

Effects of COVID-19 on Depression Symptoms in the Adult Population

by

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Executive Summary

The recent coronavirus pandemic of 2019 (COVID-19) is causing increased isolation because of quarantines and social isolation. Job loss has caused worry about whether one can pay bills and meet the necessities of life. COVID-19 has affected everyone at some level. Understanding the effects it has on a patient's mental health is essential.

Ozdin and Ozdin (2020) “state women and individuals with previous mental illnesses are most affected by the COVID-19 pandemic.” This study measured depression, anxiety, and health anxiety levels during the pandemic. Chew et al. (2020) “studied psychosocial responses of the general population towards previous severe acute respiratory syndrome epidemics.” Common themes were found: anxiety, fear, depression, anger, guilt, grief, and loss. The takeaway is focus needs placed on awareness of psychosocial needs and access to psychological help during the COVID-19 outbreak.

This evidence-based project (EBP) aims to identify the effect COVID-19 has had on symptoms of depression in the adult population. Participants were each given a Patient Health Questionnaire-9 (PHQ-9) and quantitative survey at their initial visit. Current patients of family practice, age 18 and older, were invited to participate in this evidence-based project (EBP), and informed consent will be signed that outlines the project.

Participants received a follow-up call six weeks later. During this call, participants received the PHQ-9 questionnaire again, and a survey was constructed to determine the benefit of the handout. Their pre-COVID PHQ-9 was compared with their current PHQ-9 to determine the effects of COVID-19 on trending depressive symptoms in this population.

This study analyzed survey trend results to understand better the long-term mental health effects of COVID-19 on the adult population. Results showed an increase in participants' PHQ-9 scores during the pandemic compared to pre-pandemic PHQ-9s. PHQ-9s are done post-intervention demonstrated guided imagery is beneficial in reducing depression. The spiritual information that participants took also showed beneficial for participants. There are few studies currently available as this is a new pandemic. This study and more like it are needed better to understand the effects of COVID-19 on mental health.

Dedication

I dedicate this achievement to my family. My mother has been a constant source of inspiration and support throughout this journey. My sons, Corey, Travis, Wyatt, and Phillip, and daughter's in-law Jeana, and Tiffany, for being my best cheerleaders along the way. I appreciate your constant support and encouragement.

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Background and Significance

“The nursing phenomenon in the writing influences health status relevant to nursing practice” (Moran et al., 2020). Having been a Nurse Practitioner in family practice for the past 20 years, this writer has treated many patients with depression. The recent coronavirus pandemic of 2019 (COVID-19) is causing increased isolation due to quarantines and social isolation. Job loss has caused worry about whether one can pay bills and meet the necessities of life.

This writer has seen an increased number of patients complaining of generalized fatigue, depression, and anxiety over the last 13 months. The complaints are in an area of interest as it affects the quality of life. COVID-19 has involved everyone at some level. Understanding its effect on a patient's mental health is vital as their primary care provider.

Ozdin and Ozdin (2020) “state women and individuals with previous mental illnesses are most affected by the COVID-19 pandemic.” The study measured depression, anxiety, and health anxiety levels during the pandemic. Various factors such as social isolation, lockdowns, and self-isolation led to increased adverse effects on mental health. The major drawback was the exclusion of those without internet access, which may have resulted in selection bias.

Chew et al. (2020) “studied psychosocial responses of the general population towards previous severe acute respiratory syndrome epidemics.” Common themes were anxiety, fear, depression, anger or guilt, grief, and loss. The takeaway is to focus on awareness of psychosocial needs and access to psychological help during the COVID-19 outbreak.

Problem Statement

The pandemic itself may distract attention away from the psychosocial consequences of the outbreak. Recommendations for a worldwide inclusive response focusing on the mental health impact were the focus of one study on the results of COVID-19 on mental health (Torales et al., 2020). Research is needed as studies related to mental health in patients affected by

COVID-19 are hard to come by. It will take many years to understand the full scope of the effects on a patient's psychological and physical health. COVID-19 is a new worldwide pandemic, and there are still many unknowns about the long-term impact.

Picot

Developing an appropriate research question is the first step of an evidence-based project (EBP). “The researcher must consider five components while developing an evidence-based practice problem” (Terry, 2018). The PICOT acronym was written to help researchers stay focused on their primary topics. PICOT targets five specific areas: (P) Population; (I) Issue or Intervention; (C) Comparison; (O) Outcome; and (T) Time. The PICOT question for this EBP is: In adult patients age 18 and older, in an ambulatory outpatient setting, will the administration of PHQ-9 screening identify COVID-19 related depression symptoms in PHQ-9 survey trends done pre-COVID-19, at the visit, and six weeks post guided imagery intervention.

PICO Question Variables

Population (P)

The population for this EBP focuses on adult patients at a family practice. All patients age 18 and older were allowed to participate, regardless of age or race. Patients were not be excluded based on religious preference or gender with no demographic exclusions to participation. All participants were current patients at the chosen family practice.

Intervention (I)

The intervention consisted of giving each participant a handout with local resources, counseling, and stress reduction techniques. The handout contained faith-based resources and guided imagery for stress relief. The handout was given to participants after comparing their pre-COVID PHQ-9 with their current PHQ-9. The participants received a follow-up call six weeks

later, repeating the PHQ-9 and answering a questionnaire designed to evaluate the effectiveness of the intervention.

Comparison (C)

This EBP compared participants' pre-COVID PHQ-9 questionnaires with their current PHQ-9. Comparisons were made from their PHQ-9 questionnaire done six weeks post-intervention. The PHQ-9's done pre-COVID, at project implementation, and post-PHQ-9 were compared for overall changes in scores.

Outcome (O)

The determinations of outcomes were done by comparing the success of the intervention in decreasing patients' depression. The outcomes were done by assessing for a decrease in the PHQ-9 overall scores. The patient perception of effective responses in the intervention questionnaire was elevated.

Time (T)

This EBP enrolled patients for three weeks. The researcher did follow-up calls six weeks later. The overall timeframe for this EBP was nine weeks from the start of the project.

Review of Literature

“A plan was designed to select the overall process used to implement this literature review” (Rebar et al., 2011). The plan comprised what databases would be used, what keywords would be searched, and what included parameters. It is essential to have a wide variety of relevant studies when planning an EPB.

Sampling Strategies

The researcher conducted a literature review to find evidence to support the planned EBP. Spring Arbor University's White Library has a search engine allowing for the search of multiple databases at one time. It searches 132 databases, including CINAHL, Medline, Cochrane

Library, Ovid, and many more. It also includes the ProQuest Coronavirus Research Database.

The resulting search eliminates duplicates automatically. Keywords used for query had: COVID-19; depression; anxiety; adjustment disorder; systematic review or meta-analysis; PHQ-9; adult population; and guided imagery. The term "and" was used in keyword combination. Search limitations included studies published within the last five years, English language, and had results from the United States. Search results to full-text, scholarly articles, academic journals, and peer-reviewed articles were limited. Keywords are defined as follows:

- COVID-19 is a mild to severe respiratory illness caused by the coronavirus.
- Depression is a mood disorder with varying degrees of sadness, loneliness, despair, sleep disturbances, and sometimes suicidal tendencies.
- Anxiety is having a strange or overwhelming sense of apprehension and fear.
- Adjustment disorder is any group of psychological disorders characterized by behavioral or emotional symptoms occurring in response to a specific stressor that impairs social functioning and relationships.
- The systematic review summarizes all the literature meeting predefined eligibility criteria for a particular topic.
- Meta-analysis is a quantitative statistical analysis of several similar studies or experiments that test pooled data for statistical significance.
- PHQ-9 or Patient Health Questionnaire is an instrument for screening, diagnosing, measuring, and monitoring the severity of depression
- The adult population is a pool of fully grown and developed individuals using a statistical sample.

- Guided imagery is a technique used to teach another person to imagine sensations and visualize images in mind to elicit a desired physical response (Merriam-webster.com, ND).

Inclusion/Exclusion Criteria

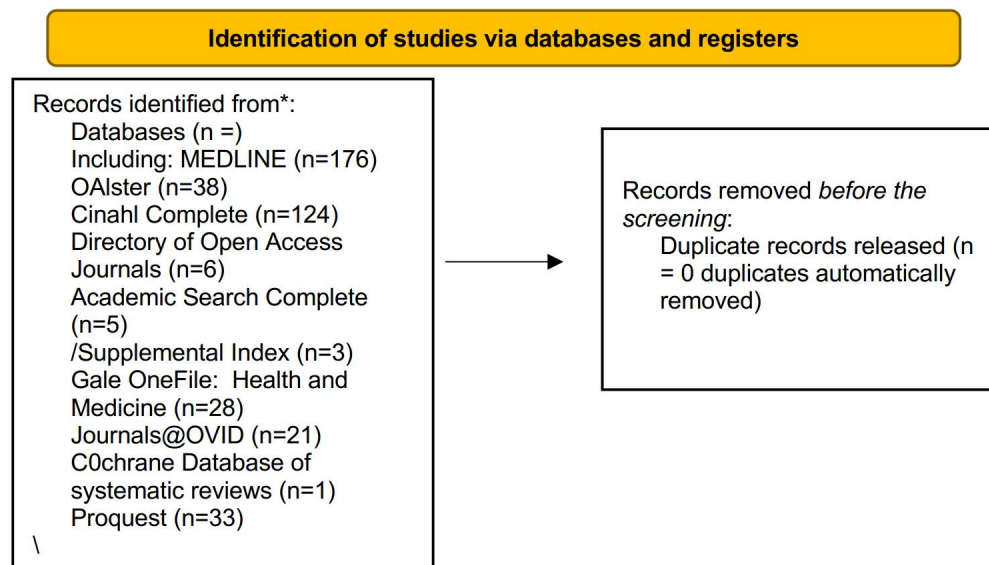
The researcher conducted a literature search, and articles were reviewed and included evidence if it applied to the proposed EBP. Articles published within the last five years, written in the English language, and participants from the United States were included in the study. Participants of the studies must be age 18 or older to be allowed in the study. Participants were excluded if they did not meet the above criteria. Other studies were excluded based on the study's poor validity, reliability, or design.

