Implementing the PHQ-2 Depression Scale for Depression on the Mobile Diabetes Unit

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Table of Contents

Abstract

Problem: Healthcare is not considered a human right within the United States. The vulnerable and underserved face consistent barriers to healthcare such as racial inequities, geographic location, and lack of access to name a few. Mental health crises have risen ten-fold around the world secondary to the COVID-19 pandemic. The purpose of this study was to cultivate a process to identify early signs of depression and promptly initiate referrals within the community. **Intervention:** The PHQ-2 screening tool was implemented to address the current health needs of an underserved population on the mobile health unit. Individuals served on the mobile health unit were included in the intervention. In addition to the screenings commonly performed on the mobile unit, the addition of the PHQ-2 depression screening tool was provided to each client. **Measures:** The PHQ-2 Depression scale is a universal tool used that can be utilized at any point for depression screenings. The PHQ-2 is the shortened version of the PHQ-9 depression scale used to swiftly identify earlier signs of depression before a formal referral. This is a two-part tool that can address clients' feelings over the last 2 weeks. **Results:** The sample size was 24 (n=24). There were 5 males and 19 females in the study. The most frequent age group seen were 51-70. There were 4 people who scored 3 or higher and were given referrals into the community. **Conclusion**: For this research project, the outcome was to identify depression out in the communities and attain the proper referrals for individuals who score a 3 or higher. In this specific study, the average score for the PHQ-2 Depression scale was 1. Future research could direct the focus on expanding to different populations. Depression remains a taboo, but through further outreach, we can continue to break down barriers.

Keywords: *primary care knowledge, depression, vulnerable, nursing*

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Healthcare is not considered a human right within the United States. The vulnerable and underserved face consistent barriers to healthcare such as racial inequities, geographic location, and lack of access to name a few. Mental health crises have risen ten-fold around the world secondary to the COVID-19 pandemic. Members of the underserved population can have limited access to mental health providers, resources, and referrals. Identifying signs of depression early in at-risk populations and eliminating barriers to referrals and mental healthcare, can make a difference in populations impacted.

Overview

Problem Description

Unmanaged mental health has evolved into the leading factor of disabilities and mortality (Reuben, et al., 2022). Mental health can impact a patient's overall well-being, sometimes leading to physical manifestations or pain. Individuals suffering may feel there is no other way out of their depression, and in some, may lead to suicide. Mental health problems in America are considered taboo. Between the difficulty in access to resources and limited providers in mental health, individuals underserved can be left without treatment.

To reach more people who may be impacted by depression, and underserved for a variety of factors, bringing screenings and referrals to them may be a way to positively impact the health and well-being of those groups. A private, Midwest healthcare college reaches underserved communities for health screenings with a mobile unit. This unit serves individuals who want to attend screenings predominantly in areas that house susceptible populations that have limited access to healthcare resources. The research question that guided this project was, within the mobile unit population, does the implementation of the PHQ-2 scale for depression develop a process for more mental health referrals on the mobile health unit?

The outcome of this project was to create a process for mental health referrals by screening individuals using the PHQ-2 depression scale out in the vulnerable community. If an individual had a score of 3 or greater on the scale, a referral was submitted for mental health resources.

Available Knowledge

COVID-19 and Mental Health

During the beginning of the COVID-19 pandemic, everyone was directed to isolate within their homes and only leave for specific circumstances. Cui and colleagues in 2022, performed a research study to determine the impact of COVID-19 on mental health. This was a 12-week study where surveys were given out in the community to analyze risk factors that may impact mental health. It was found groups who were psychologically vulnerable expressed more signs of depression (Cui et al., 2022). This point is critical for healthcare as it helps shape care for those affected by the pandemic and getting proper treatment. Kontoangelos et al. (2020) discussed the collaborative effort between healthcare and psychiatrists in promoting health-changing behaviors like walking and deep breathing exercises. They go on to summarize that this is a global effort from a healthcare perspective in addition to the overall media in decreasing physiological stressors, vulnerability, and fear (Kontoangelos et al., 2020).

Older Adults

Muhamad and Maurya (2022) performed a longitudinal study during the years of 2017-2018. The 31,464 participants were greater than 60 years of age. Their study evaluated if individuals could perform basic activities of daily living (BADL) or independent activities of daily living (IADL) and if not, it was found these persons were 2.53 times likely to be depressed than their counterparts (Muhamad & Maurya, 2022).

Community

Terry et al. (2019) wanted to witness the relationship between the community and people with existing mental health disorders. In addition, Gonyea et al. (2018) within their study wanted to evaluate

neighborhood safety and depressive symptoms in urban minorities. Both studies went on to summarize that if people feel wanted and safe within their neighborhoods, they will experience less depression symptoms.

