result and an alpha value < 0.05, the

researcher could accept the alternative hypothesis (*Ha1*) for PICO clinical question one.

These results overall indicate that healthcare providers experienced an increase in

knowledge awareness of depression screening in individuals with CLD after an

educational intervention.

Table 9

Two-Tailed Paired Samples t-Test Between Pre- and Posttest Mean Score

	M	SD	95% Confidence Interval of the Difference		t	df	p value
Posttest - Pretest	4.167	3.899	Lower 2.228	Upper 6.106	4.533	17	0.001

This researcher conducted the Shapiro-Wilk test for both the pretest and posttest

scores to assess for normality of the data. Based on the Shapiro Wilk test, the data had a

normal distribution (see Table 10, Figure 2, and Figure 3).

Table 10

Test of Normality

	Shapiro-Wilk		
	Statistic	df	Sig.
Posttest	.924	18	.153
Pretest	.922	18	.137

Figure 2

Normal Q-Q Plot of Pretest Score
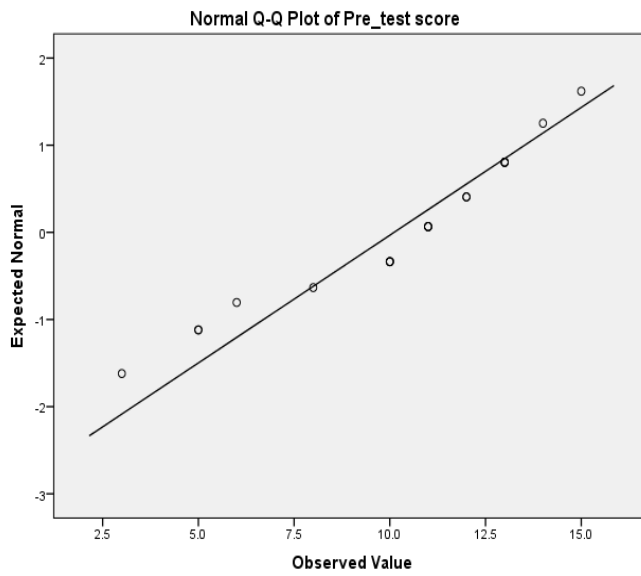
Figure 3

Normal Q-Q Plot of Posttest Score
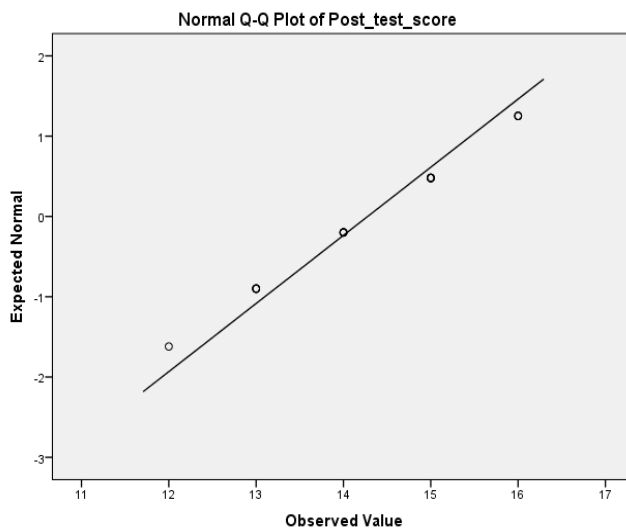
PICO Clinical Question Two

The PICO clinical question two was: Do healthcare providers 30 years or older have higher knowledge awareness of depression screening than younger healthcare providers at a large hospital in Miami, Florida after an educational intervention? Although most participants were above the age of 30 years, younger participants between 18 and 29 years had higher *M* scores on posttests than older participants (see Table 11). This researcher used a 95% confidence interval to compare the means (see Figure 4). However, no significant correlation was found between the age of participants and posttest *M* scores. The latter was probably due to a small sample size.