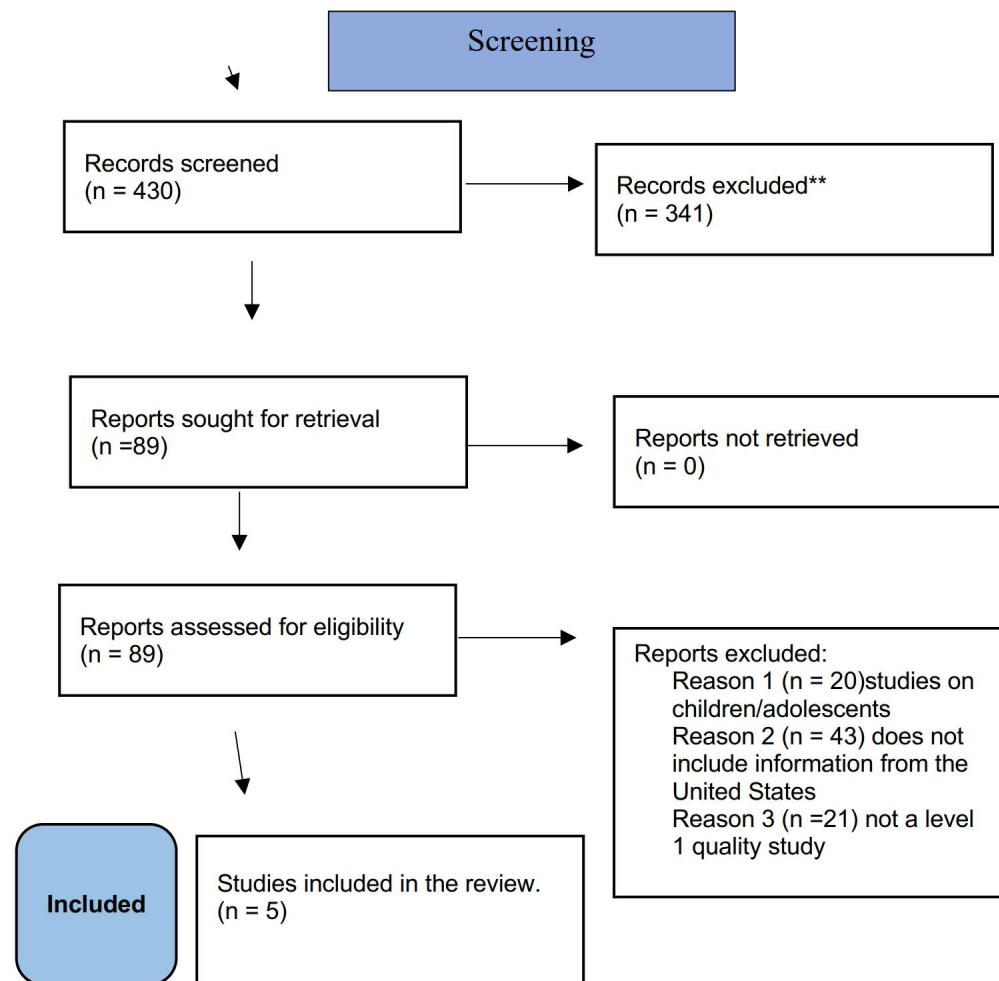
PRISMA

PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) is a checklist (Appendix A) containing 27 elements useful for critically appraising published research (Salameh et al., 2020). This checklist evaluated potential studies for potential inclusion in this EBP. The results were incorporated into the PRISMA Diagram (Figure 1).

Figure 1

PRISMA Flow Diagram





Literature Search Results

The literature review conducted, resulting in 430 potential articles. Three hundred forty-one excluded, leaving 89 studies for consideration. Eighty-four were excluded based on the inclusion/exclusion criteria previously stated. The remaining five studies were included in this paper (Table 3).

Constanti et al. (2021) “systematically reviewed 42 studies using PRISMA guidelines to determine the clinical utility of the PHQ-9 for screening depression in the primary care setting.” Participants who were 12 years or older were also included in the study. Two authors independently reviewed studies for legibility. They used a two-step process, in the initial screening, then full-text screening. The ad hoc developed data extraction spreadsheet was used.

Forty-two studies were included in this review, and 95% of the studies used were cross-sectional. Study results show the overall sensitivity of the PHQ-9 ranged from 0.37 to 0.98, specificity from 0.42 to 0.99. The positive predictive value ranged from 0.09 to 0.92 and negative 0.8 to 1. This study confirms the PHQ-9 as a valid screening tool to assess depression in primary care. The authors used the Downs and Black checklists on the randomized and non-randomized studies to ensure quality in the selected studies. The consensus of the reviewers resolved disagreements. Limitations include a small sample size and a lack of longitudinal studies.

Xiong et al. (2020) performed a systematic review using PRISMA guidelines during a specified period. Its purpose was to explore the mental health status of the general population during the COVID-19 pandemic. Nineteen studies were selected with participants ranging from 263-52,730 for 93,569 participants from eight countries, including the United States. The majority of the participants were over the age of 18.

Participants in this study were assessed using various methods, including the BDI-II, PHQ-9, WHO-5, CES-D, BAI, GAD-7, SAS, and DASS-21. Results showed a prevalence of depression symptoms ranging from 14.6% to 48.3%, with females identified to be more likely to develop depressive symptoms compared to males. Participants younger than forty, and students, were also found to be at increased risk. Anxiety symptoms were found in 11 studies ranging from 6.33% to 50.9%. Exposure to social media or news containing information of COVID-19 increased anxiety symptoms.

Strengths of this study include it is the first systematic review of the literature with relevance to increased depression during the COVID-19 pandemic. A limitation would be that this is an international study and not just based in the United States. Validity and reliability were ensured by using the PRISMA guidelines. In addition, only studies that followed a cross-

sectional study design and utilized standardized and validated scales for measurement were included.

Davis et al. (2020) conducted a systematic review with meta-analysis using PRISMA guidelines of ten studies evaluating the effectiveness of nonpharmacological interventions, including guided imagery to manage anxiety and depression in adults with irritable bowel disease (IBD). Inclusion criteria included: RCTs in English, measured anxiety and depression, only adults aged 18 and older and had a diagnosis of IBD. Studies excluded if they contained pediatric patients, were not written in English, or contained expert opinion or general reviews.

The meta-analysis determined nonpharmacological interventions for anxiety were effective. The standard mean difference (SMD) was -0.28 (95% CI, $p=0.004$).

Nonpharmacological interventions were also effective for depression with an SMD of -0.22 (CI 95%, $p=0.025$). The interventions included cognitive-behavioral therapy, mindfulness-based therapy, breath-body-mind workshop, guided imagery, yoga, and solution-focused therapy.

The first and second authors conducted the Cochrane risk of bias tool to ensure quality. Limitations included some studies did not focus on anxiety or depression as their primary outcome. This study showed nonpharmacological interventions, including guided imagery, are viable alternatives for treating anxiety and depression in patients with IBD.

Barta et al. (2021) conducted a meta-analysis using PRISMA guidelines studying twenty-seven studies including 90,879 college students. This study found a higher prevalence of anxiety, depression, and stress than pre-pandemic studies as thirty-nine percent higher anxiety, 31.2% increased depression and a 26% increase in stress. The sample size for anxiety was 84,097 students CI 95%, $p<0.0001$, the depression sample size was 61,392, with a CI of 95% and $p<0.0001$, and increased stress included 1799 students with a CI of 95%, $p<0.0001$.

The timeline includes the inception of the pandemic to July 2020. The purpose of this study was to present collective evidence of the psychological impact of COVID-19 on college students. Included in the study were ninety thousand eight hundred seventy-nine students, and twenty-seven studies were used. Inclusion criteria included: published in English, study conducted from the start of the pandemic to July 2020, survey tools with good psychometric properties were used, and complete study texts were available.

Strengths of this study include this being the first meta-analysis to assess the psychological impact of COVID-19 among college students. Limitations include the self-reporting nature might not accurately represent the clinical diagnosis of psychological illness. The second limitation is this is an international study, not just having the United States.

Wang et al. (2019) conducted a systematic review and meta-analysis using PRISMA, evaluating factors associated with psychological distress among the general population during the COVID-19 pandemic. This study comprised 288,830 participants from 68 studies. Findings showed the prevalence of anxiety was 33% (CI 95%), depression was 30% (CI 95%) overall. Women showed higher levels than men, and younger people were more affected than those over 35. This study showed one in three adults have COVID-19 related psychological distress.

Sixty-eight studies comprised 288,830 participants from 19 countries, including the United States. Inclusion criteria included CI 95% using standardized and validated psychometric tools, authors reported risks, predefined factors such as age and gender were included, and articles were peer-reviewed cross-sectional studies published in English or Chinese. The time frame included studies from December 2019 through July 15, 2020. Meta-regression and stratified analysis were conducted using the bias of Egger's regression ($p < 0.5$) Joanna Briggs Institute tools for cross-sectional studies were used to determine the quality of the included studies.

Organizational Assessment

A thorough organizational assessment before starting any project. It is essential to assess the facility for potential threats and weaknesses that may affect completing their project. The facility chosen is a family practice clinic which is perfect for the intended project. The proposed project is to determine the effect COVID-19 has had on increased depression symptoms in adults. This practice sees many patients and currently gets a PHQ-9 annually on all patients. The owner and staff were willing to participate and help where needed, as the information obtained will help patients cope with increased depression related to COVID-19. The IOA (Institutional and Organizational Assessment) framework and SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis were completed to assess what this facility does well and any potential problems.

Organizational Motivation

“The IOA model used for this assessment is a framework allowing researchers to analyze the strengths and weaknesses of an organization in relation to its performance” (Lusthaus et al., 2002). The IOA framework looks at how the organization performs within its particular environment. It considers finances and the people within the organization (Appendix B). The assessment is critical to determine areas within a specific organization that needs improvement (Moran et al., 2020).

Mission and Vision

The family practice is located in Jackson, Michigan and the mission of the practice is to provide exceptional care throughout their patients' lives. The vision of this practice is to "create a Patient-Centered Medical Home where patients receive the best possible care within the office, as well as any medical needs the patient may require from specialists.” We work with the patient, family, and other providers to build a committed healthcare team. Our goal is to provide all ages

with compassionate and knowledgeable treatment. Our staff is devoted to making each visit as enjoyable as possible. We realize healthcare is an ever-changing entity and are determined to grow as needed and whenever possible “.