Cultural Connection

Cosco et al. (2020) performed a systemic review on different cultures and depression. They go on and stated depression has both psychological and culture context (Cosco et al., 2020). Results reveal cultures other than white express depression diversely. Ngo et al. (2016) evaluated low-income women and interventions for depression. This study revealed that there were no specific interventions that worked better for lower socioeconomic women. However, this study went on to state depression symptoms were improved through social programs like churches or substance abuse programs (Ngo et al., 2016).

Rationale

Nursing as a profession is constructed on pillars of framework and theories. These ideas are created on the premise to formulate patient relationships and produce the best patient outcomes. Evidence-based practices have become the hallmark for healthcare. EBP is supported through prior research and successful experiments. The IOWA model was formulated in the 1990s to provide a guide for nursing to utilize more research in producing better patient care. This specific model identifies a problem, explores established answers, and executes changes (Cullen et al., 2018). The PICOT question that was articulated for this project involved implementing a depression screening tool into the community for vulnerable populations. Through this process, it was made possible to identify early signs of depression and allowed for an immediate referral for the client.

While using the IOWA model as a guide, the project facilitator began research on the topic and identified through a literature review that there is a problem. Once the problem was recognized, and research was available for justification of the intervention, the implementation phase had started. The

IOWA model gave a pathway to create interventions and recognize if the process will lead to the best patient result. The IOWA model stressed evidence-based practices and interventions for depression are steadily evolving. Once the project facilitator used the mobile clinic, she evaluated if the proposed intervention would be successful for vulnerable populations.

Purpose

The purpose of this study was to cultivate a process to identify early signs of depression and promptly initiate referrals within the community.

Methods

Context

The organization site for the doctoral project was a private, not-for profit healthcare college located in a Midwestern city. According to the school website, the organization institution was founded in 1891. They enroll over 1,100 students into their healthcare programs. Their principles are based on holistic care that encompasses the whole person. This philosophy creates future healthcare providers that can serve their surrounding community.

This organization values diversity and community engagement. They service through use of the mobile unit to deepen community health impact and provide faculty, staff, students, and alumni the opportunity to serve a variety of rural and urban populations. The mobile unit at the college began providing services in January 2011. The mobile unit, gasoline, driver, and all screening supplies are provided by a community partner organization. College faculty, students, and alumni staff the unit. The mobile unit aims to provide primary and secondary screenings, resources, and referrals in areas of the community that people frequent. Examples include food pantries, grocery stores, churches, hair salons, homes, apartment complexes, homeless shelters, senior centers, community work groups, places of employment, and community celebrations/festivals. All the services are free. The goal is to help the community overcome barriers to access and affordability of health care services.

Intervention(s)

The PHQ-2 screening tool was implemented to address the current health needs of an underserved population on the mobile health unit. Individuals served on the mobile health unit were included in the intervention. In addition to the screenings commonly performed on the mobile unit, the addition of the PHQ-2 depression screening tool was provided to each client by the advanced practice student. Before beginning the study, a letter of support was provided by the participating organization.

Individual participants were provided with informed consent and given the opportunity to decline the additional screening. This did not impact the screenings performed by the mobile health clinic. The PHQ-2 Depression screening tool was used to address the current health needs of an underserved population. Participants were asked the two screening questions from the tool by the advanced practice student. The screening tool was administered via paper. Individual participants were provided with their score and the corresponding interpretation at the time of the screening. When the screening was positive (3 or greater), a referral was made to a community partner organization who would provide further screening and follow-up. There was a section on the screening form to notate if a referral was made, or if the participants declined a referral. On a handout there were two different locations of referrals within the Omaha community. This gave an option to the participant options for what fit best for them.

Study of the Intervention(s)

Once screenings were completed, the numbers of positive PHQ-2 screening and referrals were examined to determine if the objective was met. A positive screening on the PHQ-2 was determined as a score 3 or greater by the author. A referral was also counted. Additionally, the mobile unit collected demographic data on participants that included age group, location, and zip code. Demographic data was also evaluated was the project was completed.

Measures

The PHQ-2 Depression scale is a universal tool used that can be utilized at any point for depression screenings. The PHQ-2 is the shortened version of the PHQ-9 depression scale used to swiftly identify earlier signs of depression before a formal referral. This is a two-part tool that can address clients' feelings over the last 2 weeks. The first question examines interest or pleasure in doing things while the second question observes feeling down, depressed, or hopeless. This questionnaire uses a 4-point Likert scale. It scales 0 (not at all) to 3 (nearly every day). The scoring ranges from 0-6. A score of 3 or greater is a sign of major depressive disorder (Kroenke et al., 2003). The authors of the PHQ-2 health questionnaire gave permission to use the tool at no cost. It is available for anyone to use free of charge. The PHQ-2 depression scale has good validity with high sensitivity and specificity, however, requires a follow-up with a more comprehensive diagnostic tool. There has been limited research studies performed to determine reliability of the PHQ-2 questionnaire.

