Depression Screening Among Adolescents and Adults in Primary Care

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Depression Screening Among Adolescents and Adults in Primary Care

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Abstract

Background: Depression is one of the most common mental health disorders in the United States. Depression screening is recommended during all primary care visits. However, screening for depression does not occur consistently in primary care settings. The purpose of this project is to increase depression screening among adolescent (ages 12 to 17) and adult patients, as these are the primary age groups seen in the suburban primary care setting where this project was conducted.

Methods: A pretest-posttest design was used to evaluate change in depression screening following the implementation of a new policy. This was conducted in a suburban primary care setting in the western region of the United States. The new policy included medical assistants initiating depression screening with the completion of the Patient Health Questionnaire-2 (PHQ-2) form at the start of the visit. All patients of this primary care practice were also offered educational pamphlets on depression screening by the medical assistants.

Results: Pre-intervention, 62% (n=62) of randomly selected patients were screened for depression. Post intervention 64% (n=64) of randomly selected patients were screened for depression resulting in a two-percent increase in depression screening.

Conclusion: The implementation of depression screening with this new policy showed mild improvement with a two-percent increase in patients screened for depression. Additional research is needed to better understand the barriers and limitations of implementing depression screening in a primary care setting.

***Keywords**:* Depression screening, primary care, adolescents, adults

Depression Screening Among Patients Twelve Years and Older in Primary Care

Introduction

Major depressive disorder is one of the most common mental health disorders in the United States (U.S. Department of Health and Human Services, n.d.). In 2019, 18.5% of adults in the United States experienced mild, moderate, or severe symptoms of depression in a two-week timeframe (U.S. Department of Health and Human Services, n.d.). Additionally, around 50 million adolescents had a major depressive episode in 2021 (U.S. Department of Health and Human Services, n.d.). Depression can cause feelings of hopelessness, worthlessness, loss of interest in doing things, social isolation, or suicidal thoughts and ideations (U.S. Department of Health and Human Services, n.d.). These feelings can diminish a person's ability to carry out major life activities such as sleeping, working, socializing with others, and eating (U.S. Department of Health and Human Services, n.d.).

Depression is a mental health illness that can easily be screened for in a primary care setting. Screening for depression gives a provider information on the symptoms a patient is experiencing, which allows them to choose the proper treatment for that patient. However, screening for depression in primary care does not always occur (Blackstone, 2022). Therefore, the purpose of this project was to increase depression screening among adolescent and adult patients in a primary care setting by implementing a new policy to increase the number of patients that are screened and treated for depression.

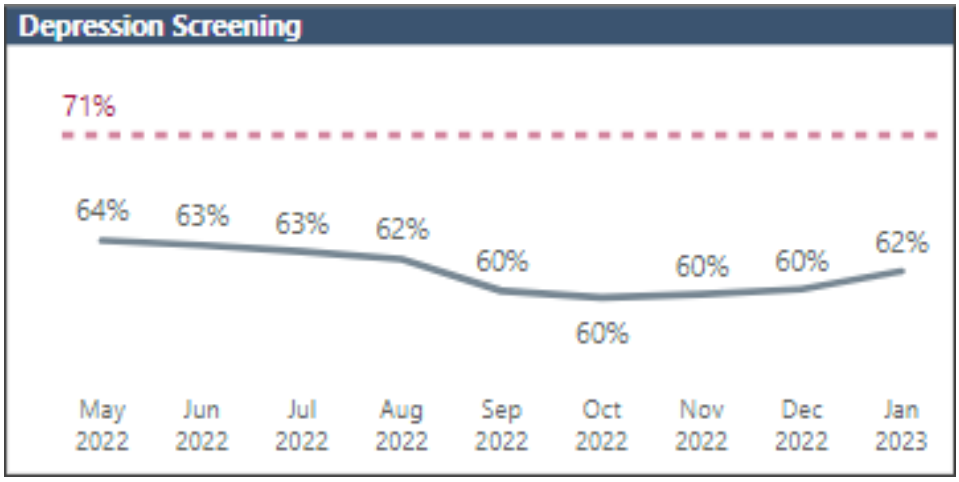
Organizational Gap Analysis of Project Site

