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Implementation of the Patient Health Questionnaire-9 as a Screening Tool for Depression

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Executive Summary: Staff Education Project

Implementation of the Patient Health Questionnaire-9 as a Screening Tool for Depression

by

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Summary

Depression is a common mental health issue that is often misdiagnosed or underdiagnosed in primary care practice due to lack of appropriate screening. The practice problem addressed by this project was the inconsistent use of standardized tools, like the Patient Health Questionnaire (PHQ-9), which hinders timely and accurate depression diagnosis. The practice-focused question was: Does educating staff impact their knowledge of the recommended use and interpretation of the PHQ-9 as well as their confidence in administering the tool? I aimed to enhance depression screening practices by educating nursing staff on administering, scoring, and integrating the PHQ-9 into routine patient care. For this project, 14 nurses attended the training sessions and completed the pretest and posttest questionnaires. The results showed a mean percentage knowledge gain of 25.56%, demonstrating a positive empirical increase in knowledge levels. Before the education, only 3 participants (21.4%) reported being *very confident* in administering the PHQ-9. After the education, 12 participants (85.7%) reported being *very confident* and 2 participants (14.3%) reported being *somewhat confident* in using the PHQ-9 for depression symptom screening. These findings indicated that the structured education program increased staff knowledge and confidence in the administration of the PHQ-9. The project positively impacted social change, diversity, equity, and inclusion by facilitating the development of nursing staff knowledge, which allowed staff to educate patients on the importance of depression screening and to promote evidence-based screening practices for the early identification of depression. Educating a diverse staff population may enhance their ability to reach various patient populations and thus promote equity and inclusion in depression screening and management.

Background

Depression is a prevalent mental health condition and affects people's well-being, performance, and many aspects of their lives. According to the World Health Organization, approximately 280 million people are affected annually by depression (Santomauro et al., 2021). Depression screening is the initial step in identifying the condition accurately for treatment and future management within primary care facilities; however, as a common public health condition that affects people of all ages and both sexes, depression is frequently under- or misdiagnosed in these environments (Zomer et al., 2021). There are numerous screening instruments for patient populations exhibiting depression signs; however, there is inadequate and inconsistent usage of tools, such as PHQ-9. Furthermore, since the evaluations depend on self-assessments, clinicians may reach different conclusions for patients having the same symptoms (Hudgens et al., 2021).

Various studies have indicated that if screening is done systematically, with the use of tools like the PHQ-9, the likelihood of an accurate diagnosis of depression is improved. For instance, using the PHQ-9 assessment at every visit reduces the chance of missing depression by 25% annually, especially among the hard-to-reach populations (Siniscalchi et al., 2020). However, the effectiveness of these screening tools depends on the knowledge and confidence of the health care staff who administer them. Enhancing the knowledge of health care professionals in using valid and reliable screening tools is crucial; research has indicated that this staff knowledge increases the number of PHQ-9 screenings completed and leads to diagnosis and treatment for the conditions (Levis et al., 2020). When the staff members are not educated or trained on appropriately using and

scoring the tool and incorporating it into their clinical practice, they are unlikely to diagnose or correctly manage depression accurately (Negeri et al., 2021).

An initial needs assessment survey at the project site showed that the staff members were not confident about the PHQ-9, including how to administer, score, or even interpret it. This finding revealed a deficit common to primary care practice when the staff had not received systematic training on how to use the PHQ-9, leading to inconsistency in the application and reaction to positive criteria for depression, thus resulting in missed diagnoses (see Gómez-Gómez et al., 2023). With these challenges in mind, I conducted this project to address this practice gap through a program to educate the nursing staff to enhance their knowledge, skills, and confidence needed to apply the PHQ-9 appropriately in their routine patient assessments. Such an intervention was critical for increasing depression screening rates and preventive and treatment measures as well as promoting the effectiveness of mental health services in primary care.