Analysis

After the research study was completed, it was essential to configure data into meaningful statistics. The specific test chosen determined the outcome of this study was mean with standard deviation. Descriptive statistics were also utilized to analyze demographics. No identifying information was used to maintain privacy for participants. Nominal data (0= female, 1= male) were applied to differentiate genders. A paper form was used initially during screening to collect appropriate data, then transferred into an excel spreadsheet for analysis. There were two manual verifications performed once data was compiled. Any data set that had missing information was removed to eliminate outliers. Once the data was entered and complete, the number of positive screenings and associated demographic data were analyzed.

Ethical Considerations

Before implementation of this project, a letter of support from the institution to conduct the research study was obtained. The Institutional Review Board at the academic institution where the study was conducted in 2023 reviewed the project and approved it. Respectful and ethical practice was provided by both the investigator and supporting faculty through completion of the Collaborative Institutional Training Initiative program. Proper consent was obtained in the community from participants. The questionnaire was held in a private manner to ensure the Health Insurance Portability and Accountability Act (HIPAA) was followed to protect sensitive patient health information from being disclosed without consent. Participants were notified of the voluntary process. The clients were given the opportunity to decline and still participate in other screenings. Clients were notified that responses were kept anonymous and correlated with unique codes for data gathering. The data was entered into a database that was password secured. The data collected is kept as determined by the institution policies. After the timeframe allotted, data will be shredded and disposed.

Results

The sample size was 24 (*n*=24). There were 5 males and 19 females in the study. The most frequent age group seen were 51-70. The majority of everyone were from the United States. There was one participant from Africa. All 24 participants spoke English as their primary language. The mode score for the PHQ-2 Depression scale answers was a score of 0. The mean score of the dataset was 1.17 (M = 1.17). The SD of the dataset was 1.66 (SD = 1.66). When we look at the mean of this specific dataset, we note the mean result is 1.17. This interpretation leads us to understand many people scored around a 1. The standard deviation result was 1.66. This signifies how much the data is distributed. A standard deviation of less than 2 represents that the data is clustered around the mean and not spread out. There were 4 participants who scored 3 or higher and were given referrals.

Discussion

Summary

The purpose of this study was to cultivate a process to identify early signs of depression and promptly initiate referrals within the community. Measurable outcomes included the scores on each PHQ-2 depression scale. The results yielded more scores less than 3 than those greater. Given the threshold for referral was a score of 3 or greater, most participants were not referred on. However, the purpose of the project was to cultivate a process for early identification in community settings. Statistical significance was not performed. The statistics used were descriptive in nature and showed correlation between the intervention and the outcome. A strength of this project includes reliability. This specific study can be replicated in many settings, specifically community screenings, and with many different patient populations.

Interpretation

After reviewing evidenced-based resources, early identification and referral can be the difference for successful treatment (Kontoangelos et al., 2020). Additionally, populations disproportionately affected by public health crises and system inequities, such as Black Americans, may benefit from early intervention in community-based settings (Novacek et. al, 2020). The desired outcome of this project was to identify depression in communities and attain the proper referrals for individuals who score a 3 or higher. In this specific project, the average score for the PHQ-2 Depression scale was 1. Although there were not many scores 3 or higher, the questions in the PHQ-2 assessment allowed for conversations around depression to be had and the beginning of trust building.

From the literature review and observations during the project, there needs to be more conversation about depression and identifying it sooner for prompt treatment to occur. This project was focused on early identification, however, other evidence-based resources (Cosco et al., 2020) discuss the benefits of having a support system for success on depression management. Once early identification is

completed, investigating further into the support an individual could help in overall management of or improved knowledge surrounding depression.

Limitations

One of the limitations to this study included the sample size. When the sample size is bigger, it can give a better representation of the population being studied and give more accurate results. Also, since the population is narrow, it gives results to a specific situation, the generalizability is lower. During the study, the principal investigator went to different health events to attain data to attempt to minimize limitations. A second limitation was building trust in the specific patient populations. Understanding there may be a mistrust with healthcare providers with certain population, coupled with the discussion of a difficult subject matter, some participants may not have felt safe answering the questions truthfully. Building rapport in the communities screened could increase the amount of positive screens and eventual referrals.