A primary care facility in the western region of the United States is the location where this Doctor of Nursing Practice (DNP) quality improvement project was implemented. This facility currently uses the Patient Health Questionnaire-2 (PHQ-2) and the Patient Health

Questionnaire-9 (PHQ-9) to screen patients for depression online prior to their appointment. According to the data from this facility, their depression screening goal is 71%. However, over the past nine months, the percentage of patients screened for depression ranged from 60%-64% (Table 1).

Table 1

Depression Screening Scores-Primary Care Facility in Western Region (May 2022-January 2023)



Review of the Literature

To support this project, a search of Cumulative Index in Nursing and Allied Health Literature (CINAHL) was conducted using three search terms: depression screening, primary care, and practitioners. The search parameters were peer-reviewed scholarly articles conducted in the United States (U.S.) and published between 2017 and 2022. This search yielded 10 scholarly articles, one of which was related to depression screening in primary care and was included in this review.

A second CINAHL search was conducted using the search terms: depression screening and primary care. From this search, 277 articles were found. Twenty-eight articles were excluded because they were not peer-reviewed, 109 were excluded because they were not conducted in the

US, and 62 articles were excluded because the subjects were under the age of 11 years. Forty-three articles did not include full-text access and were excluded. Following full text review, 15 articles were included in the final review.

Sample sizes of these articles ranged from 11 provider participants (Kahalnik et al., 2019) to 2,364 patient participants (Garcia et al., 2022). Age ranges of samples varied. For example, Blackstone et al. (2022) included participants from 18 years of age to over 85 years of age. Davis et al. (2022) enrolled participants 12 to17 years of age.

Methods and Designs from the Literature

There were several methods and designs used in the studies (Table 2). Surveys were the most common method used for data collection (*n*=12, 80%) The most common design was quality improvement (*n*=4, 27%) (Table 2). Populations studied in this review included Medicaid recipients (Garcia et al., 2022), Hispanic individuals (Garcia et al., 2022), and African American individuals (Garcia et al., 2022)

Table 2

Research Article Methods & Designs

Author (Year)	**Method**	**Design**
Alkincigil et al. (2017)	Questionnaires	Cross-sectional
Blackstone et al. (2022)	Survey/questionnaire	Quality improvement
Costantini et al. (2021)	Systematic review	Meta-analysis
Davis et al. (2022)	Survey/questionnaire	Retrospective
Garcia et al. (2022)	Questionnaires	Quality improvement
Gorman et al. (2021)	Questionnaires	Quasi-experimental
Jin & Wu (2020)	Surveys	Experimental design
Jones et al. (2020)	Survey/questionnaire	Quality improvement

Kanalnik et al. (2019)	Interviews	Grounded theory
Last et al. (2021)	Survey/questionnaires	Quality improvement
O'Bryne et al. (2018)	Systematic review	Meta-analysis
Pfoh et al. (2020)	Questionnaires	Retrospective pre-post study
Samples et al. (2020)	Surveys	Cross-sectional analysis
Shah et al. (2018)	Questionnaire	Cross-sectional
Siniscalchi et al. (2020)	Questionnaires	Retrospective pre-post study

Research Findings

Each article had a different focus when it came to depression screening. A common goal across the studies was finding screening protocols or measures that improve depression screening in primary care (Blackstone et al., 2022; Costantini et el., 2021; Davis et al., 2022; Garcia et al., 2022; Gorman et al., 2021; Jin & Wu et al., 2020; Jones et al., 2021; Kahalnik et al., 2019; Last et al., 2021; O'Byrne et al., 2018; Pfoh et al., 2020; Samples et al., 2020; Shah et al., 2018; Siniscalchi et al., 2020). Additionally, two studies focused on both depression education for staff members and depression screening tools, which was used to improve depression screening (Kahalnik et al., 2019; Shah et al., 2018). Alincigil et al. (2017) focused screening for depression among underrepresented groups in the primary care setting.

