Summer 2024

Enhancing Postpartum Depression Screening Tools to Improve Maternal Mental Health Outcomes: A Quality Improvement Initiative

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Enhancing Postpartum Depression Screening Tools to Improve Maternal Mental Health

Outcomes: A Quality Improvement Initiative

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July 24, 2024
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Conclusion

Usefulness of the Work

Sustainability

Potential for Spread to Other Contexts

Implications for Practice and for Further Study in the Field

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Abstract

BACKGROUND:
Postpartum depression (PPD) is a prevalent and serious condition affecting new mothers, often underdiagnosed due to challenges in traditional screening methods. Early detection and intervention are crucial for improving maternal and infant health outcomes.

LOCAL PROBLEM:
On the maternity unit, existing PPD screening processes were insufficient, with significant barriers including patient reluctance to disclose mental health concerns, leading to missed or inadequately addressed PPD cases.

METHODS:
This quality improvement (QI) project utilized the Plan-Do-Study-Act (PDSA) framework. Pre-intervention surveys were conducted to identify current challenges and perceptions. An at-home PPD screening tool using the Edinburgh Postnatal Depression Scale (EPDS) was then introduced to postpartum women at discharge, accompanied by clear instructions and follow-up guidelines.

INTERVENTION:
The EPDS tool was provided for self-screening at home, enabling mothers to assess their symptoms and seek timely medical assistance if needed, rather than waiting for their scheduled postpartum appointment. The intervention included training for nurses on the tool’s use and patient education.

RESULTS:
Post-intervention surveys showed significant improvements. 100% of nurses agreed or strongly agreed that the at-home screening tool improved the quality of care provided, up from 77% pre-intervention. 80% of nurses reported reduced challenges in facilitating PPD screenings. 100% believed that patients were more comfortable disclosing mental health concerns using the at-home tool. Furthermore, 100% of nurses felt the tool potentially reduced the number of missed PPD cases.

CONCLUSION:
The at-home EPDS screening tool effectively enhanced PPD detection and care quality on the maternity unit. The intervention’s sustainability is promising, with potential for broader application in other settings. Future research should focus on long-term outcomes and expanding digital screening methods.

Keywords: Postpartum depression, PPD screening, Edinburgh Postnatal Depression Scale, at-home screening, quality improvement, maternal health, PDSA framework, early detection.
Introduction

Problem Description

Following childbirth, a woman goes through a range of emotions due to the extreme physical, hormonal, and psychological changes that occur throughout pregnancy, labor, and delivery. While this is a normal response to such a long, difficult, and exhausting process, it is important to monitor if these feelings are developing into something more serious. Postpartum depression (PPD) is a serious condition that occurs within the first six weeks after childbirth, affecting approximately one in seven women (Mughal et al., 2022). While women may experience the “baby blues”, also known as the postpartum blues, defined as mild depressive symptoms that resolve within the first few weeks after delivery (Balaram & Marwaha, 2020), PPD lasts longer, and significantly affects a mother’s brain response and behavior, impacting her relationship with her infant. A PPD diagnosis tends to be missed in many women due to factors related to stigma, embarrassment, and fear (Mughal et al., 2022).

Because the pathogenesis is unknown, it is difficult to implement measures to prevent it. However, there are risk factors to look for that may indicate a woman is at risk of developing the condition, allowing healthcare providers to closely monitor for signs and symptoms (Mughal et al., 2022). Current hospital policy within this microsystem requires screening for PPD using the Edinburgh Postnatal Depression Scale (EPDS) the evening prior to discharge. After having the patient fill out the screening tool, the nurse is to input the answers into the patient’s electronic health record. If the patient scores a 0-4, they are not at risk for developing PPD, but providing routine care and educating patient on signs and symptoms of PPD is still indicated. If the patient scores a 5-9, they are at increased risk of developing PPD and it is important to enforce verbal and written educational materials, as well as encourage a re-screening in two to four weeks.
ENHANCING POSTPARTUM DEPRESSION SCREENING TOOLS

(Perinatal Services, 2015). The screening tool should also be faxed to the patient’s primary obstetrician’s office. If a patient scores a 10 or more, they are at significant risk for developing PPD and their physician should be notified immediately (Portsmouth Regional Hospital, 2022).