Conclusions

The revised standards for quality improvement reporting excellence (SQUIRE 2.0) was used as a framework for reporting this project. Through this research project, some individuals were identified using the PHQ-2 as requiring a referral for additional follow-up. However, the questions asked opened up discussions with vulnerable populations surrounding the topic of depression. It was learned people struggle with internal emotions, especially vulnerable communities. The PHQ-2 Depression scale is a quick reference tool that can be taken anywhere, which could lead to larger population studies in the future.

In working with vulnerable populations that often have mistrust with the medical community, this project provided insight of the need for trust building and community support. It may take time in a specific community before individuals feel comfortable participating in and answering questions on a topic such as depression in the PHQ-2 assessment. Through this project, it was identified there is a need

for discussions and assessment around depression. This research project can open doors for future researchers to dissect more in-depth stigmas, barriers, and overall access to healthcare.

References

Cosco, T. D., Lachance, C. C., Blodgett, J. M., Stubbs, B., Co, M., Veronese, N., Wu, Y.-T., & Prina, A. M. (2020). Latent structure of the Centre for Epidemiologic Studies Depression Scale (CES-D) in older adult populations: A systematic review. *Aging & Mental Health, 24*(5), 700–704. https://doi.org/10.1080/13607863.2019.1566434

Cui, J., Lu, J., Weng, Y., Yi, G. Y., & He, W. (2022). COVID-19 impact on mental health. *BMC Medical Research Methodology, 22*(1), 1–11. https://doi.org/10.1186/s12874-021-01411-w

Cullen, L., Hanrahan, K., Farrington, M., DeBerg, J., Tucker, S., & Kleiber, C. (2018). *Evidence-based practice in action: Comprehensive strategies, tools, and tips from the University of Iowa Hospitals and Clinics*. Sigma Theta Tau International.

Gonyea, J. G., Curley, A., Melekis, K., & Lee, Y. (2018). Perceptions of neighborhood safety and depressive symptoms among older minority urban subsidized housing residents: The mediating effect of sense of community belonging. *Aging & Mental Health, 22*(12), 1564–1569. https://doi.org/10.1080/13607863.2017.1383970

Karimi, J. (2018). Screening for major depression in elderly primary care patients using the patient health questionnaire-2 (PHQ-2). *Doctor of Nursing Practice (DNP) Projects,* 159. Retrieved from https://scholarworks.umass.edu/nursing_dnp_capstone/159

Kontoangelos, K., Economou, M., & Papageorgious, C. (2020). Mental health effects of covid-19 pandemia: A review of clinical and psychological traits. *Korean Neuropsychiatric Association,* 491-505. https://doi.org/10.30773/pi.2020.0161

Kroenke, K., Spitzer, R.L, Williams, J.B. (2003). The Patient Health Questionnaire-2: Validity of a two-item depression screener. Medical Care. Retrieved from https://www.hiv.uw.edu/page/mental-health-screening/phq-2

Muhammad, T., & Maurya, P. (2022). Social support moderates the association of functional difficulty with major depression among community-dwelling older adults: Evidence from LASI, 2017–18. *BMC Psychiatry, 22*(1), 1–13. https://doi.org/10.1186/s12888-022-03959-3

Novacek, D., Hampton-Anderson, J., Ebor, M., Loeb, T., & Wyatt, G. (2020). Mental health ramifications of the covid-19 pandemic for black americans: Clinical and research recommendations. *American Psychological Association, 12*(5), 449-451. https://doi.org/10.1037/tra0000796

Ngo, V. K., Sherbourne, C., Bowen Chung, Lingqi Tang, Wright, A. L., Whittington, Y., Wells, K., & Miranda, J. (2016). Community engagement compared with technical assistance to disseminate depression care among low-income, minority women: A randomized controlled effectiveness study. *American Journal of Public Health, 106*(10), 1833–1841. https://doi.org/10.2105/AJPH.2016.303304

Reuben, A., Manczak, E. M., Cabrera, L. Y., Alegria, M., Bucher, M. L., Freeman, E. C., Miller, G. W., Solomon, G. M., & Perry, M. J. (2022). The interplay of environmental exposures and mental health: Setting an agenda. *Environmental Health Perspectives, 130*(2), 025001-1-025001-11. https://doi.org/10.1289/EHP9889.

Terry, R., Townley, G., Brusilovskiy, E., & Salzer, M. S. (2019). The influence of sense of community on the relationship between community participation and mental health for individuals with serious mental illnesses. *Journal of Community Psychology, 47*(1), 163–175. https://doi.org/10.1002/jcop.22115