All 15 studies supported a need for an increase in depression screening in primary care (Alkincigil et al., 2017; Blackstone et al., 2022; Costantini et al., 2021; Davis et al., 2022; Garcia et al., 2022; Gorman et al., 2021; Jin & Wu, 2020; Jones et al., 2020; Kanalnik et al., 2019; Last et al., 2021; O'Bryne et al., 2018; Pfoh et al., 2020; Samples et al., 2020; Shah et al., 2018; Siniscalchi et al., 2020). Twelve of the selected studies focused on depression screening for adults 18 years and older, while three studies focused on increasing depression screening among

adolescents and young adult populations (ages 12 to 17) (Davis et al., 2022; Garcia et al., 2022; Samples et al., 2020).

Depression Screening Measures

Four studies used the Patient Health Questionaire-9 (PHQ-9) to screen for depression in primary care (Costantini et al., 2021; Davis et al., 2022; Garcia et al., 2022; O'Byrne et al., 2018). The PHQ-9 was shown to be more effective than the PHQ-2 when screening for depression in adolescents in the primary care setting compared to other screening measures (Costantini et al., 2021; Davis et al., 2022; Garcia et al., 2022; O'Byrne et al., 2018). In a randomized controlled study, the Patient Health Questionnaire-8 (PHQ-8) was found to be more consistent, reliable, and better aligned with an interview assessment when compared to the PHQ-2 (Jin & Wu et al., 2020).

Medical Assistant Screening for Depression

Gorman et al. (2021) found that there was an increase in the number of patients screened for depression with the implementation of a medical assistant depression screening method. This method allows medical assistants to administer the PHQ-2 or PHQ-9 screening tool to a patient without a provider's order (Gorman et al., 2021).

Limitations

The articles reviewed identified several limitations, including restricted access to a single hospital system (Davis et al., 2022), reliance solely on electronic health records (Davis et al., 2022; Garcia et al., 2022), homogeneous participant samples (Gorman et al., 2021; Jin & Wu, 2020), small sample sizes (Levis et al., 2020), and acknowledged limitations of the PHQ-2, such as its two-week symptom timeframe (O'Byrne & Jacob, 2018) and variability in its administration (Pfoh et al., 2020).

Specialized Depression Protocols

Another way to increase screening among patients in primary care is by implementing a specialized depression protocol like VitalSign 6. VitalSign 6 is a computer program used by providers to screen and treat patients with depression (Kahalnik et al., 2019). VitalSign 6 includes the Patient Health Questionnaire (PHQ-2) and the Measurement-Based Care systematic assessment to analyze patient's depression symptoms. This type of program can assist providers to increase and improve screening of patients in the primary care setting (Kahalnik et al., 2019; Siniscalchi et al., 2020). For example, after the implementation of VitalSign 6 in a primary care setting with 1200 patients, 95.4% of patients were screened for depression (Siniscalchi et al., 2020). However, the VitalSign 6 program may not be readily available to all primary care settings given the high cost of implementation (Kahalnik et al., 2019).

Technology and Depression Screening

Technology, such as tablets, can be a useful to screen for symptoms of depression. Technology can be expensive and might not be easily implemented in all practices (Last et al., 2021). However, the evidence supports that cell phones are readily available to most patients and, therefore, may be a convenient and cost-effective tool for use in depression screening (Jin & Wu, 2020). The clinic where this project was implemented does not have the resources or technology to implement a project with cell phones and/or iPads.

Online appointments allow patients to stay in the comfort of their home while connecting with a provider for their health concerns. However, research suggests that patients with online appointments were less likely to be screened for depression compared to patients seen in-person (Blackstone et al., 2022) This may be due to shorter visit times, lack of nursing staff, and the telemedicine platform making it uncomfortable for patients to answer difficult questions related

to depression symptoms (Blackstone et al., 2022).