The question addressed by this project was: Does educating staff impact their knowledge of the recommended use and interpretation of the PHQ-9 in primary care settings? The purpose of this project was to determine whether educating staff can improve their knowledge and understanding of the use of the PHQ-9 as a screening tool for depression in primary care settings. The justification for the change in practice is that several studies, such as Levis et al. (2020) and Costantini et al. (2021), have called for a more standardized approach to screening for depression, including using questionnaires, such as the PHQ-9. Depression is assumed to go undiagnosed in primary care, mainly due to the inconsistent use of specific diagnostic procedures and criteria (Hudgens et al., 2021). Levis et al. (2020) concluded that using the PHQ-9 enhances the ability to

diagnose depression early, which is fundamental in its treatment. Additionally, Costantini et al. (2021) conducted a systematic review to evaluate the diagnostic accuracy of the PHQ-9 for depressive disorders in primary health care and agreed that the tool was valid and efficient across various population subgroups.

Moreover, researchers have suggested that staff education is pivotal in ensuring the consistent and appropriate use of the PHQ-9. Negeri et al. (2021) found that structured educational interventions for health care staff significantly increased their knowledge and confidence in depression screening tools, leading to improved adherence to screening protocols. The lack of consistent use of the PHQ-9 can contribute to missed diagnoses, particularly in underserved populations where access to mental health services is limited (Siniscalchi et al., 2020). Thus, educating health care professionals on using the PHQ-9 addresses this gap, ensuring patients receive timely and accurate diagnoses as well as improving clinical outcomes and patient care. These findings support the need for staff education to enhance the use of the PHQ-9 and reduce the disparities in depression screening.

The evidence types I identified for this project were also strong since they were derived from different types of studies categorized into different levels of evidence. The studies concerning the applicability of the PHQ-9 screening in primary care were primarily John Hopkins Evidence Based Practice Model's Level I research, which are well-executed experimental studies. These studies showed that the PHQ-9 has high accuracy and efficacy in screening for depression across various populations (Costantini et al., 2021). Integrating the PHQ-9 into the busy primary care clinical practice improves the identification of depression and the timely management of higher-risk patients.

Level II evidence for incorporating the PHQ-9 into primary care settings includes quasi-experimental studies, which are well-designed and provide additional information about the use of the PHQ-9 in care. These papers showed that tools like PHQ-9 can lead to appropriate management of depression and care delivery for patients, particularly those from special populations (Siniscalchi et al., 2020). Level II sources of evidence from the literature review also demonstrated that improved staff knowledge and increased compliance with the guidelines, protocols, and policies for depression screening resulted from staff education. Level II studies showed that staff education effectively elevated the awareness and self-confidence of professional caregivers regarding use of the PHQ-9, thereby enhancing the utility of the scale in clinical practice (Negeri et al., 2021).

Level III evidence, which was nonexperimental research, showed the necessity to advance the timely application of screening instruments for depression with education to combat mental health stigma and the lack of staff experience in administering the PHQ-9 (Krishnamoorthy et al., 2020). Thus, the current project was grounded in research evidence, highlighting the significance of staff education in advancing depression screening.

Staff Education Project Development

I developed and implemented this project in an orderly manner to ensure adequate staff training when implementing the PHQ-9 for depression screening. The first process involved participant identification and a sampling of the nursing staff from the primary care facility, where 14 participants were selected due to their involvement in patient care. I measured the staff's knowledge of the assessment through pretest questionnaires on the PHQ-9 use, scoring, and interpretation. Addressing the knowledge deficit related to the

PHQ-9 was achieved by developing and delivering relevant educational materials that targeted the identified gaps and covered aspects, such as the correct administration, scoring, and results interpretation.

The training dates were then arranged on 2 different days, and the training period did not exceed 2 weeks. I divided the 14 nurse participants into two groups and gave each a specific training date. The training sessions took place in the facility's conference room. Each session lasted 1 hour and 30 minutes, allowing time for a PowerPoint presentation, questions and answers to address staff concerns about the PHQ-9, and completion of the posttest questionnaire.