Table 11

Posttest Mean Difference Between Age Groups (N = 18)

Age	*M*	N	*SD*
18 to 29 years	14.67	3	1.155
30 to 44 years	14.57	7	.976
45 years and older	13.88	8	1.356
Total	14.28	18	1.179

Figure 4

Boxplot Age Posttest Scores
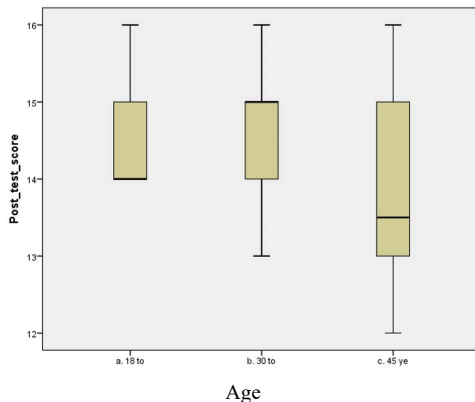
PICO Clinical Question Three

The PICO clinical question three was: Do female healthcare providers have higher knowledge awareness of depression screening than male healthcare providers at a large hospital in Miami, Florida after an educational intervention? Few male healthcare providers participated in this project and a comparison of the mean of the posttest score among males and females revealed that females had higher M scores than males (see Table 12). This researcher used a 95% confidence interval to compare the means (see Figure 5). However, there was no significant difference between gender of participants and posttest M scores.

Table 12

Posttest Mean Difference Between Gender Groups (N = 18)

Gender	M	N	SD
Male	14.00	5	1.000
Female	14.38	13	1.261
Total	14.28	18	1.179

Figure 5

Boxplot Gender Posttest Scores
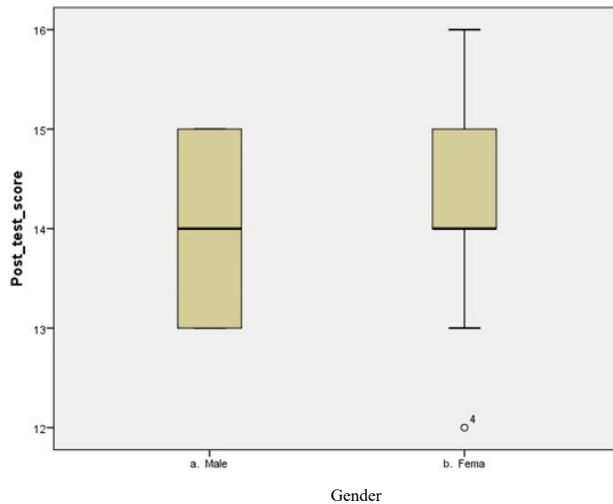
PICO Clinical Question Four

The PICO clinical question four was: Is there a difference between ethnicity and knowledge awareness of depression screening among healthcare providers at a large hospital in Miami, Florida after an educational intervention? Results revealed that there was a difference between ethnicity of participants and posttest M scores (see Table 13). Non-Hispanic Blacks had greater posttest M scores compared to non-Hispanic Whites and Hispanics. Although the sample size is small, it showed a change in scores. This researcher used a 95% confidence interval to compare the means (see Figure 6). However, no significant difference was found between ethnicity of participants and posttest M scores.

Table 13

Posttest Mean Difference Between Ethnic Groups (N = 18)

Ethnicity	*M*	N	*SD*
Non-Hispanic White	13.60	5	1.140
Non-Hispanic Black	15.00	3	1.732
Hispanic	14.40	10	.966
Total	14.28	18	1.179