History and Culture

The current owner purchased the facility in 1999, and the facility gained many patients after the acquisition from the previous owner. The facility sees patients from newborn to elderly. The oldest patient in this facility recently turned 100 years old. The facility has thirteen people employed, including one physician and one nurse practitioner. The age of the current workers ranges from 19 to 65, with six employees ranging from 19 to 28, and seven over the age of 50.

The office manager states the employees under age 28 have higher call-ins, request more days off, and often ask to leave early. In addition, the employees over the age of 50 have a superior work ethic compared to the younger employees. “Research has shown that millennials are more likely to miss scheduled workdays and be noncompliant with work rules than baby boomers” (Powers & Myers, 2016).

Despite the age differences between employees, a family atmosphere is apparent in the office. Employees genuinely respect each other and are involved in friendships in and outside the organization. Employees have positive attitudes and believe in caring for all patients, whether they have Medicaid or commercial insurance. All patients are treated with caring, understanding, and respect.

The physician, who owns the practice, treats employees with respect. He helps employees out when needed. He has given personal loans to employees at times when emergencies have occurred. He has an open-door policy, allowing staff to feel comfortable discussing any issues that arise in or out of practice.

External Environment

Every organization is affected by the external environment. “Political, legal, economic, and technological factors positively or negatively influence the organization” (Lusthaus et al., 2002). Identifying how these external factors impact the organization is essential. It is vital to plan for the issues that arise to cope with them rather than waiting for any issues to come up.

Legal

Health care practices must follow the rules and regulations. One example of this is Medicare guidelines that dictate standards of care and billing. Most Insurance companies follow Medicare guidelines for requirements as well. This practice accepts Medicare, Medicaid, and commercial insurances. It is necessary to stay up to date with these ever-changing guidelines. Providers are governed by local, state, and federal regulations related to prescribing and care standards.

Political

Politics affect this organization as differing political parties with various agendas can change health care rapidly. Health care policies can change patient coverage, thereby affecting the organization financially. In some cases, the providers state that Obama care caused many patients to have large deductibles they could not afford to pay, thereby reducing the patient's willingness to be seen for needed care.

Social/Cultural

This office sees a variety of patients from many backgrounds. Seventy percent of patients are Caucasian, 20 percent African Americans, five percent Hispanic, and five percent identified as other. The staff and providers need to be culturally sensitive to their population of patients. The office manager conducts annual cultural and sensitivity training for every staff member. Receptionists are trained to help those who have difficulty reading or writing fill out their

paperwork. COVID-19 has affected the ability to communicate with the hearing impaired as those who read lips cannot do so with masks on. Clear face shields have recently been ordered to wear when interacting with these patients to lessen the patient's anxiety during the visit.

Economic

The economy is a particularly challenging time for any privately owned practice. COVID-19 has caused this practice to suspend routine well-care and only provided emergency visits from March through June 2020. The economy affects the business financially, and before COVID-19, this practice operated with a financial surplus every year. COVID-19 has brought some uncertainty. The facility is only one of three private practices in the area that the local hospital does not own. While this practice could secure the PPE loan and receive money from the CARES act, it does not have the backing of other practices owned by the hospital.

Stakeholders

Stakeholders include any individual interested in the project outcome (Moran et al., 2020). Identifying key stakeholders is vital for the project. Stakeholders for this project include the physician owner, employees, patients, their families, and the community.

SWOT Analysis

The SWOT analysis (Appendix C) is an assessment to help the DNP student determine an organization's strengths, weaknesses, opportunities, and threats (Moran et al., 2020). The analysis is essential as it may uncover potential problems the researcher may encounter while conducting the study. This assessment will allow for planning how to handle possible situations if they arise.

Strengths

The current employees are a strength for this organization. The employees are a tight-knit group and would support the researcher with completing the intended project. The physician

owner is also very supportive and would assist where needed. The patients in this practice would, for the most part, be supportive of participating as well.

The practice has a good reputation, and patients have a good return response to surveys sent out in the past. Presently the facility is fully staffed, and several of the staff members are cross-trained to work as a medical assistant or front desk check-in or check out. Employees work collectively to ensure quality care for patients. The vision and mission statement is evaluated and updated if needed annually to ensure relevance to the community's needs. The facility also sees patients of all ages.

Weaknesses

This practice is recent to computerized charting. The practice is using the EPIC computerized charting system. The staff is still adjusting to the new system and additional training, increasing stress for all employees involved. The use of both paper and electronic forms are used as the charts will not be scanned for some time. New computers and laptops are readily available for all staff to use.

The practice is privately owned and does not have some conveniences larger hospital-based practices do. Some family practices in this community have an ultrasound, x-ray, and pharmacies on-site; this practice only offers lab services. One medical assistant is resistant to change. They have problems with computerized prescribing. They will need encouragement and help through changes.

Opportunities

While changing over to a computerized system can be stressful for staff, the opportunities for improving the practice are positive. The new system allows patients to auto-schedule through a website and can complete forms before their visit. Staff now have decreased workloads, as they do not have to pull charts every day when labs or tests come in. Referrals are made instantly

within the computer system, which reduces the medical assistant's workload. Consultation notes are available in the system allowing for the better continuation of care for the patients.

Threats

One of the biggest threats to this practice is the unknown. The financial impact of the current pandemic is still unknown. The threats so far are one of three privately owned practices left in the community. The local hospital has bought most of the practices in Jackson. These practices have considerable financial backing and more resources. The practices have financial support and can offer potential employees more money, retirement plans, and the ability to advance.

Purpose of the Project

This project attempts to determine what effect COVID-19 has had on depression symptoms by analyzing survey trends done pre-COVID-19, at the visit, and six weeks post-intervention. This project will also assess the benefits of providing a handout containing information on counselors, psychiatrists, financial resources, spiritual resources, and a section on guided imagery for stress relief (Appendix D). Participants practice guided imagery at least three times a week.

Theoretical/Conceptual Framework

This project aligns well with Watson's Theory of Caring. Jean Watson's Theory of Human Caring (THC) was first published in 1979 (Fitzpatrick & McCarthy, 2014). According to Watson (2008), "is the essence of nursing, and it is what all nursing action is based. Watson's theory is based on the concepts of person, health, environment, and nursing." "Holistic health care is central to nursing care" (Watson, 2008).

Person

Watson defines a person as a human being. Human beings must be cared for, valued, respected, nurtured, and understood. Humans must be viewed as more than just the sum of their parts. Health is the unity and harmony within the body, mind, and soul. It is the overall physical, social, and mental functioning. Watson believed health was a perceived state.

Environment

Watson (2008) states, “a caring attitude transmitted by the profession's culture as a "unique way of coping with its environment." Society determines what values and goals one should strive. According to Watson (2008), “caring has existed in every society.”

Nursing

Promoting health, preventing illness, restoring health, and caring for the sick are the goals of nursing. According to Watson (2008), nursing is "a human science of persons and human health-illness experiences mediated by professional, personal, scientific, esthetic, and ethical human transactions." Watson believes every society has had nurses who have cared for others.

Application to EBP

Watson’s theory fits well with the planned EBP. The COVID-19 pandemic affects people's spiritual, physical, and mental health. This EBP focuses on evaluating the effects of COVID-19 on depression and interventions used to improve this depression. Watson's theory created a generalized framework for nursing that can be applied to this EBP.

Framework

The Ace star model is the framework chosen for this EBP (Stevens, 2013). Ace Star Model (Academic Center for Evidence-Based Practice) is a framework for understanding the relationships between various stages of knowledge transformation. This framework guides researchers in putting evidence-based practice processes into action. There are five key components or points on a star in this framework.

The first is knowledge discovery is knowledge discovered through empirical research. Evidence summary is the second point and is done by summarizing the research of the chosen phenomena. After summarizing the evidence, the third component in translating the research into practice recommendations. Implementing the recommendations into practice is the fourth component. Finally, evaluating the patient's health outcome completes the process.

Methodology

Setting

The project was conducted at a family practice site, and this is a privately-owned family practice located in Jackson, Michigan. The project was designed for implementation at this one facility. Facility participation depended on location, leadership willingness to participate, and a sufficient potential population of patients aged 18 and older.

Participants

The population for this EBP focuses on adult patients age 18 and older. All patients aged 18 and older were allowed to participate, regardless of age or race. Patients were not excluded because of religious preference, gender, or socioeconomic status. There were no demographic exclusions to participation, and all participants were current patients at the chosen family practice.

Recruitment

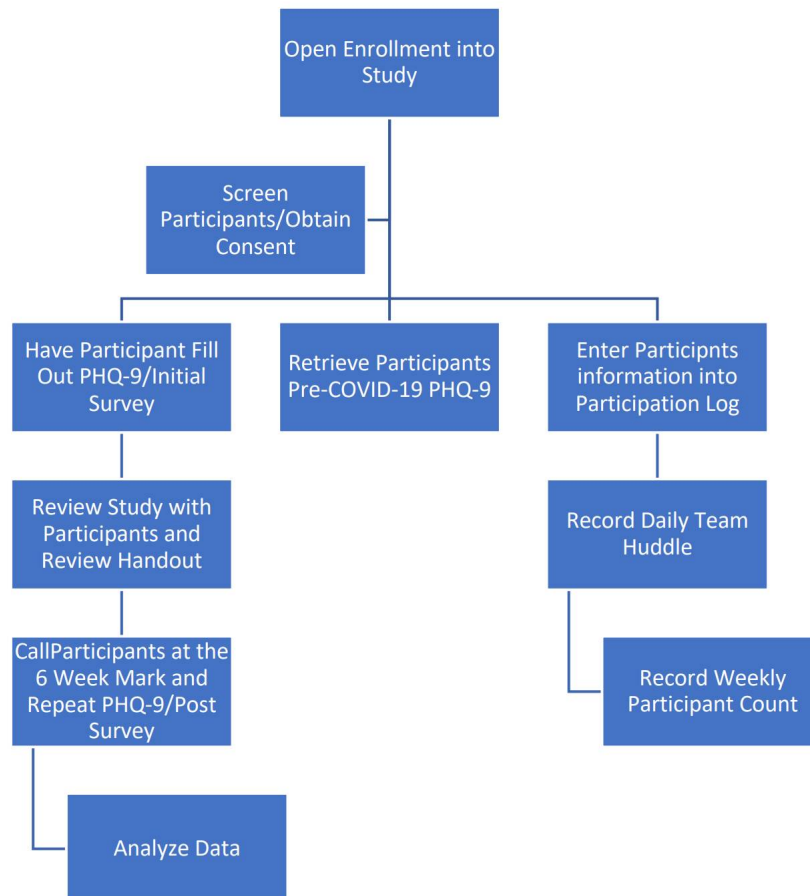
The project manager hung informational flyers in the waiting patient waiting room and exam rooms. Each flyer included information about the project and a statement regarding voluntary participation to all patients aged 18 and older to participate. Recruitment continued for three weeks from the starting day of this project.