I obtained the quantitative evidence for the project from the pre- and posttests. The pretest conducted before the education sessions assessed the nursing staff members' initial level of knowledge about the PHQ-9. The posttest was given right after the training sessions to evaluate if the education resulted in an increase in staff knowledge. The assessments included questions about the PHQ-9 tool administration, scoring, and interpretation.

I used the participants' responses in the pre- and posttest questionnaires to calculate the learning gain using the formula derived from the Brigham and Women's Hospital Center for Nursing Excellence's (2021) *Pretest and Posttest Guidelines*. This formula offered an easy way of computing the raw score increase between the pre- and posttest results. I examined the pre- and posttest scores based on the participants' individual learning development to determine the effectiveness of the educational intervention for the heterogeneous population of the nursing staff (see Appendix A for copies of pre- and posttests).

Results

Demographics Distribution

In this project, 14 nurse participants with direct patient care responsibilities completed the pretest, attended the education session, and completed the posttest. Three nurses were between the ages of 25 and 30 years old, five were between 31 and 40 years old, four were between 41 and 50 years old, and two were between 51 and 60 years old. Among them were 10 women and four men. In terms of education, the participants had varied academic backgrounds: four nurses held a Bachelor of Science in Nursing, six nurses had an Associate Degree in Nursing, and four of the nurses were in the process of pursuing advanced nursing education, including enrollment in master's or doctoral programs. This diversity allowed for the capture of a sample of nurses with potentially varied years of experience and cultural and socioeconomic backgrounds to examine the effectiveness of the education in implementing the PHQ-9 tool. The diversity of the sample increased the external validity of the project outcomes in terms of the nursing staff working in primary care facilities.

The pre- and post-education results indicated that the participants' knowledge regarding the PHQ-9 tool was noticeably enhanced (see Table 1 and Figure 1). The pretest mean was 33.14 out of a possible 50, and the posttest mean was 46.71. The normalized learning gain was computed through the following formula: normalized learning gain = (posttest score − pretest score)/ (100 - pretest score). The mean learning gain for all learners was 25.56%. The training program also had an impact on participants' confidence in using the PHQ-9 tool in patient screening. The pretest result indicated that six participants (42.9%) were *not confident*, five participants (35.7%) were

somewhat confident, and three participants (21.4%) reported being *very confident* in administering the PHQ-9. After the educational intervention, 12 participants (85.7%) reported being *very confident* and two participants (14.3%) reported being *somewhat confident*' in using the PHQ-9 for depression symptom screening.

The training also had a huge impact on participants' likelihood of integrating the PHQ-9 tool in their routine screening for depression. After the education, 71% (n = 10) of the nurses indicated they were *very likely* to integrate the PHQ-9 into their practice, demonstrating strong support for the education's applicability. More so, 90% (n = 13) rated the PHQ-9 tool as *very effective* in identifying patients with depression. This showed that the training did not only boost participants' knowledge and confidence but also their perceived effectiveness of the tool.

The study's findings showed that the educational intervention effectively addressed the deficits in staff knowledge found at the project's onset, resulting in increased competence with the use of the PHQ-9 screening tool for depression. The mean posttest score of 46.71 (up from a mean score of 33.14 on the pretest) served as evidence of a positive learning outcome; hence, education on using the PHQ-9 for depression screening improved the knowledge of the participating staff.