Figure 6

Boxplot Ethnicity Posttest Scores
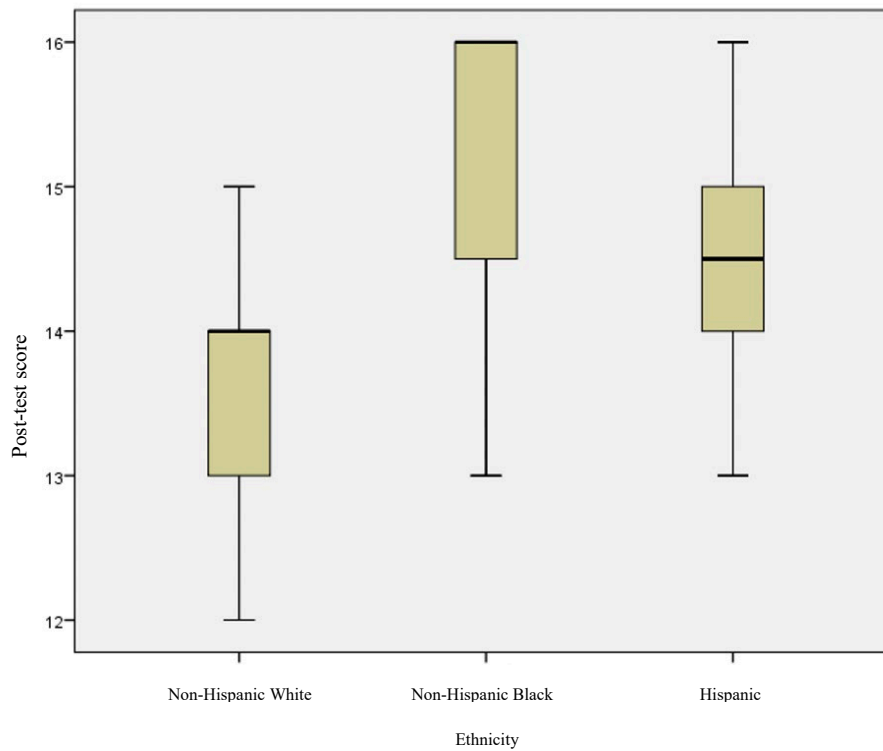
PICO Clinical Question Five

The PICO clinical question five was: Do healthcare providers with a bachelor's degree or above have higher knowledge awareness of depression screening than healthcare providers without a bachelor's degree at a large hospital in Miami, Florida after an educational intervention? Results showed that participants with vocational, diploma, or associate degrees had greater posttest M scores than participants with a bachelor's degree or higher (see Table 14). This researcher used a 95% confidence interval to compare the means (see Figure 7). Results revealed no significant difference between level of education and posttest M scores among participants.

Table 14

Posttest Mean Difference Between Level of Education Categories (N = 18)

Highest Level of Education	M	N	SD
Vocational certificate or diploma and Associate Degree	14.4	5	1.497
Bachelor's Degree, Master's Degree, and Doctoral	14.23	13	0.973
Total	14.28	18	1.179