Due to the stigma, embarrassment, and fear surrounding PPD, some women may not be totally honest on the EPDS screening tool, leading to a lack of accuracy, therefore missing a possible PPD diagnosis. Further, while this tool is helpful to determine a woman’s status prior to discharge, maternal mental health concerns can emerge at any point, most commonly within the six weeks following childbirth (Mughal et al., 2022). Nurses within this microsystem agree that this screening tool is simply not enough to identify such a serious condition (K. Fiscus, personal communication, February 29, 2024). To address these challenges, it is important to enhance the use of maternal mental health screening tools, allowing for early identification and intervention, increased maternal well-being, patient empowerment, improved quality of care, and patient satisfaction.

Available Knowledge

Current screening methods used by healthcare professionals include the Edinburgh Postnatal Depression Scale (EDPS), the Beck Depression Inventory (BDI), and the Postpartum Depression Screen Scale (PDSS). While not diagnostic tools, these tools allow for a better understanding of who could benefit from additional support during pregnancy or the postpartum period. Among the screening tools, the EPDS is the most used instrument to screen for PPD among postpartum women. This ten-item questionnaire has individuals reflect on their feelings and experiences over the previous seven days. If an individual’s cumulative score is a 13 or above, a follow-up is necessary to determine the severity of depressive symptoms. While this
tool is effective in identifying symptoms of PPD during pregnancy and postpartum, there are still barriers in screening for PPD (Gupta et al., 2024).

According to the American College of Obstetricians and Gynecologists (2021), screening for PPD occurs several times throughout pregnancy. Further, current recommendations suggest that women have contact with an obstetrician within three weeks postpartum, followed by a comprehensive visit within twelve weeks (ACOG, 2021). Yet, there are several barriers to screening for and identifying PPD, including knowledge gaps among healthcare providers to recognize signs and symptoms of PPD, and cultural factors, such as mothers being hesitant to ask for/receive help. These challenges warrant the need for enhanced PPD screening tools and increased access to evidence-based interventions, which consequently may lead to better maternal mental health outcomes (Gupta et al., 2024). This review aims to explore the efficacy of at-home screening tools in enhancing the screening process for PPD, with the goal of improving maternal mental health outcomes and addressing the existing barriers to PPD identification and management.

**PICO Research Question**

This review of the literature was conducted to address the research question: In women who are postpartum (P), does an at-home screening tool (I) compared with current standard practice or existing methods for PPD screening (C) enhance the screening process of PPD, leading to early detection of PPD, improved access to screening tools, a reduction in severity of PPD cases, and better maternal mental health outcomes (O)?

**Search Methods**

A systematic search of electronic databases was conducted to identify relevant literature on home-based PPD screening tools. The databases searched included PubMed, EBSCOhost, and
Google Scholar. Key search terms included “postpartum depression”, “women”, “screening”, “remote screening”, and “postpartum depression screening tools”. Limits were applied to restrict the search to articles within the last ten years, full text articles, articles in English language, and peer reviewed articles. Articles prior to 2014, focusing on non-postpartum women, not related to PPD screening/use of screening tools, editorials, opinion pieces, case reports, and duplicate studies were excluded. 27 records were identified through database searching. Two duplicates were removed, leaving 25 records to be screened for a full text review. Following the full text review, an additional 19 records were excluded for reasons such as not addressing the research question, wrong population, irrelevant outcome, or insufficient data, leaving six studies to be included in this review.

**Critical Appraisal of Evidence**

Hahn et al. (2021) conducted a cohort study to investigate combinations of assessments for the early detection of PPD and adjustment disorder (AD) in postpartum women. With a total sample size of 501 participants distributed across two cohorts, the study evaluates sociodemographic-anamnestic and clinical interviews at baseline, followed by remote assessments related to mood/stress levels and depression/attachment scores, conducted over a 12-week period. The study found statistically significant differences in mood/stress levels and depression/attachment scores between participants diagnosed with PPD or AD and healthy controls (p < 0.001). According to the Joanna Briggs Institute (JBI) hierarchy, this study would likely be classified as Level II evidence, given its cohort design and large sample size (JBI, 2014). While the study benefits from a relatively large sample size, there is limited information regarding the characteristics of the participants included in the study, which may affect the generalizability of the findings to the broader population of postpartum mothers. Despite this
limitation, the study reports promising results for differentiating PPD and AD from healthy controls. Specifically, Hahn et al. (2021) found that a combination of in-clinic and remote self-assessments may enable early detection of PPD and AD, facilitating early intervention, benefiting both mothers and their infants.