Table 1

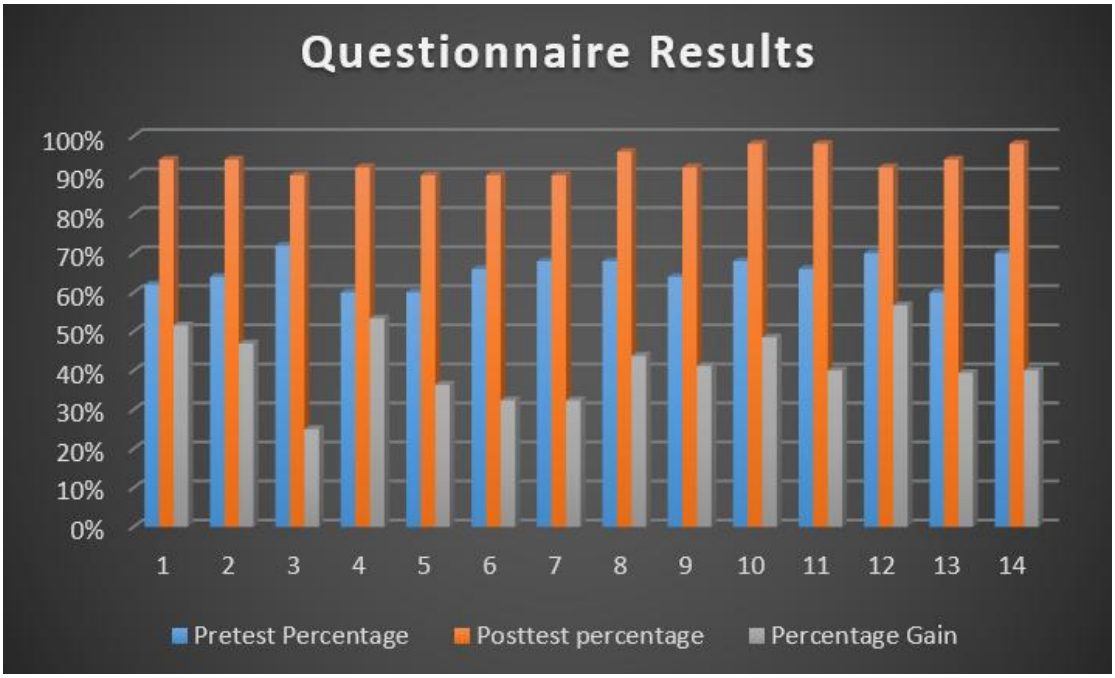
Pre-test Scores, Post-test Scores, Maximum Scores, and Percentage gain

No. of staff	Pretest total correct	Pretest percentage	Posttest total correct	Posttest percentage	Percentage gain
1	31	62%	47	94%	30.19%
2	32	64%	47	94%	`28.30%
3	36	72%	45	90%	16.36%
4	30	60%	46	92%	29.63%
5	33	66%	45	90%	21.82%
6	34	68%	45	90%	20.00%
7	34	68%	45	90%	20.00%
8	32	64%	48	96%	30.77%
9	34	68%	46	92%	22.22%
10	33	66%	49	98%	31.37%
11	35	70%	49	98%	27.45%
12	30	60%	46	92%	29.63%
13	35	70%	47	94%	22.64%
14	35	70%	49	98%	27.45%
M	33.14	66.29%	46.71	93.43%	25.56%

Note. This table summarizes participants' pre- and post-test assessment performance. Each participant's percentage results were calculated before and after the educational intervention, and a percentage learning gain was calculated for the individual participants and the group.

Figure 1

Graph Representation of the Pre- and Posttest Results



Note. This bar chart visually compares the mean knowledge scores before and after the education. The light blue bars show the mean pretest score on each of the 14 questions, the light orange bars show the mean posttest score on each question, and the gray bar shows the mean group score on each question.

These results demonstrated increased knowledge across all the questions after the educational intervention. The increase in participant scores indicated that the training helped to improve the staff members' knowledge regarding the PHQ-9 tool usage and depression assessment.