Work Breakdown Structure

Work breakdown identifies how the goals and objectives of the project will be met outlined in figure 2.

Figure 2

Work Structure



Relationships

The medical assistants were required to initiate a PHQ-9 to screen for eligibility for the project. The screening is already required for nurses on each patient being seen daily, and the PHQ-9 screening did not add any additional work for them. The staff was already familiar with the PHQ-9.

Resources

This project requires the use of laptops and printers. Training required a 30-minute in-service on all aspects of the project. Printer paper, file folders, and a lockbox were also needed.

Schedule/Time Management

The project manager and medical assistants were scheduled daily during office hours. Medical assistants initiated the PHQ-9 questionnaires and alerted the project manager of potential participants. The project manager obtained informed consent and enrolled the participant in the study. The project manager did the six-week evaluation, and the project manager analyzed the completed data.

Quality Management Milestones/Quality Indicators

There was a count on the number of participants enrolled in the project weekly for the initial three weeks and how many followed up at the end of their six weeks (Appendix E). Enrolling 30 participants each week was the milestone goal for this project. Meeting this weekly target was the quality indicator (Moran et al., 2020).

Intervention and Operational Plan/Outcome Measures

The Medical assistants currently employed at this family practice were willing and able to assist with this study. Their participation was limited to initiating the PHQ-9 questionnaire, which is now part of their daily duties. Every patient is given a PHQ-9 questionnaire at every visit currently at this practice. Medical assistants initiated the PHQ-9 questionnaires and alerted the project manager of potential participants.

The project manager then explained the purpose of the study to the participants and obtained informed consent (Appendix F) to enroll the participant in the study. The participants completed a PHQ-9 questionnaire (Appendix G) and a Quantitative pre-survey (Appendix H) related to COVID-19. The project manager gave the patients scoring four points or greater a

handout containing information on resources such as counselors, psychiatrists, financial resources, spiritual resources, and a section on guided imagery for stress relief. Participants were asked to practice guided imagery at least three times a week.

Participants received a follow-up call six weeks later from the project manager. During this call, participants were given the PHQ-9 questionnaire again, and a survey was constructed to determine the benefit of the handout given (Appendix I). Any PHQ-9 scores over ten indicating suicidal ideation were brought to the physician's attention. The requirement is outlined in the consent for participation form signed by all participants. The PHQ-9 is a valid screening tool used to assess depression in primary care (Constanti et al., 2021).

Cost Management

The project manager was responsible for all costs related to this project. The cost was minimal as computers and printers were provided, and the project manager already had a locked box. Cost included printer paper and file folders. The cost for supplies was \$100.00.

Project Initiation

After obtaining IRB approval, this project started at a family practice in Jackson, Michigan. Enrollment was open for three weeks. The project was completed over nine weeks time.

Training Plan

The project manager conducted a 30-minute in-service with medical assistants before enrollment. This training comprised all aspects of the projects, goals, milestones, and potential issues that may arise.

Risks/Constraints

Patient scheduling was a possible constraint for this project. Staffing and patient flow can affect this study. If there are staffing issues, the medical assistants may feel overwhelmed. The

PHQ-9 is done regardless of staffing issues on every patient; however, the time needed to explain the evidence-based project to the patient may become a factor. The project administrator needed to monitor issues and step in when necessary to prevent losing potential participants. Morning huddles are used to plan for any issues or concerns that arise. A huddle log (Appendix J) is used to document morning meeting attendance, and any issues are identified in the project. Assessing the project site before the start of the project also mitigated potential threats. Participant dropout was a risk that should be monitored.

Monitoring/Sustainability

Monitoring consisted of a chart with all participants' start date and the date the six-week call was due (Appendix K). Monitoring ensured data was captured promptly, so no one was forgotten. There was a count on the number of participants enrolled in the project weekly for the initial three weeks and how many were followed up with at the end of their six weeks. The count alerted the project manager if low enrollment occurred and how many people did not come to the follow-up.

Evaluation

After the nine weeks, an evaluation was conducted to determine if the project goals were met. Analysis was conducted to determine if PHQ-9 screening identified COVID-19 related depression symptoms in PHQ-9 survey trends done pre-COVID-19, at the visit, and six weeks post-intervention. This analysis also evaluated the benefit of guided decreasing participants' overall depression.

Data Analysis

The recent coronavirus pandemic of 2019 (COVID-19) is causing increased social isolation due to quarantines. Job loss has caused worry about whether one can pay bills and meet the necessities of life. Primary care providers need to understand the effect COVID-19 and the

associated isolation has had on mental health. Ozdin and Ozdin (2020) state women and individuals with previous mental illnesses are most affected by the COVID-19 pandemic.

Outcome Findings

The EBP project measured depression levels in participants during the pandemic at a privately-owned family practice in Jackson, Michigan. The project was designed for implementation at this one facility. Facility participation depended on location, leadership willingness to take part, and a sufficient potential population of patients aged 18 and older.

There were 100 participants enrolled in this study.

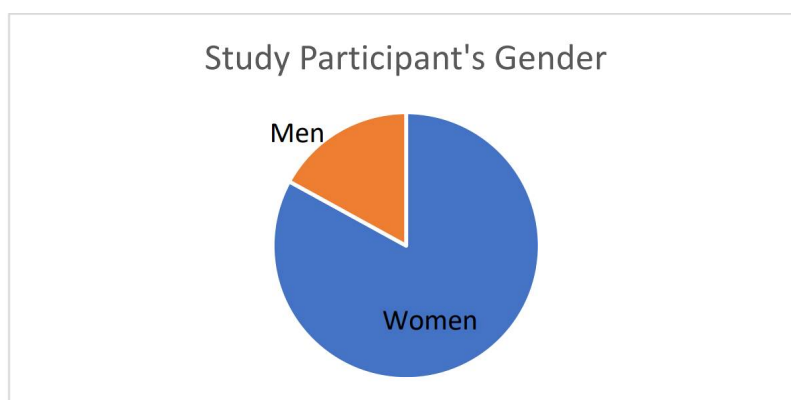
Of these, 83% were women ($n=83$), and 17% ($n=17$) were male as noted in Figure 1.

Participants ranged from age 18 to 82.

Of these 25% were age 18 to 30 ($n=25$), 17% age 31 to 40 ($n=17$), 16% age 41 to 50 ($n=16$), 21% aged 51 to 60 ($n=21$), 11% age 61 to 70 ($n=11$), seven percentage 71 to 80 ($n=7$), and three percentage 81 to 90 ($n=3$) as shown in figure 4.

Figure 3

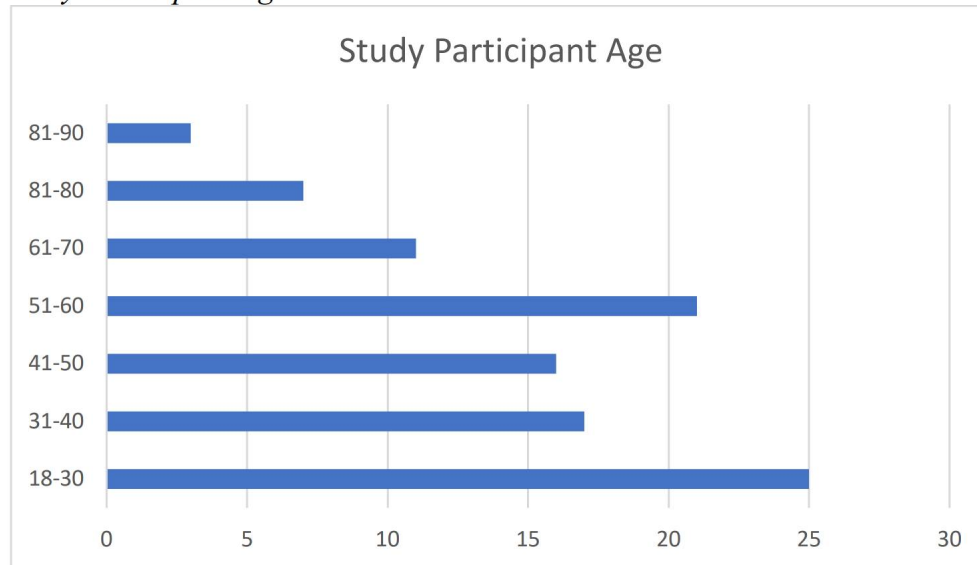
Study Participants Gender



The evidence-based project attempted to determine what effect COVID-19 has had on depression symptoms by analyzing and comparing survey trends pre-COVID-19, at the visit, and six weeks post-intervention. The project also assessed the benefits of providing a handout

containing information on resources such as counselors, psychiatrists, financial resources, spiritual resources, and a section on guided imagery for stress relief. Participants were asked to practice guided Imagery three times a week. After three weeks, the participant was contacted via phone and asked the PHQ-9 post-survey questionnaire.

Figure 4
Study Participant Age



Studies have proven the PHQ-9 questionnaire to be a reliable screening tool for depression in primary care (Constanti et al., 2021). Table 1 depicts the overall scores for the pre-COVID-19, visit, and six-week intervention. The table demonstrates decreased rates for participants at the six-week follow-up. An ANOVA Two-Factor with Replication was used to compare mean scores at baseline, pre-intervention, and post-intervention. The mean for the pre-COVID-19 PHQ-9 was 1.3, with a median of 1 and a mode of 0. The enrollment visit PHQ-9's mean was 8.03, median 7, and the mode was 5. The mean was 4.49, median 4, and mode 3 for the post-PHQ-9. The F was calculated at 0.994 with the F- Crit of 1.53. P-value was 0.48, making this a statistically significant finding.