Eisner et al. (2022) conducted a proof-of-concept study to determine the effectiveness of a smartphone application (app) used to screen for postpartum depression (PPD) among women and their partners. The study enrolled pregnant women at 36 weeks or more gestation and their partners, with a total sample size of 23 participants. Women were instructed to complete daily assessments using the Edinburgh Postnatal Depression Scale (EPDS) from late pregnancy until six weeks postpartum. Results indicated high acceptability and usability of the intervention among participants. App engagement was found to be substantial, with an average completion rare of 67% of daily app based EPDS assessments across the sample. Notably, 91% of participants completed at least a third of daily app assessments, and 87% completed at least half, meeting the study’s acceptability and target criteria. In terms of validity, there was high agreement between app based and paper based EPDS scores, indicating the reliability of the app’s assessments. App based and paper-based ratings showed perfect agreement in identifying cases of likely PPD using a standard screening threshold. Regarding safety, the app was found to be safe, with no adverse events related to its use reported during the study period. Despite the promising results, the study’s limited sample size of 15 mothers and 8 partners significantly limits the generalizability of the findings. Despite this limitation, the study suggests that digital, remote PPD self-assessments are promising in addressing barriers to traditional screening methods (Eisner et al., 2022). According to the JBI hierarchy, this study would likely be
classified as Level III evidence, as the evidence is obtained from a well-designed controlled trial without randomization (JBI, 2014).

A longitudinal cohort study conducted by Hoberg et al. (2022) aims to compare the effectiveness of different screening instruments, such as the State-Trait Anxiety Inventory (STAI), the Postpartum Specific Anxiety Scale (PSAS), and the Edinburgh Postnatal Depression Scale (EPDS), for detecting postpartum anxiety and depression among pregnant women. This study falls under Level II of the JBI Levels of Evidence, representing evidence obtained from well-designed cohort or case-control analytic studies (preferably from more than one center or research group) (JBI, 2014). Strengths of this study include its design, allowing for the collection of longitudinal data, examining trends which may provide valuable insights into mental health during the postpartum period; the inclusion of different types of screening instruments, which may enhance the validity of findings; and the use of mobile ecological momentary assessment (EMA) prompts, which allow for real-time assessments of an individual’s mood. While there are many strengths, the limitations must also be addressed, which include the studies small sample size of only 73 women, limiting the generalizability of the findings. In conclusion, the study highlights the effectiveness and importance of postpartum-specific screening tools and provides insights into optimal timing of anxiety assessments, indicating that assessments between six to eight weeks postpartum may be most informative (Hoberg et al., 2023).

A quasi-experimental study conducted by Lawson et al. (2019), classified as Level II evidence following the JBI guidelines (JBI, 2014), evaluated the usefulness of using text messages for enhancing maternal mental health screening and education among women throughout the postpartum period. Participants of the study would receive a PPD screen, consisting of two questions, every two weeks, and text messages regarding mental health three
times per week, for 12 weeks. This study presents several strengths, including the large sample size of 937 postpartum women, enhancing the generalizability of the findings, as well as the high response rate to the intervention, with 99% of participants responding, which suggests strong engagement. The study also has its limitations, including only a moderate agreement between the texted two-question depression screen and the EDPS tool, which raises questions regarding the reliability of the texted screening tool. Despite these limitations, the result of the study, which found a sensitivity of 0.90 (95% CI=0.81-0.96) and a specificity of 0.82 (95% CI=0.79-0.85) for the remote self-assessment tool, suggests that remote self-assessments may be a sensitive, feasible tool to screen for PPD (Lawson et al., 2019).