Table 2
Pretest and Posttest Scores and Percentages for Confidence Levels

Confidence Level	PreTest (*n* = 14)	%	PostTest (*n* = 14)	%
Not Confident	6	42.9%	0	0%
Somewhat Confident	5	35.7%	2	14.3%
Very Confident	3	21.4%	12	85.7%
Total	**14**	**100%**	**14**	**100%**

Note: This table shows participants' pretest and posttest scores and calculated percentages on confidence levels toward adopting and using the PHQ-9 questionnaire to screen for depression. The confidence levels were rated as *not confident*, *somewhat confident*, and *very confident*, as shown in the table. Participants' responses before and after the intervention were used to rate their confidence levels.

Impact on the Organization

The education initiative enhanced the understanding and assurance of the project site nursing personnel to use the PHQ-9 depression screening tool. After the education, the use of this instrument increased in the context of a primary care facility. In essence, education and training are viable means of staff development that allow staff members to progress from novice to proficient to expert within the same practice. A proficient and expert staff in depression management leads to improved organizational performance, resulting from the timely detection and treatment of patients with depression.

Impact on Nursing Practice and Social Change

This project equipped the project site nursing staff with skills to administer the PHQ-9 and enhanced their use of best practices in depression assessment and

management. The project promoted early assessment and diagnostics, contributing to raising the efficacy of the treatments. The project resulted in positive social change in the setting by addressing mental health stigma, advocating for and implementing timely and adequate access to care, and constructively affecting public health.

Limitations of the Study

The project had limitations, including a small sample size of 14 participants, which could affect the findings' validity and generalizability. According to Walters et al. (2021), considerable variation between the sample and the actual population can arise because the generalizability of findings is a function of the sample size and the number of statistical tests performed. Furthermore, short-term assessment approaches restrict the capacity to evaluate the sustainability and applicability of the knowledge gained.

Impact of the Study Beyond the Local Site

Educating staff on PHQ-9 usage has significant implications beyond the project site primary care facility. This project contributed to an informed nursing staff who can practice beyond the facility to other settings and positively impact larger and more diverse patient populations. Staff education and training are vital for nurses' professional growth, advanced practice skills development, and leadership capability in health care settings.

Conclusions

Depression is still considered one of the leading causes of disability worldwide and is often left untreated, with health consequences for the patient (Santomauro et al., 2021). Because early and accurate diagnosis is paramount, it is imperative to ensure that primary care staff are fully trained to utilize standardized tools such as the PHQ-9. The

purpose of this doctoral project was to establish whether the knowledge of the nursing staff was altered due to the training that they received concerning administration, scoring, and interpretation of the PHQ-9.

The project demonstrated that the systematic training of the nursing staff resulted in new knowledge and increased the confidence of its participants to apply PHQ-9 in the screening for the presence of depression in all the patients visiting the primary care facility. I found higher levels of staff competency in delivering a depression diagnosis and beginning treatment. The project promoted evidence-based practice by equipping the nursing professionals with the skills to use standardized screening tools, such as the PHQ-9, in their practice. The findings underscore the importance of the continuing education of primary care staff to ensure that their practice follows current national guidelines and recommendations in routine care, benefiting patients and the health care system. Recommendations for future support and sustainability of the PHQ-9 use in the facility were to hold regular and mandatory training sessions for new staff on the importance and application of the PHQ-9 in primary care settings.

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Appendix A: Pretest and Posttest Questionnaires

Dear Colleagues,

Thank you for participating in this assessment of your current knowledge regarding the Patient Health Questionnaire-9 (PHQ-9). This questionnaire aims to identify areas for education to enhance your confidence in using the PHQ-9 as a standardized tool for depression screening in our clinic.