Discussion/Synthesis of the Literature

The research reviewed provides evidence for the need to increase depression screening in primary care (Alkincigil et al., 2017; Blackstone et al., 2022; Costantini et al., 2021; Davis et al., 2022; Garcia et al., 2022; Jones et al., 2021; Kahalnik et al., 2019; Last et al., 2021; Samples et al., 2020; Shah et al., 2018; Siniscalchi et al., 2020). Questionnaires (PHQ-2, PHQ-8, and PHQ-9), clinical procedures/policies, and specialized depression protocols (VitalSign 6) have been found effective in increasing depression screening (Costantini et al., 2022; Gorman et al., 2021; Jin & Wu, 2020; Kahalnik et al., 2019; O'Bryne et al., 2018; Pfoh et al., 2020; Siniscalchi et al., 2020). However, selecting the best method depends on several factors, including the primary care setting and budgetary constraints.

Summary

Major depressive disorder is a common mental health concern among patients in primary care. There are several clinical approaches that can be used in primary care settings to increase the number of patients who are screened for depression; however, there are many barriers to successful implementation such as access to technology, facility funding, medical assistants available to implement the screening, and a lack of time to screen patients. Current research suggests that a protocol under which medical assistants screen for depression using the PHQ-2 in order to increase depression screening among adolescents and adults may be the most effective approach (Levis et al., 2020; Gorman et al., 2021).

Theoretical Framework or Evidence Based Practice Model

The theoretical model that framed this DNP project is the Plan Do Study Act (PDSA) model (Appendix A). The PDSA model has 4 steps that framed this project. The Plan step

consisted of the project objectives, predictions, and pre-intervention data collection. The Do step includes implementing the project at this primary care clinic, which includes documenting the observations and record keeping. During the Study step, pre and post data was analyzed and compared, then considered to establish whether project outcomes were met. The Act step consisted of discussing changes that can be made to increase depression screening, based on the results of the project.

Goals, Objectives and Expected Outcomes

The purpose of this project was to increase depression screening among adolescent and adult patients in a primary care setting. To accomplish this purpose, several objectives and outcomes were proposed (Table 3).

Table 3

Purpose, Objectives, and Outcomes for DNP Project

Purpose	Objectives	Outcome
Increase depression screening among adolescent and adult patients in primary care.	Implement a standard policy for PHQ-2 in-person depression screening for all adolescent and adult patients as part of the medical assistant's responsibilities.	100% of staff, including medical assistants, will receive education about the new screening policy.
	Evaluate the change in patient screening for depression before and after PHQ-2 in-	Depression screening will increase by at least 10% among a random sample of

	person screening policy.	EHRs one month after the new in-person screening policy is in effect.
	Provide educational material about depression and screening to adolescent and adult clinic patients over a one-month period.	Depression screening among patients seen during the month of the intervention will surpass 71%.

Methods

A pretest-posttest design was used for the project. A medical assistant depression screening protocol was implemented for one month at a primary care clinic in the western region of the U.S. from October 2022 to October 2023. All medical assistants had an associate's degree in medical assisting or a medical assisting certificate. This depression screening protocol included medical assistants screening all adolescent and adult patients (12 years and older) in-person with the PHQ-2 prior to their appointment. In addition, each patient was also given a depression education pamphlet. The pamphlet was made with the assistance of a template from the clinic as well as information presented in this paper (Appendix B).

When the medical assistant called the patient back to their designated exam room, they provided the patient with a pamphlet on depression education. After the patient had time to review the pamphlet, the medical assistant gave them the PHQ-2 form to complete. Once finished, the medical assistant calculated the PHQ-2 score and entered it into the electronic

medical record (EMR). The provider was then notified of the patient's score, which could range from 0 to 6. A score of 3 or higher indicated the presence of symptoms commonly associated with depression. During the appointment, the provider reviewed the score with the patient, which may or may not have led to further discussion about treatment options for depression.