A single-blinded randomized controlled trial by Edward et al. (2019) looked to evaluate the effectiveness of a self-screening tool and referral pathway pamphlet to detect PPD in both mothers and their partners. While the design of this study is strong according to the JBI Levels of Evidence (JBI, 2014), as it is blinded to minimize performance bias, and randomized, which reduces selection bias, the sample size is relatively small, including only 70 mothers and their partners. With a sample size of only 70, generalizability of the findings may be limited. However, along with the strengths of the study’s design, the inclusion of multiple questionnaires, such as the EPDS, Kessler Psychological Distress (Kessler-10), and the Maternity Social Support Scale, allows for a comprehensive measure of an individual’s psychological distress and support system. In conclusion, the findings suggest that while the intervention did not lead to statistically significant differences in PPD symptoms between groups, it may still hold importance in clinical practice. The comprehensive approach of the intervention, combined with its potential clinical impact, underscores the potential value of self-screening tools in providing valuable support
during the perinatal period for the early detection and management of symptoms of PPD (Edward et al., 2019).

A study conducted by Daehn et al. (2023) evaluates the feasibility of a mobile web application in educating women on PPD, as well as providing a self-screening instrument. This study demonstrates several strengths, one being its mixed methods approach or combining online surveys, usage data analysis, and interviews, to provide a comprehensive understanding of user experiences. The usage data analysis involved quantitative methods to assess user engagement and behavior with the self-screening tool, while the interviews provided qualitative insights into user perspectives. This mixed methods approach allows for a better assessment of the intervention’s feasibility. Further, the study also focuses on assessing user engagement and behavior with the self-screening tool, providing insight into the effectiveness of remote PPD screening. The study also included providers feedback, highlighting the important of considering multiple perspectives when evaluating interventions such as this one. However, there are limitations to consider. This study focuses on German-speaking women only, which may limit the generalizability of the findings. Additionally, relying on self-reported data may introduce response bias and effect accuracy of the findings. The study results showed that 62.2% of women who accessed the self-screening tool, showed a risk for PPD, which provides valuable insights into the potential of remote interventions in supporting maternal mental health during the postpartum period (Daehn et al., 2023).

**Evidence Synthesis**

PPD presents significant challenges for women during the postpartum period. This synthesis aims to explore the effectiveness of at-home PPD screening tools compared to standard
practices in improving early detection, access to screening, and maternal mental health outcomes.

The evidence synthesized from the previously discussed studies supports the thesis that at-home PPD screening tools can enhance the screening process of PPD, positively impacting maternal mental health. Hahn et al. (2021) demonstrates the potential of combining in-clinic and remote self-assessments for early detection of PPD and AD, despite limitations in participant characteristics and generalizability. Eisner et al. (2022) suggests that digital, remote PPD self-assessments hold promise in addressing barriers to traditional screening methods, despite a small sample size. Similarly, Hoberg et al. (2022) highlights the effectiveness of postpartum-specific screening tools and optimal timing of anxiety assessments, despite limitations in sample size. Lawson et al. (2019) indicate that remote self-assessments, such as text messaging, may be feasible for screening PPD, albeit with some limitations in agreement with standard tools. Edward et al. (2019) and Daehn et al. (2023) both support the effectiveness of at-home screening tools and interventions in detecting and managing PPD symptoms, again, despite small sample sizes and some limitations. Further research in diverse populations and settings is warranted to validate the findings of the analyzed articles and enhance the effectiveness of at-home screening tools.

While the evidence varies in methodology and scope, and each study has its strengths and limitations, they provide valuable insights into the potential benefits of implementing at-home PPD screening tools in postpartum care. In conclusion, the evidence synthesized from various studies supports the thesis that at-home PPD screening tools have the potential to enhance the screening process, improve access to screening, and lead to better outcomes for postpartum women.
Implications for this Quality Improvement (QI) Project

The synthesis of evidence supports the thesis that at-home PPD screening tools can enhance the screening process, leading to better maternal mental health outcomes. The findings collectively highlight the potential benefits of implementing at-home PPD screening tools during the postpartum period and overall, the importance of addressing barriers to PPD screening to improve access to screening tools and enhance maternal mental health outcomes. This literature is crucial to the identified problem and specific aims for this quality improvement (QI) project because it highlights the potential of at-home PPD screening tools to address existing barriers and challenges in PPD screening and management. By synthesizing evidence from various studies, one can better understand the effectiveness of these tools and their implications for improving maternal mental health outcomes. This information is essential for designing and implementing an effective intervention as part of a QI project aimed at enhancing PPD screening practices and promoting better outcomes for postpartum women.