The PHQ-9 is a survey that asks patients, "over the last two weeks, how often have you been bothered by..". Participants answered zero if not at all, one for several days, two for more than half the days, and three for nearly every day. When scoring for the PHQ-9, zero is no depression, one to four minimal depression, five to nine mild depression, 10-14 moderate depression, 15-19 moderately severe depression, and 20-27 severely depressed (Constanti et al., 2021).

Table 1
PHQ-9 Overall Scores

	0-4	5-9	10-14	15-19	20-24
PRE-COVID PHQ-9 BASELINE	98	2	0	0	0
PHQ-9 AT TIME OF PROJECT IMPLEMENTATION	13	58	19	9	1
POST PHQ-9 6 WEEKS POST-INTERVENTION	61	30	8	1	0

Question one. *Little interest or pleasure in doing things?* Participants answered zero if not at all, one for several days, two for more than half the days, and three for nearly every day. The Pre-COVID baseline mean was 0.177, mode zero, and median zero. The minimum answer was zero, and the maximum answer was two. The project implementation PHQ-9 mean was 1.090, mode one, and median one. The project implementation PHQ-9 minimum answer was zero, and the maximum score was three. The post-intervention PHQ-9 mean was 0.757, mode zero, and median one.

The post-intervention minimum answer was zero, and the maximum answer was three. The data suggested improved post-PHQ-9 compared to the initial visit PHQ-9. Baseline PHQ-9's demonstrated 14% ($n=14$) scored above zero, compared to 67% ($n=67$) at project initiation. Post-intervention PHQ-9 scores indicate an improvement, with 51% ($n=51$) scoring one or above.

Question two. *Feeling down, depressed, or hopeless?* Participants were asked to answer zero if not at all, one for several days, two for more than half the days, and three for nearly every day. The Pre-Covid-19 mean was 0.242, median zero, and mode zero. The minimum answer was zero, and the maximum answer was two. The baseline mean was 0.808, median one, and median zero. The project implementation PHQ-9 minimum answer was zero, and the maximum score was three.

The post-intervention mean was 0.616, with a median and mode of zero. The minimum answer was zero, and the maximum answer was three. The improvement in the mean comparing the initial visit to the post-intervention PHQ-9 indicates an improvement. Data demonstrated 22% ($n=22$) of baseline scoring over zero increasing to 56% ($n=56$) at project initiation. This percentage was decreased to 49% ($n=49$) post-intervention.

Question three. *Trouble falling asleep or staying asleep, or sleeping too much?* Participants were asked to answer zero if not at all, one for several days, two for more than half the days, and three for nearly every day. The Pre-Covid-19 baseline mean was 0.323, with the mode and median zero. The minimum answer was zero, and the maximum answer was three. The project implementation PHQ-9 mean was 1.724, median 2, and mode of one. The project implementation PHQ-9 minimum answer was zero, and the maximum answer was three. The post-intervention mean was 1.070, with a median and mode of one. The minimum answer was zero, and the maximum answer was three.

The decrease in mode between the initial visit and post-PHQ-9 shows an improvement with the intervention. Trouble sleeping showed an increase with 90% (n=90) of participants scoring above zero at project implementation, compared to 24% (n=24) at baseline. Post-intervention scores indicate an improvement from project implementation, with only 71% (n=71) scoring one or more.

Question four. *Were you feeling tired or having little energy?* Participants were asked to answer zero if not at all, one for several days, two for more than half the days, and three for nearly every day. The Pre-Covid-19 baseline mean was 0.383, mode and median zero. The pre-COVID-19 baseline minimum answer was zero, and the maximum answer was three. The project implementation PHQ-9 mean was 1.585 with a median and mode of one. The project implementation PHQ-9 minimum answer was zero, and the maximum answer was three. The post-intervention mean was 0.828, with a median and mode of one. The minimum answer was zero, and the maximum answer was three. The improvement in the mean comparing the initial visit to the post-intervention PHQ-9 shows an improvement. Thirty-two percent (n=32) of baseline participants scored one or more, compared to 89% (n=88) at project implementation and 65% (n=65) post-intervention.

Question five. *Poor appetite or overeating?* Participants were asked to answer zero if not at all, one for several days, two for more than half the days, and three for nearly every day. The Pre-Covid-19 baseline mean was 0.181, with a mean and mode of zero. The minimum answer was zero, and the maximum answer was three. The project implementation PHQ-9 mean was 1.010 with a median of one and mode of zero. The project implementation PHQ-9 minimum answer was zero, and the maximum answer was three. The post-intervention mean was 0.636, with a median and mode of zero. The minimum answer was zero, and the maximum answer was

three. The participants experienced improved scores comparing their initial visit and post-PHQ-9 questionnaire.

Data suggests before COVID-19, very few patients showed loss of appetite. Prior to COVID-19, 15% ($n=15$) of participants demonstrated no appetite compared to 62% ($n=62$) of participants during project implementation. Post-intervention data demonstrated 41% ($n=41$) of participants experienced decreased appetite suggesting the intervention was effective.

Question six. *Feeling bad about yourself or that you are a failure or have let yourself or your family down?* Participants were asked to answer zero if not at all, one for several days, two for more than half the days, and three for nearly every day. The Pre-Covid-19 baseline mean was 0.080, with a mean and mode of zero. The pre-COVID-19 baseline minimum answer was zero, and the maximum answer was two. The project implementation PHQ-9 mean was 0.747, with a median of one and mode of zero. The project implementation PHQ-9 minimum answer was zero, and the maximum answer was three.

The post-intervention mean was 0.393, with a median and mode of zero. The minimum answer was zero, and the maximum answer was three. The improvement in the mean comparing the initial visit to the post-intervention PHQ-9 shows how patients perceived themselves from the initial visit to the post-PHQ-9 questionnaire. Only seven percent ($n=7$) scored above a zero on their baseline PHQ-9, compared to 48% ($n=48$) at project implementation. The post-intervention PHQ-9 showed a downward trend, with only 22% ($n=22$) participants scoring above zero, indicating an improvement post-intervention.

Question seven. *Trouble concentrating on things, such as reading the newspaper or watching television?* Participants were asked to answer zero if not at all, one for several days, two for more than half the days, and three for nearly every day. The Pre-Covid-19 baseline mean was 0.060, with a mean and mode of zero. The PHQ-9 baseline minimum answer was zero,

and the maximum answer was two. The project implementation PHQ-9 mean was 0.646, with a median and mode of zero. The project implementation PHQ-9 minimum answer was zero, and the maximum answer was three. The post-intervention mean was 0.313, with a median and mode of zero. The minimum answer was zero, and the maximum answer was three. The improvement in the mean comparing the initial visit to the post-intervention PHQ-9 indicates an improved patient perception of concentration.

Baseline PHQ-9 scores showed five percent ($n=5$) of participants scoring above zero increasing to 41% ($n=41$) at project implementation. There was an improvement post-intervention, with only 22% ($n=22$) scoring above a zero. The Baseline BHQ-9 demonstrates the intervention had a positive effect.

Question 8. Moving or speaking so slowly that other people could have noticed?

Participants were asked to answer zero if not at all, one for several days, two for more than half the days, and three for nearly every day. The Pre-Covid-19 baseline mean was 0.040, with a mean and mode of zero. The PHQ-9 baseline minimum answer was zero, and the maximum answer was two. The project implementation PHQ-9 mean was 0.393, with a median and mode of zero. The project implementation PHQ-9 minimum answer was zero, and the maximum answer was three. The post-intervention mean was 0.131, with a median and mode of zero. The minimum answer was zero, and the maximum answer was three. There was an improvement from the initial visit to the post-PHQ-9 questionnaire when comparing the means.

Three percent ($n=3$) of baseline participants scored above a zero, compared to 27% ($n=27$) during project initiation. Post-intervention PHQ-9's demonstrated an improvement, with only eight percent ($n=8$) scoring above zero. Post-intervention PHQ-9s demonstrate a downward trend towards the baseline score.

Question nine. *Thought that you would be better off dead or hurting yourself somehow?*

Participants were asked to answer zero if not at all, one for several days, two for more than half the days, and three for nearly every day. The Pre-Covid-19 baseline mean was 0.0 with a mean and mode of zero. The PHQ-9 minimum and maximum answers were zero. The project implementation PHQ-9 mean was 0.080, with a median and mode of zero. The project implementation PHQ-9 minimum answer was zero, and the maximum answer was two. The post-intervention mean was 0.01, with a median and mode of zero. The minimum answer was zero, and the maximum answer was one. One participant scored a two on their initial questionnaire; the same person scored a one on follow-up, indicating an improvement. This physician was alerted to this patient's response per study protocol.

Post-Intervention Survey

Participants scoring four points or greater receive a handout containing information on resources such as counselors, psychiatrists, financial resources, spiritual resources, and a section on guided imagery for stress relief. “Guided imagery has found to positively improve sleep quality in patients suffering from anxiety” (Kiley et al., 2018). After six weeks, participants received a post-intervention survey to evaluate the usefulness of this handout and guided Imagery (Table 2).

211 for community services. Participants were surveyed after six weeks for their perceived usefulness of 211 for community services. The phone number to call is 211, for residents can call for help with rent, food, utility payments, and low-income housing. Out of 100 participants, nine percent ($n=9$) found it helpful. Five percent ($n=5$) found the information on 211 somewhat beneficial, and four percent ($n=4$) found it very helpful. While 91% ($n=91$) did not find this helpful information, 9% ($n=9$) found it a helpful community resource for patients in

need. The handout did not include all the programs 211 offers, resulting in a lower percentage of participants taking advantage of this program.

Table 2

Post-intervention Survey Results

	Not Helpful	Somewhat Helpful	Very Helpful
211 for Community Resources	91	5	4
Counselors	79	9	12
Psychiatrists	92	2	6
Financial Resources	92	4	4
Food Banks	91	5	4
Homeless Shelters	97	2	1
Spiritual Resources	43	30	27
Guided Imagery for Stress Relief	8	36	56

Counselors. Participants received a list of local counselors, including phone numbers. Twenty-One percent ($n=21$) of the 100 participants found the information on counselors to be of benefit. Nine percent ($n=9$) found the information somewhat helpful, and 12% ($n=12$) found it very helpful. While post-intervention survey results show 79% ($n=79$) did not find this helpful or use the information to access counseling, 21% used the information to access counseling which benefited the participant.