Figure 7

Boxplot Level of Education Posttest Scores

Level of Education
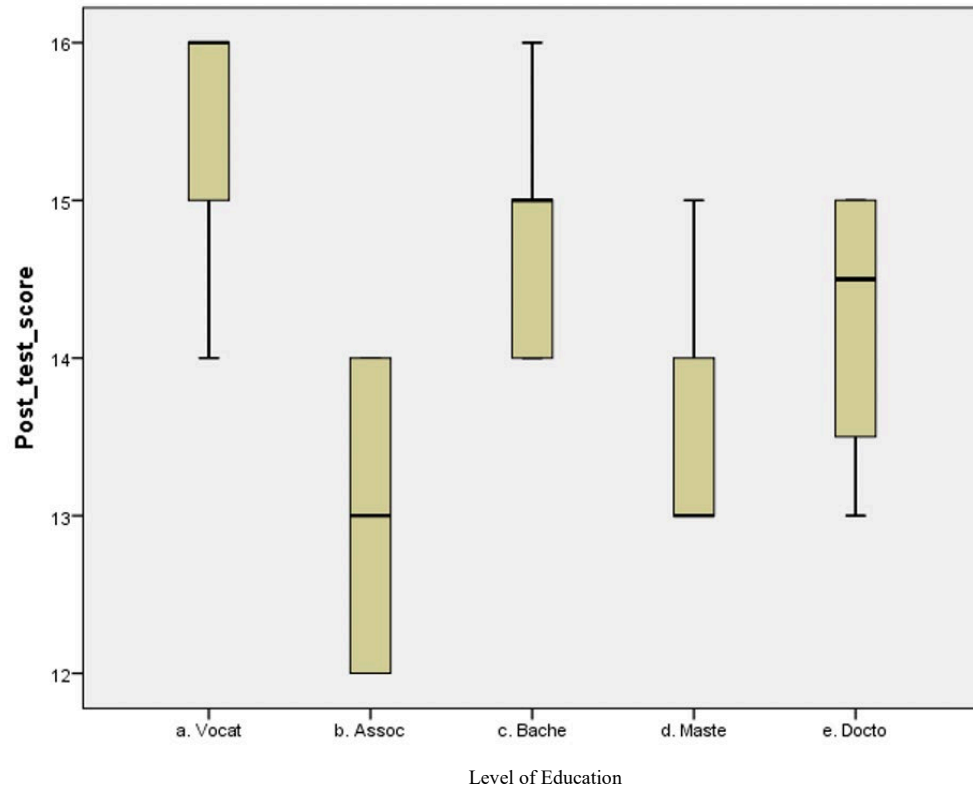
DNP PROJECT REPORT

SUMMARY AND DISCUSSION

The purpose of this quality improvement project was to increase knowledge awareness of depression screening in individuals with chronic liver disease (CLD) among healthcare providers in Miami, Florida. This researcher utilized a quantitative, descriptive, cross-sectional, pre and posttest design to conduct the quality improvement project. The project was conducted remotely and participants completed demographic, pre, and posttest surveys using Qualtrics and the modified Late-Life Depression Quiz (LLDQ) to assess their knowledge awareness of depression screening in individuals with CLD. Convenience sampling technique was utilized to recruit 18 participants and access data at a large hospital in Miami, Florida. Differences between the variables were analyzed using the Statistical Package for the Social Sciences (SPSS) version 23.0. This researcher will further compare and contrast the project findings with the literature in the section below. In addition, this researcher will discuss implications for advanced practice nursing, limitations of the project, recommendations, and conclusion.

Summary of the Results and Discussion

Project results revealed that there was an increase in knowledge awareness of depression screening in individuals with CLD among healthcare providers after a research-based educational intervention at a large hospital in Miami, Florida. Results using a two-tailed paired samples t-test revealed a significant difference between pre- and posttest M scores among healthcare providers, $t(17) = 4.533$, $p = 0.001$, ($p < 0.05$), with greater scores on posttests after an educational intervention. However, results revealed no significant difference between demographic variables (age, gender, ethnicity, and level of

education) and posttest *M* scores among participants. The latter was probably due to a small sample size.

Offner and Rinke (2021) conducted a mixed methods pilot study to evaluate the confidence levels of nurses who managed and administered immunotherapy in the oncology setting before and after an educational intervention. The researchers used purposive sampling and identified 10 oncology registered nurses working in the community setting in Texas. Offner and Rinke (2021) administered a confidence survey prior to an educational intervention and after a quasi-thematic analysis, three open-ended questions were asked. As this was a small sample size, the authors constructed a Friedman rank sum test and it supported the correlation between the pre- and posttest scores $p = 0.002$. Offner and Rinke (2021) reported greater confidence scores on posttests (51%) than on pretests after an educational intervention. This study supports the results of this project that an educational intervention could potentially increase knowledge or competence in healthcare providers.

Harden et al (2017) conducted a pretest and pos-test study to improve knowledge awareness of palliative care among oncology nurses at the University of Michigan. The educational intervention was a one 4-hour class. Harden et al. (2017) reported significant differences between pre- and posttest results, with increased knowledge scores, as well as positive attitudes and behaviors on posttests among participants, partially supporting the results of this project. Rohlik et al. (2021) conducted a nurse-driven quality improvement project in an 11-bed cardiovascular pediatric intensive care unit at Mayo Clinic Children's Center in Minnesota. This quality improvement project set out to increase assessment and documentation of nurse-driven protocol to eliminate delirium. According

to Rohlik et al. (2021), 113 nurses were emailed a pretest evaluating delirium knowledge and assessment barriers. Nurses then received education about delirium assessment and received weekly emails that included additional educational interventions and observational audits of educational interventions as well as a post implementation survey. Rohlik et al (2021) concluded that nurses had a statistically significant increase on delirium assessment rates after an educational intervention, supporting the results of this project.

Implications for Advanced Practice Nursing

This quality improvement project had significant implications for the discipline of nursing practice, including practice, research, and health policy. This project helped nurses and other healthcare providers improve their knowledge awareness of depression screening in patients with chronic liver disease (CLD). Based on the study, nursing leadership at the hospital should develop a policy or protocol mandating healthcare providers to screen for depression in patients with CLD. Healthcare providers should screen this population for depression and refer patients to mental health specialists in a timely manner by following the new protocol. Instituting a protocol in place will facilitate and improve the care of patients with CLD all while improving healthcare outcomes in CLD populations. It is important to note that more than half (55%) of the participants reported not having an education or not recalling the last time they had continuing education about depression screening. Therefore, the hospital should also institute as part of their annual training requirement continuing education that covers depression screening and the importance of not overlooking mental health problems in this patient

population. Nurse and nurse practitioners can spearhead this educational intervention across the institution.