Pretest Questionnaire: Knowledge and Attitudes on Integrating the PHQ-9

Knowledge Questions

1. What is the primary purpose of the PHQ-9 in patient care? (Open-ended)
2. List three benefits of using the PHQ-9 in routine depression screening. (Open-ended)
3. How often should the PHQ-9 be administered to monitor a patient's progress?
    a) Once a month
    b) Every visit, if symptoms are present
    c) Only at the initial evaluation
    d) Annually
4. Which PHQ-9 score range suggests a moderate level of depression?
    a) 0–4
    b) 5–9
    c) 10–14
    d) 15–19
5. What action is recommended if a patient scores 20 or higher on the PHQ-9?
    a) Schedule routine follow-up in six months
    b) Monitor closely with self-care strategies
    c) Refer immediately for further mental health evaluation
    d) No action is needed
6. How does standardized depression screening improve patient care outcomes? (Open-ended)
7. What are the recommended actions for each PHQ-9 score range? (Open-ended)

Attitudes and Confidence Questions

8. How confident are you in administering the PHQ-9 to patients?
    - Very Confident
    - Somewhat Confident
    - Not Confident
9. How effective do you believe the PHQ-9 is in identifying patients with depression?
    - Very Effective
    - Somewhat Effective
    - Not Effective
    - Not Sure

10. How prepared do you feel to discuss PHQ-9 results with patients?
    - Very Prepared
    - Somewhat Prepared
    - Not Prepared

Barriers

11. What are the main barriers to integrating depression screening tools like the PHQ-9 into routine care? (Circle all that apply)
    - Lack of time
    - Insufficient training
    - Lack of resources
    - Unclear protocols
    - Other (please specify)
12. Please list any training or resources necessary to integrate the PHQ-9 into your practice better. (Open-ended)

Posttest Questionnaire: Evaluation of Knowledge and Attitudes Post-Education on PHQ-9 Integration

Knowledge Questions

1. What is the primary purpose of the PHQ-9 in patient care? (Open-ended)
2. List three benefits of using the PHQ-9 in routine depression screening. (Open-ended)
3. How often should the PHQ-9 be administered to monitor a patient's progress?
    a) Once a month
    b) Every visit, if symptoms are present
    c) Only at the initial evaluation
    d) Annually
4. Which PHQ-9 score range suggests a moderate level of depression?
    a) 0–4
    b) 5–9
    c) 10–14
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5. What action is recommended if a patient scores 20 or higher on the PHQ-9?
    a) Schedule routine follow-up in 6 months
    b) Monitor closely with self-care strategies
    c) Refer immediately for further mental health evaluation
    d) No action is needed
6. How does standardized depression screening improve patient care outcomes? (Open-ended)
7. What are the recommended actions for each PHQ-9 score range? (Open-ended)

Attitudes and Confidence Questions

8. How confident are you in administering the PHQ-9 to patients after the training?
    - Very Confident
    - Somewhat Confident
    - Not Confident

9. How effective do you now believe the PHQ-9 is in identifying patients with depression?
    - Very Effective
    - Somewhat Effective
    - Not Effective
    - Not Sure
10. How prepared do you now feel to discuss PHQ-9 results with patients?
    - Very Prepared
    - Somewhat Prepared
    - Not Prepared

Training Impact

11. How likely are you now to recommend regular use of the PHQ-9 for all patients?
    - Very Likely
    - Somewhat Likely
    - Neutral
    - Somewhat Unlikely
    - Very Unlikely
12. What specific skills or knowledge did you gain that will aid in using the PHQ-9? (Open-ended)
13. How has this training changed your understanding of depression screening? (Open-ended)
14. What additional support, if any, do you need to continue integrating the PHQ-9 into patient care? (Open-ended)
15. Rate the effectiveness of the training in helping you understand the PHQ-9.
    - Very Ineffective
    - Ineffective
    - Neither Ineffective nor Effective
    - Effective
    - Very Effective
16. How will integrating the PHQ-9 change your approach to patient care? (Open-ended)

Thank you for your time and valuable insights. Your responses will help us improve the use of PHQ-9 in our practice to ensure better patient outcomes.

Please note: This questionnaire is for project evaluation purposes only, and all responses will be kept confidential. Your participation is voluntary and greatly appreciated. Thank you for your time and valuable contribution.