Psychiatrist. Participants were surveyed after six weeks for their perceived usefulness of resources on local psychiatrists. Out of 100 participants, eight percent ($n=8$) found this helpful. The post-intervention survey found six percent ($n=6$) of participants found this information helpful. Two percent ($n=2$) found this information somewhat beneficial. The survey found 92%

($n=92$) did not find this information helpful. This resource benefited eight percent of participants who may otherwise not have engaged in psychiatric services. Psychiatrists often need a referral from a primary care provider, so this may have played a part in only eight percent of respondents finding it of any value.

Financial resources. Participants were given a list of local financial resources for help with rent, food, and utility payments. Eight percent ($n=8$) out of 100 participants found this information helpful. Post-intervention survey results found four percent ($n=4$) found this information very helpful. Four percent ($n=4$) found it somewhat helpful, and 92% ($n=92$) did not find it helpful. When evaluating this resource, one has to consider not every participant suffering from depression will have financial needs, but it was beneficial to eight percent of the participants.

Food banks. Participants were given a list of local food banks. The post-intervention survey showed 91% ($n=91$) did not find this information helpful. Five percent ($n=5$) found the resource somewhat helpful, and four percent ($n=4$) found it very helpful. While only nine percent found this information of use, not all participants suffer from financial hardship. This resource was valuable to a select few of the participants.

Homeless shelters. The post-intervention survey found a low number of participants benefiting from this resource. Out of 100 participants, three percent ($n=3$) found this information helpful. The post-survey found 97 % ($n=97$) did not find this resource valuable. Two percent ($n=2$) found it somewhat useful, and one percent ($n=1$) found it very helpful. This information is specific to only homeless participants, so it is not surprising that 97% of participants did not perceive it as applicable. This resource is beneficial as three percent used it to find help with housing.

Spiritual Resources. Participants received information on local places of worship. Participants were also encouraged to listen to spiritual music during guided imagery. Out of 100 participants 57% ($n=57$) found it helpful. Post-intervention survey results showed 30% ($n=30$) found this somewhat helpful, and 27% ($n=27$) found it very helpful. Forty-three percent ($n=43$) did not find this information of any benefit. This resource had a positive outcome, with 57% ($n=57$) finding it beneficial.

Guided imagery for stress relief. Participants received instructions on how to do guided imagery. They were asked to perform guided imagery 15 minutes three times a week. Spiritual music during the guided imagery session was encouraged. Out of 100 participants, 92 % ($n=92$) found guided imagery beneficial. Post-intervention survey results showed 36% ($n=36$) found guided imagery somewhat helpful, and 56% ($n=56$) found it very helpful. Only eight percent ($n=8$) did not find it of any benefit. This resource had a positive outcome, with 92% ($n=92$) finding guided imagery beneficial.

DNP Program Outcomes

This proposed EBP meets all the essentials of the Doctor of Nurse Practitioner (DNP) program. The PICOT question: In adult patients age 18 and older, in an ambulatory outpatient setting, will the administration of PHQ-9 screening identify COVID-19 related depression symptoms in PHQ-9 survey trends done pre-COVID-19, at the visit, and six weeks post-intervention.

Outcome 1

This EBP meets Essential 1. Patients over 18, regardless of their age, race, religion, or social-economic status, were asked to participate in this project. Cultural and health literacy considerations were accommodated as needed. All participants received a handout that lists available faith-based mental health resources. The flyer included resources from multiple

denominations and faiths to accommodate diverse religious or spiritual needs. (Meets DNP I, III).

Outcome 2

Relevant literature was reviewed from various fields of practice. While conducting the literature research, social worker, psychology, physician, and nursing journals were included. These disciplines all contribute to evidence-based care. The handout given to participants contained information on referral services to counseling and psychiatry. (Meets DNP I, III, IV)

Outcome 3

This EBP evaluates participants for depression using a proven questionnaire. This EBP measured increased depression caused by the current pandemic and evaluated the effectiveness of the handout given in decreasing patients' overall depression. This EBP has implications for improved health care now and in future pandemics. ((Meets DNP II, VIII)

Outcome 4, 5 & 6

Current relevant literature has been and will continue to be reviewed, analyzed, and synthesized for this project. This EBP aims to promote health and decrease depression caused by the current pandemic. Promoting wellness by reducing participants' depression will be an overall positive outcome for the health. (Meets DNP III, V, V, VI, VII)

Outcome 7

Computers were used to conduct literature research, collate information, and generate results for this EBP to improve patient health care outcomes. (Meets DNP III, VI)

Outcome 8, 9 & 10

Participants were educated on the project's consent and goals. Staff at the site were educated on the project plan and details. Teaching and mentoring of the staff were conducted during this project. Patients and family members were educated and given a handout. After six

weeks, the evaluation was conducted to determine the effectiveness of project outcomes and implications for future practice and patient care. (Meets DNP III, V1, VII, VIII)

Sustainability/Implications for Practice

According to the Centers for Disease Control (CDC), over 74,037,216 cases of COVID-19 in the United States since the pandemic started (CDC, 2022). Over 879,971 deaths have contributed to COVID since the start of the pandemic. Social isolation, loss of jobs, and loss of loved ones have caused increased stress in people's lives. COVID-19 is a new pandemic, and more information is needed to understand the long-term effects on the general population. This EBP identifies potential mental health complications resulting from this pandemic. The EBP has implications for the current pandemic and what may be expected from future pandemics.

Dissemination

Dissemination of this EBP project will include a presentation to fellow students and staff at Spring Arbor University. A report of study findings will be available for all clinic stakeholders, community members, and peers. The result will be submitted to the Journal of Nurse Practitioners, a peer-reviewed journal.

Conclusion

An evidence-based project (EBP) was implemented at a privately-owned family practice in Jackson, Michigan. The purpose of this project was to determine what effect COVID-19 has had on depression symptoms by analyzing survey trends have done pre-COVID-19, at the visit, and six-week post-intervention. This project assessed the benefits of providing a handout containing information on resources such as counselors, psychiatrists, financial resources, spiritual resources, and a section on guided imagery for stress relief. Results showed an increase in participants' PHQ-9 scores during the pandemic compared to pre-pandemic PHQ-9s.

PHQ-9's done post-intervention demonstrated guided imagery is beneficial in reducing depression. The spiritual information is given to participants also showed benefit for participants. Limitations to this study include limited access only offered at one site, and only 100 participants enrolled. While this study met the EBP outcomes, further studies are needed on the long-term effects of depression from the COVID-19 pandemic.

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Appendix A

PRISMA 2009 Checklist

Section/topic	#	Checklist item
TITLE		
Title	1	Identify the report as a systematic review, meta-analysis, or both.
ABSTRACT		
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.
INTRODUCTION		
Rationale	3	Describe the rationale for the review in the context of what is already known.
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).
METHODS		
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information, including registration number.
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.
Search	8	Present complete electronic search strategy for at least one database, including any limits used, such that it could be repeated.
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in a systematic review, and, if applicable, included in the meta-analysis).
Data collection process	10	Describe the method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.
Data items	11	List and define all variables for which data (e.g., PICOS, funding sources) and any assumptions or simplifications were made.
Risk of bias in individual studies	12	Describe methods used for assessing the risk of bias of individual studies (including whether the study or outcome level) and how this information is used in any data synthesis.
Summary measures	13	State the principal summary measures (e.g., risk ratio, the difference in means).
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.



PRISMA 2009 Checklist

Section/topic	#	Checklist item
Risk of bias across studies	15	Specify any assessment of the risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.
RESULTS		
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.
Risk of bias within studies	19	Present data on the risk of bias of each study and, if available, any outcome level assessment (see item 12).
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.
Synthesis of results	21	Present results of each meta-analysis, including confidence intervals and consistency measures.
Risk of bias across studies	22	Present results of any assessment of risk bias across studies (see Item 15).
Additional analysis	23	If done, give results of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).
DISCUSSION		
Summary of evidence	24	Summarize the primary findings, including the strength of evidence for each main outcome; consider their relevance to crucial groups (e.g., healthcare providers, users, and policymakers).
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias) and review level (e.g., incomplete retrieval of identified research, reporting bias).
Conclusions	26	Provide a general interpretation of the results in the context of other evidence and implications for future research.
FUNDING		
Funding	27	Describe funding sources for the systematic review and other support (e.g., supply of data); the role of funders for the systematic review.

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097.
doi:10.1371/journal.pmed1000097

For more information, visit: www.prisma-statement.org.

Appendix B

IOA Framework

POCKET GUIDE FOR ORGANIZATIONAL ASSESSMENT

This guide is intended to provide a framework for rapid organizational assessment (OA) during brief (one to two day) visits to an organization. For in-depth assessments, more comprehensive instruments are available on the Reflect & Learn website (www.reflectlearn.org).

This guide provides some key concepts for you to reflect on as you analyze the organization's enabling environment, motivation, capacity and performance. Use these concepts in writing your organizational assessment report.

DATA SOURCES

Think about your data needs as your visit progresses. In the assessment process, attempt to:

Meet a suitable spectrum of people and record their names:

- staff, managers, project officers
- board members
- beneficiaries, stakeholders
- government officials, donors, other agencies

Observe the dynamics among people:

- nature of meetings with you; who attends; who presides
- decision-making processes
- nature of dealings with organization's clients
- how the work is conducted, dominant paradigm

Observe relevant facilities:

- buildings/grounds
- regional offices
- program or project sites

Obtain available key documents:

- charter
- mission statement
- annual reports
- services descriptions
- project documents
- financial reports

CONDUCTING A QUICK ASSESSMENT

ORGANIZATIONAL PERFORMANCE

Every organization should attempt to meet its goals with available resources while ensuring sustainability over the long term. "Good performance" means the work is done effectively, efficiently and remains relevant to the stakeholders. Characterize organizational performance by answering the following questions:

How effective is the organization in moving toward the fulfillment of its mission?