Limitations of the Project

Studies have limitations. The limitations of this project were:

1. Convenience sampling technique was used to conduct this project; however, this method does not involve randomization.

2. A low number of participants decreased the generalizability of the project. This project was conducted during the COVID-19 pandemic, which could have affected the sample size of this project.

3. In addition, the COVID-19 pandemic did not allow the researcher to conduct the project in person.

4. A descriptive, cross-sectional, pre- and posttest design cannot be used to describe causality between the variables.

5. Data were collected from participants employed at a large hospital in Miami, Florida; therefore, results cannot be generalized to other clinical settings.

6. Technology was an important aspect of this project; not all participants are savvy with technology, and surveys had to be discarded due to non-completion.

Recommendations

Future studies, especially randomized controlled trials, are needed to identify the best methods to deliver an educational intervention to measure increases in knowledge awareness of depression screening of healthcare providers among individuals with chronic liver disease (CLD). Additional research should also be conducted with a larger sample size in order to be able to generalize the results. More studies also need to be

conducted in different patient settings such as the inpatient setting or private practice. Furthermore, future research should focus on quantitative data to analyze correlations between demographic variables and knowledge awareness of depression screening in individuals with CLD among healthcare providers in the U.S. In addition, future studies should also concentrate on the effectiveness of healthcare providers identifying CLD patients at risk of depression after an educational intervention.

Conclusions

The findings of this study showed that there was an increase in knowledge awareness of depression screening in individuals with CLD among healthcare providers after a research-based educational intervention. Results of this project revealed a significant difference between pre- and posttest M scores among participants, $t(17) = 4.533$, $p = 0.001$, $(p < 0.05)$, with higher M scores on posttests after an educational intervention. However, results indicated no significant difference between demographic variables and posttest M scores among participants. Healthcare providers should receive training about depression screening in patients with chronic liver disease to improve health outcomes and quality of care in this population.

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Appendix A

FLORIDA INTERNATIONAL UNIVERSITY

INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

FIU | FLORIDA INTERNATIONAL UNIVERSITY

Office of Research Integrity
Research Compliance, MARC 414

MEMORANDUM

To:	Dr. Charles Buscemi
CC:	Glenda Quinones
From:	Elizabeth Juhasz, Ph.D., IRB Coordinator
Date:	July 14, 2021
Protocol Title:	"Knowledge Awareness of Depression Screening in Individuals with Chronic Liver Disease among Healthcare Providers in Miami, Florida: A Quality Improvement Project."

The Florida International University Office of Research Integrity has reviewed your research study for the use of human subjects and deemed it Exempt via the **Exempt Review** process.

IRB Protocol Exemption #:	IRB-21-0302	**IRB Exemption Date:**	07/13/21
TOPAZ Reference #:	110562		

As a requirement of IRB Exemption you are required to:

1) Submit an IRB Exempt Amendment Form for all proposed additions or changes in the procedures involving human subjects. All additions and changes must be reviewed and approved prior to implementation.
2) Promptly submit an IRB Exempt Event Report Form for every serious or unusual or unanticipated adverse event, problems with the rights or welfare of the human subjects, and/or deviations from the approved protocol.
3) Submit an IRB Exempt Project Completion Report Form when the study is finished or discontinued.

Special Conditions: N/A

For further information, you may visit the IRB website at http://research.fiu.edu/irb.

EJ

Appendix B

UNIVERSITY OF MIAMI HOSPITAL

INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

UNIVERSITY OF MIAMI

University of Miami	Ph.: 305-243-3195
Human Subject Research Office (M809)	Fax: 305-243-3328
1400 NW 10th Avenue, Suite 1200A	www.hsro.med.miami.edu
Miami, FL 33136	

APPROVAL

August 5, 2021

Glenda Quinones
1120 NW 14 st
11 floor
Miami, FL 33136
305-505-3875
gquin@med.miami.edu

On 8/5/2021, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	Knowledge Awareness of Depression Screening in Individuals with Chronic Liver Disease among Healthcare Providers in Miami, Florida: A Quality Improvement Project.
Investigator:	Glenda Quinones
IRB ID:	20210687
Funding:	None
Documents Reviewed:	•Demographic Questionnaire, pre and post test •online survey consent •Project Proposal QI •Protocol Glenda Quinones •Recruitment Email

The IRB determined this study meets the criteria for an exemption as described in Federal Regulation 45 CFR 46.104. This determination is effective on 8/5/2021.