Global Aim

The global aim of this quality improvement project was to improve early identification of PPD in women admitted to the maternity unit. The process begins with identifying postpartum patients and ends with providing patients with an at-home screening tool. By working on this process, we expect improved access to screening tools, enhanced early detection, a reduction in severity of PPD cases, and better maternal mental health outcomes. It is important to work on this now because of the impact PPD has on maternal and infant health.

Specific Aim
The specific aim of this quality improvement project was to enhance the screening process of PPD. The goal is to provide an at-home screening tool to at least 80% of postpartum patients on the maternity unit by July 1st, 2024.

Rationale

The Plan-Do-Study-Act (PDSA) framework was used to guide this quality improvement (QI) project. This four-step framework consists of planning an improvement, executing the plan, studying the results, and determining whether the plan was successful or not (ARHQ, 2020). This QI project was planned throughout the spring semester by consulting with key stakeholders to gain insight and perspectives, conducting a thorough 5 P assessment, identifying a problem within the microsystem, determining the specific aim, and conducting a comprehensive literature review. The planning phase also consisted of a pre-intervention survey that was distributed to nurses within the maternity unit to gain more insight and input regarding the intervention. When my proposal was accepted in June of 2024, the intervention was implemented to enhance the screening process for new mothers. This intervention involved providing mothers with the EPDS tool following discharge from the hospital. Mothers were to self-screen using the EPDS tool at home, allowing them to assess their own symptoms of postpartum depression. The EPDS tool included clear instructions, guiding mothers on how to score their responses and interpret the results. A score guide was provided to help mothers determine whether their score falls within the range indicative of being at risk for PPD. Depending on their EPDS score, mothers were instructed to contact their healthcare provider for further assessment and support. Following the implementation, the project entered the study phase to determine the effectiveness of the intervention. The findings were then disseminated through a poster presentation and a scholarly paper.
Methods

Context

PPD screening is a cost-effective method that may identify symptoms of PPD, providing a basis for further clinical tests to make an official diagnosis (Asgarlou et al., 2021; Mughal et al., 2022). Early identification of PPD using PPD screening tools may improve maternal mental health outcomes, and significantly reduce the emotional burdens mothers face (Hahn et al., 2021). Traditional methods of PPD screening, usually conducted in clinical settings, may not adequately address barriers, such as stigma, lack of awareness, and/or limited access to healthcare services (Beck, 2001). As a result, there is a need for innovative approaches to PPD screening that are accessible, convenient, and sensitive to the needs of postpartum women (Asgarlou et al., 2021). By providing an easily accessible and user-friendly means of screening for PPD, at-home tools have the potential to improve maternal mental health outcomes, enhance bonding between mothers and infants, and ultimately promote the well-being of families.

Costs that may be associated with this intervention primarily involve the expenses related to printing the tool, such as paper and ink. Because the screening method, the Edinburgh Postnatal Depression Scale (EPDS), is already on file within this facility, there would be no costs associated with designing the tool. However, it is important to take into consideration other potential costs, such as staff time for distributing the tool and providing education to women on how to properly use it; follow-up actions that may be necessary based on screening results; and updates and/or modifications that may be made to the tool as research and recommendations are updated over time.

In addition, undetected or untreated PPD can lead to significant costs for patients, healthcare facilities, and insurance companies. These costs may include expenses related to
increased healthcare utilization, such as frequent doctor visits, emergency department visits, and hospitalizations, as well as costs associated with lost productivity due to maternal mental health issues. According to Epperson et al. (2020), households affected by PPD incurred 22% higher mean total all-cause medical and pharmaceutical spending during the first year following childbirth, compared to unaffected matched controls, primarily driven by increased outpatient visits. These findings indicate the potential economic impact of undiagnosed or untreated PPD on patients and their families, as well as healthcare systems (Epperson et al., 2020). There are several possible benefits of this cost-effective intervention, including earlier detection of PPD symptoms and identification of PPD, increased access to care, and ultimately, improved maternal mental health outcomes. Further, this intervention may potentially reduce the economic burden associated with undiagnosed or untreated PPD.