- organizational performance (outputs and outcomes, major achievements, general level of organizational productivity defined according to the organization's mission and values, utilization of results)
- staff performance (clients served, quality of services/products)
- performance of programs and services

How efficient is the organization in moving toward the fulfillment of its mission?

- costs in relation to services provided
- staff productivity (turnover, absenteeism, outputs)
- administrative system efficiency

Has the organization kept its relevance over time?

- adaptation of mission
- meeting stakeholder needs
- adaptation to environment

How financially viable is the organization?

- diversification of sources of funding
- meeting financial targets (for profit organizations)
- having contingency funds (not-for-profit organizations)

ENABLING ENVIRONMENT

Organizations do not exist in a vacuum. Each organization is set in a particular environment, which provides multiple contexts that affect the organization and its performance. Characterize the organization's enabling environment using the following guidelines.

Describe and assess the administrative/legal environment within which the organization operates:

- policies
- legislation
- regulations

Describe and assess the social/cultural environment within which the organization operates:

- norms and values
- beliefs
- attitudes in society
- literacy

Describe and assess the external political environment within which the organization operates:

- form of government
- distribution of power
- access to government resources
- allocation decisions
- political will

Describe and assess the economic environment within which the organization operates:

- GDP, inflation, growth, debt
- wage/price structure
- community economics
- hard currency access
- government funding distribution

ENABLING ENVIRONMENT (CONTINUED)

Describe the **technological and ecological environments** within which the organization operates:

- infrastructure, utilities
- geography
- technological literacy
- information technology
- climate

Describe and assess the major stakeholders of the organization:

- clients
- donors
- beneficiaries
- government bodies
- other institutions

What is the impact of these environmental forces on the mission, performance and capacity of the organization?

ORGANIZATIONAL MOTIVATION

No two organizations are alike. Each has a distinct history, vision/mission, culture and incentive/reward system. Characterize the level of organizational motivation as determined by the following components.

Analyze the organization's history:

- establishment
- major awards/achievements
- major struggles
- changes in size, program, leadership
- major projects and funding

Understand the organization's mission:

- evolution of mission statement
- organizational goals
- role of mission in shaping the organization, giving it purpose and direction
- articulating research and research products that are valued

Understand the organization's culture:

- attitudes about working
- attitudes about colleagues, clients or stakeholders
- values, beliefs
- underlying organizational norms that guide the organization

Understand the organization's incentive/reward system:

- key factors, values, motivations to promote productivity
- intellectual freedom, stimulation, autonomy
- remuneration, grant access, opportunity for advancement
- peer recognition, prestige

How does motivation affect organizational performance? In what ways do the history, mission, culture and incentive system positively and negatively influence the organization?

ORGANIZATIONAL CAPACITY

Organizational capacity underlies an organization's performance. Capacity is understood as the five inter-related areas detailed below. Characterize the organizational capacity using the following conceptual guidelines.

Assess the strengths and weaknesses of strategic leadership in the organization:

- leadership (managing culture, setting direction, supporting resource development, ensuring tasks are done)
- strategic planning (scanning environment, developing tactics to attain objectives, goals, mission)
- business models

Assess the strengths and weaknesses of financial management:

- financial planning (operating expenses, forecasts of the future monetary needs and requirements)
- financial accountability (rules for member use of financial resources, transparent/verified system)

Assess the strengths and weaknesses of the organizational structure within the organization:

- governance (legal framework, decision-making process, methods for setting direction, external links)
- operational (roles and responsibilities, coordination of labour, coordinating systems)

Assess the strengths and weaknesses of the organizational infrastructure:

- facilities management (adequate lighting, clean water, electricity)
- technology management (equipment, information systems, hardware/software, library)

Assess the strengths and weaknesses of the following systems, processes or dimensions of human resources:

- planning (recruiting, selecting, staffing, orienting)
- developing (performance management, monitoring, evaluation)
- career management (career development, training)
- maintenance (health/safety issues, gender issues, quality of working life)

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FOR ADDITIONAL INFORMATION ON ORGANIZATIONAL ASSESSMENT, PLEASE CONSULT UNIVERSALIA'S REFLECT & LEARN WEBSITE AT WWW.REFLECTLEARN.ORG

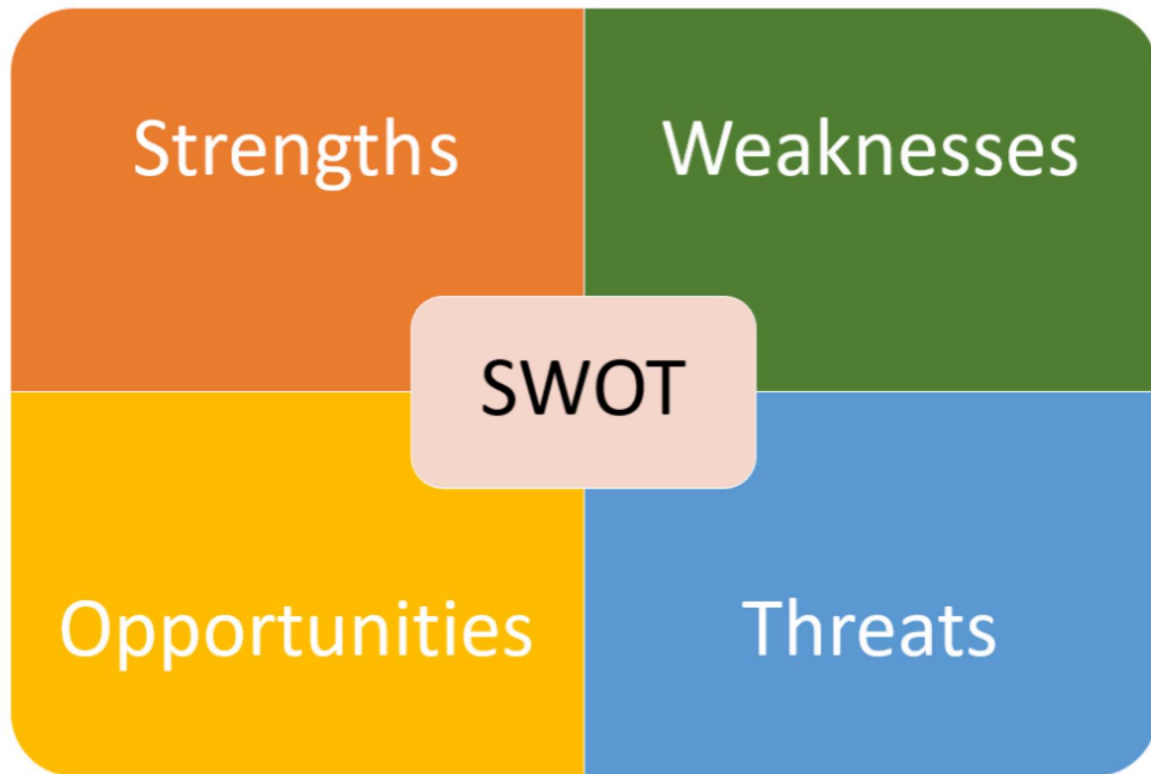
Reflect & Learn

THE RESEARCH PRESENTED HEREIN WAS SUPPORTED BY:

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Appendix C

SWOT Analysis



Appendix D

Participant Handout

Call 211 for Essential Community Services

- Help to pay bills/Housing Expenses
- Finding program and benefits
- Disaster recovery
- Health care resources/transportation/prescription coverage

Counselors

- Patricia Lafave & Associates (517) 782-2442
- Highfields (517) 783-4250
- Henry Ford Allegiance Outpatient Behavior Health (517) 205-4730
- John Hand & Associates (517) 783-4418
- Mitchell Weisbrod (517) 544-7700
- Lifeways (517) 789-1200

Psychiatrists

- Henry Ford Allegiance Behavior Health (517) 205-4730
- Lifeways (517) 789-1200

Financial Resources

- Jackson County Community Action Agency (517) 788-6495
- Brooklyn Community Chest (517) 592-2636
- Salvation Army (517) 782-7185
- Love in the Name of Jesus Christ (517) 782-9766
- Disability Connections (517) 782-6054
- St. Vincent DePaul (517) 783-1295
- Church Conferences (517) 783-1295
- Concord Methodist Church (517) 524-6156

Food Banks

- Central Wesleyan (517) 787-0081
- Christ's Kingdom Ministries (517) 879-5680
- City of Zion (517) 782-1774
- First Church of the Nazarene (517) 782-7084
- Harmony Baptist Church (517) 787-1480
- Jackson Community Food Pantry (517) 962-1005
- Michigan Department of Military and Veterans Affairs (517) 788-4424
- New Life Worship Center Church of God of Prophecy (517) 764-1307
- Saint John United Methodist Church (517) 784-7580
- Spring Arbor Free Methodist (517) 750-2400
- St John Catholic Church (517) 784-0553

Homeless Shelters

Jackson Inter-Faith Shelter (517) 789-8735
Aware Shelter (517) 783-1638

Spiritual Resources

St John Catholic Church (517) 784-0553
Southside Church (517) 789-6202
Faith Evangelical Lutheran Church (517) 787-1411
Ganson Street Baptist Church (517) 782-3814
Jackson Free Methodist Church (517) 784-3133
Unity Church (517) 764-6900
Westwinds Church (517) 750-1111
Arbor Grove Congregational Church (517) 784-4824
Temple Beth Israel (517) 784-3862
Islamic Society of Jackson (517) 782-4349

Guided Imagery for Stress Relief**Benefits Guided Imagery**

Lowers stress levels
Improves Sleep
Provides mental clarity
Decreases Pain
Reduces Depression symptoms

Start with playing soothing music. (There are plenty of free guided imagery sessions available on YouTube.com, or you can do it on your own)

How to do guided imagery

1. Lie down or sit in a quiet, comfortable area. Set the alarm for 15 minutes.
2. Close your eyes, inhale and exhale deeply and keep deep breathing during the relaxation technique.
3. Imagine a peaceful scene like a tropical beach, majestic mountain range, or your favorite place in nature.
4. Think of the details, the sounds, scents, and sensations of being in this place.
5. Envision yourself walking along a path, imagining the details and sounds as you walk the path
6. Relax, taking in the scene for several minutes while continuing to breathe deeply until the alarm sounds.