Project Site and Population

This quality improvement project was implemented at a primary care setting in the western region of the United States. In 2021, the population in this region was 17,299. Town census reveals the population is 81.1% Caucasian, 26.8% , Hispanic, 2.6% Asian, 0.7% Black, and 0.3% American Indian (*U.S. Census Bureau Quick facts,* 2021).

This clinic provides care for 7,724 patients over the age of 12 with the help of three physicians, one doctor of osteopathy, one family nurse practitioner, one registered nurse, one licensed practical nurse, five medical assistants and one clinic manager. Currently the clinic's depression screening is completed online (pre-populated PHQ-2 form that was included in the pre-appointment screening) by patients prior to their in-person appointment. The primary care clinic has a quality improvement coordinator who assisted in data collection pertaining to this project.

Inclusion criteria for this project included patients aged 12 years and older that were seen by one of the providers in the primary care office. Exclusion criteria included patients that were younger than the age of 12. This project did not exclude any patients based on race, gender, sex, or previous medical history or conditions.

The clinical manger and the quality improvement director are main stakeholders in this project as they have expressed the need to increase depression screening percentages in this clinic. Patients are considered important stakeholders in this project because they are

directly impacted by the screening process; based on their PHQ-2 results, they may be identified as experiencing depressive symptoms and referred for appropriate treatment, ultimately influencing their health outcomes. The providers emphasized the importance of the depression information pamphlets on educating patients on depression symptoms and screening. Permission by facility managers had been given to perform this DNP project at the clinic (Appendix B).

Measurement Instrument

The Patient Health Questionaire-2 (PHQ-2) form was used to screen patients who met the project inclusion criteria (Appendix C). The patient had the option to answer each question with not at all, several days, more than half the days, and nearly every day. If a patient answered the question with not at all, the patient got zero points added to their overall score. If the patient answered the question with several days, the patient got one point added to their overall score. If the patient answered the question with more than half the days, the patient got two points added to their overall score. If the patient answered the question with nearly every day, the patient got three points added to their overall score. If the patient got a total score of three or more, this indicated a positive screening for depression symptoms (Maurer et al., 2018)

To measure the number of patients screened, electronic health information was collected before the intervention and one-month after the intervention. The number of patients screened with the PHQ-2 was compared pre-intervention and post-intervention. The number of patients screened post-intervention helped to understand if the intervention was beneficial in screening more patients for depression.

Data Collection Procedures

Pre-intervention

A random sample of 100 electronic health records (EHRs) for patients aged 12 years and older was selected to assess how many had been screened with the PHQ-2. Medical assistants and providers at the primary care clinic were then educated on the new screening protocol, which included medical assistants screening patients in-person with the PHQ-2 and handing out an educational pamphlet during each visit. Medical assistants and clinic staff were briefed on the depression educational pamphlet that was given to patients. Medical assistants were educated on what depression is, how it can affect a person's life, the questions asked on the PHQ-2, and how to score the PHQ-2.

Intervention

Medical assistants provided paper copies of the PHQ-2 and education pamphlets to patients seen over a 30-day period when they were brought to an exam room. While the patient was waiting in the room, they had the opportunity to read over the pamphlet and complete the PHQ-2. Medical assistants inputted the score of the PHQ-2 into the EHR system (EPIC), which then shows in EPIC that the patient's depression screening is "complete".

Post Intervention

One-month after the implementation of the medical assistant depression screening protocol, EHRs for patients seen during the month-long intervention were reviewed to calculate percentage of screened patients. Additionally, a random sample of non-paired 100 EHRs for patients seen in the previous month was conducted as per the pre-intervention protocol to determine any change in the number of patients screened.