Attached are stamped approved consent documents. Use copies of these documents to document consent.*NOTE: Translations of IRB approved study documents, including informed consent documents, into languages other than English must be submitted to HSRO for approval prior to use.*

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103).

Should you have any questions, please contact: Vivienne Carrasco, Manager, IRB, (phone: 305-243-6713; email: vcarrasco@med.miami.edu)

Appendix C

FLORIDA INTERNATIONAL UNIVERSITY

SUPPORT LETTER FROM FACILITY

THE LENNAR
FOUNDATION
MEDICAL CENTER | UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM

June 14, 2021

Dear Dr. Brenes,

Thank you for inviting the University of Miami Lennar Foundation Medical Center to participate in the DNP project of Glenda Quinones. It is understood that Glenda Quinones will be conducting this quality improvement project as part of the requirement for the Doctor in Nursing Practice program at Florida International University. After reviewing the proposal of the project titled "Knowledge Awareness of Depression Screening in Individuals with Chronic Liver Disease among Healthcare Providers in Miami, Florida: A Quality Improvement Project." she has been granted permission to conduct the project in this organization.

The quality improvement project will be implemented at Lennar foundation Medical Center and will occur and 1 session. Participants will receive an email with a link for pre and post-test survey as well as an educational intervention will be linked also in this email. Due to COVID-19 all educational interventions and assessment will be provided virtually. Data analysis will be done electronically. This projects intends to evaluate the knowledge awareness among healthcare providers about screening for depression in patients with chronic liver disease. The project will be conducted with consent and volunteer participation of the health care providers at the Lennar foundation Medical Center.

The educational intervention will be a voice over PowerPoint presentation that will last approximately 15 to 20 minutes. Any data collected by Glenda Quinones will be kept confidential and participant information will be de-identified. Data will be stored in password protected computer within the hospital fire walls and u-drive.

It is expected that Glenda Quinones will not interfere with a normal hospital function behaving in a professional manner and following the hospital standards of care. I support the participation of the

University of Miami Lennar Foundation Medical Center staff in this project and look forward to working in collaboration with Florida International University.

If you have, any questions please feel free to contact me.

Sincerely,

Kathy Zanelli RN

Executive Director of Nursing

The Lennar Foundation Medical Center

University of Miami Health System

5555 Ponce De Leon Boulevard

Suite # 226

Coral Gables Fl. 33146

Office: (305) 689-0379

THE LENNAR FOUNDATION MEDICAL CENTER | UHealth UNIVERSITY OF MIAMI HEALTH SYSTEM

Creating a Utopian Medical Experience for Everyone

Appendix D

FLORIDA INTERNATIONAL UNIVERSITY

RECRUITMENT EMAIL

Dear healthcare provider,

My name is Glenda Quinones, and I am a student from the Graduate Nursing Department

at Florida International University. I am writing to invite you to participate in my quality

improvement project. The goal of the project is to increase knowledge awareness among

healthcare providers regarding the importance of screening for depression in individuals

with chronic liver disease (CLD) at a large hospital in Miami, Florida. You are eligible

to take part of this project because you participate in the care of patients with chronic

liver disease at the hospital. I am contacting you with the permission of your nursing

director. If you decide to participate in this project, you will be asked to complete an

online demographic and a pre-test questionnaire, which is expected to take approximately

10 to 15 minutes. You will then be prompted to watch a 7-minute voice over PowerPoint

Presentation online. After the presentation, you will be asked to complete the post-test

questionnaire which is expected to take approximately 5-10 minutes. No compensation

will be provided. Your participation is voluntary. You can choose to be in the study or

not. If you would like to participate, please click in the link provided (link for Qualtrics

questionnaire). If you have any questions about the study, please email or contact me at

gquin007@fiu.edu.

Thank you very much.