Appendix E

Weekly Participation Count

	Week 1	Week 2	Week 3
Date			
Number of Participants Enrolled			

Appendix F

Informed Consent

**Spring Arbor University
Informed Consent**

Title of Study: Identification of COVID-19 Related Depression Symptoms

Principal Investigator: Sharyl A. Page FNP-BC

Co-Investigator(s): None

Dear Participant:

My name is Sharyl Page. I am a Nurse Practitioner, and I am currently pursuing a doctoral degree at Spring Arbor University. I am completing an evidence-based project. The purpose of this research project is to identify COVID-19 related depressive symptoms. This project will provide healthcare personnel with information on the impact the recent COVID-19 pandemic has had on increasing depression symptoms in the adult population. Participation is voluntary.

Project Interventions

As a participant in this project, you will be asked to participate in the following:

- Complete a Patient Health-9 questionnaire
- Complete a Pre-participation survey
- Receive brief education on an interventional handout containing informational resources such as counselors, psychiatrists, financial resources, spiritual resources, and a section on guided imagery for stress relief
- Participants will be asked to practice guided imagery at least three times a week while listening to their favorite spiritual music; soothing nature sounds such as waves, or any music they find relaxing.

Additional Activities

Six weeks after their initial visit, they will be contacted by phone. The purpose of this phone call is:

- Complete a Patient Health-9 questionnaire
- Complete a brief survey to evaluate the effectiveness of the interventions

Risks or Discomforts

There is the belief that no known risks are connected to participating in this study.

Benefits to the Research Participants or Others

COVID-19 has affected everyone at some level. It is reasonable to expect an improvement in your Patient Health Questionnaire-9 score, indicating improved depression symptoms. However, I can't guarantee that you will personally experience benefits from participating in this study. Others may benefit in the future from the information obtained in this study.

Possible Alternative and Advantageous Procedures or Courses of Treatment

Possible alternative treatments for adjustment disorder and depression include medication, counseling, and support groups.

Confidentiality

If you agree to participate in this study, your identity will be protected. Participants will be assigned a number, and your name will not be disclosed. Files will be secured in a lockbox and protected.

Greater than Minimal Risk

Study participants may include those suffering from depression symptoms and are considered a vulnerable at-risk population.

Contact Person

Sharyl A. Page can be reached at (517) -788-6470 for any questions or concerns pertaining to this study.

Printed Name of Participant: _____

Signature of Participant: _____

Date: _____

Appendix G

PHQ-9 Questionnaire

ID# _____

Date _____

Patient Health Questionnaire-9
(PHQ-9)

Over the last two weeks, how often have you been bothered by the following problems? (Circle Your Answer)	Not at all	Several days	More than half the days	Nearly Every Day
Little interest or pleasure in doing things	0	1	2	3
Feeling down, depressed, or hopeless	0	1	2	3
Trouble falling asleep or staying asleep, or sleeping too much.	0	1	2	3
Feeling tired or having little energy	0	1	2	3
Poor appetite or overeating	0	1	2	3
Feeling bad about yourself or that you are a failure or have let yourself or your family down	0	1	2	3
Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
Moving or speaking so slowly that other people could have noticed? Or the opposite being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
Thoughts that you would be better off dead or hurting yourself in some way	0	1	2	3

Total Score _____

Appendix H
Initial Survey

Please Check the Appropriate Response	No	Yes
1. Since the start of the COVID-19 pandemic, have you experienced any loss (personal or financial)		
2. Have you been negatively impacted by COVID-19		

Appendix I
Post-Intervention Survey

How helpful was the following information to you? (Circle Your Response)	Not Helpful	Somewhat Helpful	Very Helpful
211 for Community Services	0	1	2
Counselors	0	1	2
Psychiatrists	0	1	2
Financial Resources	0	1	2
Food Banks	0	1	2
Homeless Shelters	0	1	2
Spiritual Resources	0	1	2
Guided Imagery for Stress Relief	0	1	2

Appendix K

Participation Log

[illegible]

Appendix L

IRB Approval

Spring Arbor University

Institutional Review Board

Decision Sheet for Page, Hengen; Effects of COVID-19 on Depression Symptoms in the Adult Population

Project Category:

☒ New Assigned IRB#: 03230702-062221

☐ Renewal Funding Agency, (if applicable):

Project Timeline: Start Date: 06-22-21

End Date: 06-22-22

Committee Decision:

☐ Approved as an exempted review; no further review needed unless protocol changes.

☒ Approved as an expedited review; no further review needed unless protocol changes.

☐ Approved as a full review; no further review needed unless protocol changes.

☐ Denied due to:

Comments:

We understand the nature of this study is an expedited level study and give the approval to conduct the data collection on our campus, provided that subjects complete an informed consent statement.

Date of Decision: June 22, 2021

Signature of IRB Designate: Bethany J Ulrich

Review of Literature/Evidence Summary Table

Table 3

Literature Review/Summary Table

Authors/Title/Year of Publication	Study Design	Summary of Findings	Validity and Reliability Quality and Levels of Evidence	Applicability of Outcomes to PICOT Question
Costantini, L., Pasquarella, C., Odone, A., Colucci, M. E., Costanza, A., Serafini, G., Aguglia, A., Murri, M. B., Brakoulis, V., Amore, M., Ghaemi, S. N., & Amerio, A. (2020). Screening for depression in primary care with Patient Health Questionnaire-9 (PHQ-9): a systematic review. <i>Journal of Affective Disorders</i> , 279(2021), 473–483.	A systematic review of 42 studies was conducted using PRISMA guidelines to determine the clinical utility of the PHQ-9 for screening depression in the primary care setting. Participants were included if they were 12 years or older. Two authors independently reviewed studies for legibility. They used a two-step process, initial screening, then full-text screening. The ad-hoc developed data extraction spreadsheet was used.	Forty-two studies were ultimately included in this review. 95% of the studies used were cross-sectional. Study results indicate the overall sensitivity of the PHQ-9 ranged from 0.37 to 0.98, specificity from 0.42 to 0.99. The positive predictive value ranged from 0.09 to 0.92 and negative 0.8 to 1. This study confirms the PHQ-9 as a valid screening tool to assess depression in primary care.	This is a quality level 1 study. It is a systematic review demonstrating the validity and reliability of the PHQ-9 screening tool for depression in primary care. The authors used the Downs and Black checklist on the randomized and non-randomized studies to ensure quality in the selected studies. The consensus of the reviewers resolved disagreements. Limitations include small sample size and a lack of long	This study is relevant to the PICOT as the PHQ-9 is the screening tool intended for the proposed project. Validating the validity and reliability of the PHQ-9 is a necessary component of the process.

<p>Xiong, J., Lipsitz, O., Nasri, F., Lui, L. M. W. >., Gill, H., Phan, L., Chen-Li, D., Lacobucci, M., Ho, R., Majeed, A., & McIntyre, R. S. (2020). Impact of COVID-9 pandemic on mental health in the general population: a systematic review. <i>Journal of Affective Disorders</i>, 227, 55–64. https://doi.org/10.1016/j.jad.2020.08.001</p>	<p>This study performed a systematic review using PRISMA guidelines during a specified period of time. Its purpose was to explore the mental health status of the general population during the COVID-19 pandemic.</p> <p>Nineteen studies were selected with participants ranging from 263-52,730 for 93,569 participants from eight countries, including the United States. The majority of the participants were over the age of eight-teen.</p>	<p>Participants in this study were assessed using various methods, including the BDI-II, PHQ-9, WHO-5, CES-D, BAI, GAD-7, SAS, and DASS-21. Results showed a prevalence of depression symptoms ranging from 14.6% to 48.3%, with females identified to be more likely to develop depressive symptoms compared to males. Participants younger than forty, and students, were also found to be at increased risk.</p> <p>Anxiety symptoms were found in 11 studies ranging from 6.33% to 50.9%. Exposure to social media or news containing information of COVID-19 was found to increase symptoms of anxiety.</p>	<p>This is a level 1 quality systematic study. Strengths of this study include it is the first systematic review of the literature with relevance to increased depression during the COVID-19 pandemic. A limitation would be that this is an international study and not just based in the United States. Validity and reliability were ensured by using the PRISMA guidelines. In addition, only studies that followed a cross-sectional study design and utilized standardized and validated scales for measurement were included.</p>	<p>This study is relevant to the PICOT as it is the first systematic review of the effects the COVID-19 pandemic has had on depression and anxiety in the general population.</p>
<p>Davis, S. P., Bolin, L. P., Crane, P. B., & Crandell, J. (2020). Nonpharmac</p>	<p>This is a systematic review with meta-analysis, in which Comprehensive</p>	<p>This study's objective was to systematically assess published randomized controlled trials of nonpharmacological</p>	<p>Quality of evidence is level 1. This is a systematic review of RCTs with a meta-analysis meeting the required criteria for a level 1</p>	<p>This study is relevant to the proposed PICOT. Assessing the effects of an intervention on</p>

<p>ological interventions for anxiety and depression in adults with inflammatory bowel disease: a systematic review with meta-analysis. <i>Frontiers in psychology</i>, 11. https://doi.org/10.3389/fpsyg.2020538741</p>	<p>ve Meta-Analysis software was used to conduct a meta-analysis with random effects. Analysis using PRISMA guidelines of ten studies evaluating the effectiveness of nonpharmacological interventions including guided imagery to manage anxiety and depression in adults with irritable bowel disease (IBD). Online databases were used to obtain data during a specific time frame.</p>	<p>interventions and synthesize the effectiveness of these interventions for the management of anxiety and depression in adults with inflammatory bowel disease.</p> <p>The meta-analysis determined nonpharmacological interventions for anxiety were effective. The standard mean difference (SMD) was -0.28 (95% CI, $p=0.004$). Nonpharmacological interventions were also effective for depression with an SMD of -0.22 (CI 95%, $p=0.025$). The interventions included cognitive-behavioral therapy, mindfulness-based therapy, breath-body-mind-workshop, guided imagery, yoga, and solution-focused therapy.</p>	<p>rating: random assignment with two or more groups and having an intervention (Glasofer & Townsend, 2019).</p> <p>The first and second authors used the Cochrane risk of bias tool to ensure quality. This study showed statistical significance with a CI of 95% and $p<0.025$. This is both a valid and reliable study.</p>	<p>depression is a planned part of the proposed project.</p>
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