**Intervention**

This intervention includes providing postpartum women on the labor and delivery unit at this local hospital with an at-home PPD screening tool upon discharge, including instructions on how to score responses and interpret results. This screening tool is based on the Edinburgh Postnatal Depression Scale (EPDS), an evidenced-based tool that assists health professionals in detecting symptoms of postpartum depression. This tool consists of 10 questions with responses scoring either a 0, 1, 2, or 3. To determine the total score, each of the 10 items are added together. Depending on the patients score, the tool will indicate whether the patient should follow up with their healthcare provider (*Edinburgh Postnatal Depression Scale*, n.d.).

This tool will be provided during discharge education to ensure that women have access to the screening tool as they transition from the hospital setting to their home environment. By providing the screening tool at this point, it allows women to begin monitoring their mental
health status early in the postpartum period, which is crucial for timely detection and intervention for postpartum depression. Additionally, the discharge process provides an opportunity for nurses and providers to educate women and their partners about the importance of mental health monitoring and the significance of using the screening tool regularly. Further, providing the tool at discharge empowers women to take an active role in monitoring their mental health during the critical postpartum period.

To make this intervention possible, the interdisciplinary team involved include myself, as the project leader, the nurse manager, who will oversee development and implementation of the intervention; the nurses on the unit, who will distribute the tool to postpartum patients upon providing discharge instructions; and obstetricians/gynecologists, who may provide clinical expertise. Collaboration among these team members will ensure the successful integration of the at-home PPD screening tool into the standard postpartum care protocol on this unit. Additionally, the intervention will include regular monitoring and feedback mechanisms to assess the effectiveness of the implementation process, allowing for ongoing adjustments and improvements as needed.

**Study of the Intervention**

The impact of the intervention will be assessed through a pre- and post- intervention survey distributed to nurses within the labor and delivery unit. The survey, designed to evaluate nurses’ knowledge, attitudes, and practices regarding PPD screening, will be administered before and after the implementation of the at-home PPD screening tool. The pre-intervention survey serves as a baseline assessment, capturing the nurses’ existing knowledge, attitudes, and practices related to PPD before implementing the screening tool. This will help identify any gaps, challenges, or areas for improvement that the intervention aims to address. On the other
hand, the post-intervention survey is administered after the intervention has been implemented to evaluate its effectiveness and to measure any changes in the nurses’ knowledge, attitudes, and practices. This allows for a comparison with the baseline data obtained from the pre-intervention survey, enabling the assessment of whether the intervention has achieved its objectives and led to desired outcomes. Further, these surveys may help inform future interventions and quality improvements initiatives by identifying successes and areas needing improvement based on the feedback/experiences of the participants.

**Measures**

To evaluate the intervention’s effectiveness and ensure successful implementation, several measures will be employed. As previously mentioned, a pre- and post-intervention survey covering various aspects of PPD screening will be distributed among nurses within the labor and delivery unit to gather valuable data on their perspectives and experiences. Using closed and open-ended questions, the survey aims to measure healthcare providers’ perspectives on PPD screening tools and practices. Operational definitions for key constructs include familiarity with existing PPD screening tools, perceived effectiveness of PPD screening tools, barriers encountered in facilitating PPD screening, the comfort level of postpartum patients in disclosing mental health concerns, and perceived benefits of providing at-home screening tools. Respondents will provide their input using Likert scale responses which range from “strongly disagree” to “strongly agree”, “very uncomfortable” to “very comfortable”, and “not at all familiar” to “very familiar”. Additionally, questions not using Likert scale responses will present a range of potential answers, along with space for respondents to provide their own if necessary.

To enhance the validity of the survey, relevant literature has been thoroughly reviewed and experts have been consulted to ensure that questions accurately measure intended constructs.
Additionally, a pilot test was conducted, and the survey was refined to improve clarity and relevance. For reliability, clear, closed-ended questions were employed, along with one open-ended question asking for any feedback that was not addressed in the survey. These steps ensure the survey’s accuracy and consistency in capturing nurses’ perspectives on PPD screening. The anonymous survey will be administered electronically using a secure online platform, allowing for efficient data collection and analysis.