Sincerely,

Glenda Quinones

Appendix E

FLORIDA INTERNATIONAL UNIVERSITY

RESEARCHER-DEVELOPED DEMOGRAPHIC INSTRUMENT

Please click on the appropriate response.

1. What is your age?
    a. 18 to 29 years
    b. 30 to 44 years
    c. 45 years and older
2. What is your Gender?
    a. Male
    b. Female
3. What is your ethnicity?
    a. non-Hispanic White
    b. non-Hispanic Black
    c. Hispanic
    d. Other Ethnicity
4. What is your highest level of education?
    a. Vocational certificate or diploma
    b. Associate Degree
    c. Bachelor's Degree
    d. Master's Degree
    e. Doctoral.
5. What is your current role as a provider in this facility?
    a. MA
    b. LPN
    c. RN
    d. APRN
    e. PA
    f. MD or DO
6. How many years do you have in your current role?
    a. 0 to 1 year
    b. 2 to 3 years
    c. 4 or more years
7. To your knowledge, when was the most recent continuing education on depression screening you attended?
    a. Within the last year
    b. More than one year ago
    c. 2 or more years ago
    d. 3 or more years ago
    e. 4 or more years ago
    f. Never or do not recall

Appendix F

FLORIDA INTERNATIONAL UNIVERSITY

MODIFIED LATE-LIFE DEPRESSION QUIZ (LLDQ) INSTRUMENT

Please select a response for each of the following statement or questions.

1) If depression is severe, there is little the depressed person can do to help him/herself.
   a) True
   b) False
   c) Don't Know
2) There is a higher suicide rate among the elderly than among younger adults.
   a) True
   b) False
   c) Don't Know
3) 3. The older you get, the more likely you are to be depressed.
   a) True
   b) False
   c) Don't Know
4) It is common for older people to talk about suicide.
   a) True
   b) False
   c) Don't Know
5) Family and friends can usually help the depressed older person by telling him or her "count your blessings" or "look on the bright side."
   a) True
   b) False
   c) Don't Know
6) Older people are more likely than younger people to say "I'm depressed."
   a) True
   b) False
   c) Don't Know
7) It is normal for older people to feel depressed a good part of the time.
   a) True
   b) False
   c) Don't Know
8) Depression is easy to recognize in an older person who is physically ill.
   a) True
   b) False
   c) Don't Know
9) Depression among the elderly can be effectively treated with medications.
   a) True
   b) False
   c) Don't Know

10) Health professionals often have difficulty diagnosing depression in older adults.
   a) True
   b) False
   c) Don't Know
11) A complete medical evaluation is needed to rule out physical reasons for depression.
   a) True
   b) False
   c) Don't Know
12) Memory problems may be a sign of depression.
   a) True
   b) False
   c) Don't Know
13) Most older people who talk about committing suicide are not serious.
   a) True
   b) False
   c) Don't Know
14) Are patients with chronic liver disease (CLD) prone to depression?
   a) Yes
   b) No
   c) Don't Know
15) Can depression lead to poor medication compliance in individuals with Chronic Liver Disease?
   a) Yes
   b) No
   c) Don't Know
16) Is it important to screen for depression in patients with CLD?
   a) Yes
   b) No
   c) Don't Know

Appendix G

FLORIDA INTERNATIONAL UNIVERSITY

CITI ETHICS CERTIFICATION

Completion Date 08-Jul-2021
Expiration Date 07-Jul-2024
Record ID 43506418

This is to certify that:

Glenda Quinones

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Basic/Refresher Course - Human Subjects Research
(Curriculum Group)
Social/Behavioral Human Research Course
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Florida International University

Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?wc60b7ede-c96e-4bd4-8000-c45bb9683df4-43506418

Appendix H

FLORIDA INTERNATIONAL UNIVERSITY

CV

2010   BS, Florida International
                                                   University, Miami, FL

2010-2012   Leadership Coordinator,
                                                   United Way of Miami Dade,
                                                   Miami, FL

2013   BSN, University of Miami,
                                                   Miami, FL

2013-2016   Charge Nurse, University of
                                                   Miami Hospital, Miami, FL

2016   MSN, University of Miami,
                                                   Miami, FL

2016-Present   Advanced Practice
                                                   Registered Nurse,
                                                   University of Miami,
                                                   Miami, FL

2021   DNP, Florida International
                                                   University, Miami, FL