Data Analysis

The difference in number screened pre and post intervention using a random sample was analyzed using descriptive statistics. Descriptive statistics is convenient to display

findings for readers from different educational backgrounds who are interested in learning more about how to increase depression screening in the primary care setting.

Ethical Considerations/Protection of Human Subjects

The University of Massachusetts, Amherst (UMass) Internal Review Board (IRB) approval was obtained prior to initiating this DNP project. The Clinical Manager at this clinic gave approval for the DNP project. Participants and their private health information was protected by the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Personal patient identifiers such as first and last name and date of birth were excluded from this project. The risks of patient participation in this project were no greater than the risks associated with receiving standard care at this clinic.

Cost-Benefit Analysis/Budget

The depression education pamphlets and reusable laminated PHQ-2 forms for this project cost $250, which was covered by the facility. The cost for this project was low compared to the costs associated with undiagnosed depression. As a result of depression screening and education in the primary care setting, patients may be diagnosed and treated for their symptoms in an outpatient setting, avoiding the need for acute care costs associated with depression.

Timeline

The pre-intervention EHR data collection for this project occurred from September 2023 to October 2023. The intervention occurred in October 2023 and November 2023. The post-intervention data collection took place in December 2023 and January 2024. Data analysis was completed in January 2024 and February 2024. Project findings were submitted in a final project report in April 2024 and presented to the facility and staff through email and handouts in March 2024 and April 2024 (Appendix D).

Results

Table 4

Patients Screened with PHQ-2 Before and After Intervention

Screening Status	Before Intervention	After Intervention
Patients Screened	62% (62/100)	64% (62/100)
Patients Not Screened	38% (38/100)	36% (36/100)

Pre-intervention, 38 (38%) randomly selected patients were not screened for depression and 62 (62%) randomly selected patients were screened for depression. Post intervention, 36 (36%) randomly selected patients were not screened for depression and 64 (64%) randomly selected patients were screened for depression. Gender, sexual orientation, race, and age of patients were not reported by patients during the pre and post intervention. The results showed that there were two more patients that were screened for depression after the intervention was introduced.

Discussion

Project Overview

As previously stated, the purpose of this project was to increase depression screening among adolescent and adult patients in primary care. Research has shown there is a lack of screening for depression that occurs in the primary care setting (Alkincigil et al., 2017; Blackstone et al., 2022; Costantini et al., 2021; Davis et al., 2022; Garcia et al., 2022; Jones et al., 2021; Kahalnik et al., 2019; Last et al., 2021; Samples et al., 2020; Shah et al., 2018; Siniscalchi et al., 2020). Screening for depression can be a helpful tool when it comes to weighing the type of treatment a patient may need based on their depression screening score. Having medical assistants screen patients for

depression with the PHQ-2, which was the chosen intervention for this project, is an effective way to screen patients for depression (Levis et al., 2020; Gorman et al., 2021).

Limitations

One limitation of this project included a lack of gathering demographic data related to gender, sexual orientation, race, and age of participants. Having this information would have provided additional information as to whether certain groups of patients were not being screened for depression. Another limitation of this project was a lack of technology due to financial constraints. Technology would have made it possible to screen more patients by having patients fill out the screening form before their appointment. Lastly, the ability to screen every patient during an in-person appointment was limited by time, a patient's willingness to fill out a PHQ-2, and medical assistants forgetting to screen the patient for depression. With only two more people screened after the introduction of the intervention, additional information is needed to explain why there was only a small increase in patients screened after the introduction of the depression screening intervention.

Barriers

One barrier for this project was medical assistant time constraints that impacted their ability to give depression screening. Medical assistants have many tasks they must perform for patients such as: taking vital signs, getting patients roomed, talking to the patient as to why they made an appointment, giving vaccinations, fielding phone calls, sending information to insurance companies, and more. With all the tasks required by most medical assistants, it can be difficult to get everything completed for patients, which includes depression screening.

Another barrier for this project includes having temporary and floating medical assistants in the clinic. With having temporary staff, those staff members may not have been properly educated on the depression screening intervention that was being implemented in the office. As a

result, patients may not have been screened for depression using the screening tools and education.

Future Considerations

Additional research is needed to better understand why more patients are not being screened for depression in the primary care setting. Current research addresses the implementation of certain screening tools and interventions in hopes of increasing depression screening. However, current research does not address the specific reasons as to why patients are not being screened. Addressing the specific reasons for why patients are not being screened will help implement interventions that increase depression screening across primary care.

Current evidence suggests problems with the PHQ-2 including vague questions related to the patient's feelings over a short span of time (two weeks) and no questions pertaining to safety and suicidal thoughts. If patients are not being screened with the commonly used PHQ-2 form in the primary care setting for reasons such as this, it may behoove the medical community to consider the introduction of a new screening tool.

Future research on depression screening could benefit from including a control group to compare outcomes with those of a treatment group. Additionally, incorporating two treatment groups using different screening tools within the same clinical setting could help determine whether one method results in a higher rate of completed screenings.

Conclusion

Despite the recognized importance of mental health, depression screening remains inconsistent in primary care settings. This DNP project showed that multiple factors may contribute to the underutilization of screening practices. While the specific reasons are not fully understood, variability across clinics, including differing goals, resource constraints, and

workflow limitations, may play a significant role. Additional barriers such as time constraints, limited staffing, and patient reluctance to complete screening forms may further hinder consistent implementation of depression screening protocols. Future research should investigate the underlying reasons for low rates of depression screening, as well as the barriers that may prevent staff from conducting screenings effectively.

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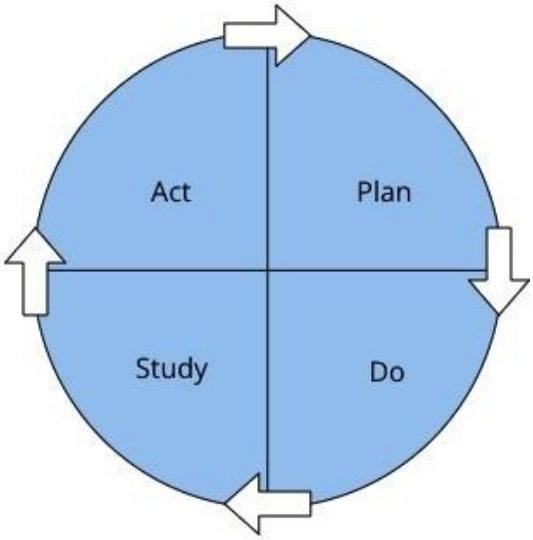
Appendix A

PDSA Model



PDSA graphic was made by DNP Student Natasha Grant

Appendix B

Pamphlet

Depression

What is Depression? Depression is a mental health condition that affects the way a person feels, thinks and acts.

Could I have depression? Yes, anyone can have depression. In the United States, 21 million individuals will have at least one depressive episode in their lifetime.

What are the symptoms associated with depression?
Symptoms of depression can include feeling sad or having a depressed mood, loss of interest in the activities that you enjoy doing, difficulty sleeping or sleeping too much, decreased energy, difficulty concentrating, and/or thoughts of suicide and death.

What do I do if I am having these symptoms?
Talk to your medical provider about your symptoms and the different treatment options available. If you are having thoughts of suicide, please contact your healthcare provider, call the Suicide and Crisis Lifeline at 988 and/or report to your nearest emergency department.

Appendix C

Patient Health Questionnaire-2 (PHQ-2)

Over the last *2 weeks*, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3

For office coding: _____0_____+_____+_____+_____+_____

= Total Score _____

Appendix D

DNP Project Timeline

Task	September 2023	October 2023	November 2023	December 2023	January 2024	February 2024	March 2024	April 2024
Pre-intervention	X	X						
Intervention			X	X				
Post-intervention					X	X		
Project findings presented to clinical staff							X	X