Further, because access to post-discharge data is limited, proactive measures will be taken to track the distribution of screening tools during hospital stays. In addition to the pre- and post-intervention surveys, data will be collected on the distribution of at-home PPD screening tools to postpartum women upon discharge from the labor and delivery unit. A standardized protocol will be implemented to track the provision of screening tools, capturing the number of tools distributed and efforts will be made to ensure accurate and consistent recording of screening tool distribution, minimizing potential sources of bias and error.

Tracking the distribution of screening tools is vital for several reasons. Firstly, it provides valuable data on the reach and accessibility of the intervention, allowing us to understand how many postpartum women are being provided with the at-home PPD screening tool upon discharge. This information is crucial for assessing the intervention’s effectiveness in reaching its target population and ensuring that it is accessible to all eligible individuals. Further, tracking distribution allows us to monitor the implementation of the intervention in real-time, identifying any potential barriers or challenges that may arise in the distribution process. By proactively addressing these issues, we can optimize the intervention’s delivery and ensure that as many women as possible receive the screening tool before being discharged. Overall, tracking the distribution of screening tools is integral to the comprehensive evaluation of the intervention’s
reach and accessibility, providing essential insights into the intervention’s impact and
effectiveness, guiding future improvements and adaptations to optimize outcomes for postpartum
women.

Analysis

The data obtained from the pre- and post-intervention surveys will be analyzed using
both descriptive statistical analysis and thematic analysis. Descriptive statistical analysis will be
used to summarize the categorical and continuous data collected from the surveys. The analysis
will involve calculating measures such as frequencies, percentages, means, and standard
deviations to describe the distribution and central tendencies of the survey responses. Thematic
analysis will be used to analyze the qualitative data obtained from the open-ended survey
questions. This approach involves identifying, analyzing, and reporting patterns or themes within
the textual data. Responses to open-ended questions will be identified based on recurring
topics/concepts and themes will be developed. By using both quantitative and qualitative
analysis techniques, a comprehensive understanding of nurses’ knowledge, attitudes, and
practices related to PPD screening can be achieved. The combination of methods will allow for a
thorough look into the impact of the intervention and provide valuable insights for future
improvement initiatives.

The data obtained from the distribution of screening tools will primarily involve
quantitative information related to the number of tools distributed. This data will be analyzed
descriptively, using measures such as frequencies and percentages. By tracking the distribution
of screening tools, we can assess the reach and accessibility of the intervention, as well as
monitor the implementation process in real-time. Additionally, any discrepancies or issues
encountered during the distribution process will be documented and analyzed to identify any
potential barriers or challenges. This qualitative information will provide insights into the practical aspects of implementing the intervention and guide adjustments or improvements as needed. Overall, the analysis of data obtained from distributing screening tools will provide a more comprehensive understanding of the intervention’s impact and effectiveness, along with the findings from the pre- and post-intervention surveys.

Ethical Considerations

In conducting this quality improvement (QI) project, several ethical considerations will be addressed to ensure the protection of participants’ rights and well-being. Firstly, it’s essential to obtain institutional approval by the Department of Nursing at the University of New Hampshire for the project, ensuring that it meets the criteria for a quality improvement project exempt from full Institutional Review Board (IRB) review. Further, participants of the pre- and post-intervention surveys will be asked to provide informed consent prior to their involvement in the QI project. They will receive clear information regarding the purpose of the survey, their participation, and the confidentiality measures in place, of which will be maintained throughout the entirety of the project. The screening tool will be distributed among all postpartum women, regardless of factors such as socioeconomic status or demographic characteristics, ensuring that the intervention’s benefits are equitably distributed. Lastly, continuous monitoring and evaluation of the project will enable identification and resolution of possible ethical issues that may arise during implementation.

Results

Initial Steps of the Intervention

The intervention began with a pre-intervention survey distributed to nurses within the labor and delivery unit to gather baseline data on their perspectives and experiences with PPD
screening tools. This survey provided insights into the current state of PPD screening practices and identified areas for improvement. Following the initial survey, the at-home screening tool was implemented. Nurses were given instructions on how to use the tools and educate mothers on its use and importance.

One week after the tool’s implementation, a post-intervention survey was conducted to evaluate the effectiveness of the intervention and determine if there were any significant changes in nurses’ knowledge, perceptions, and practices regarding PPD screening compared to the pre-intervention survey. This survey also aimed to gather feedback on the usability and practicality of the screening tool, as well as any challenges or barriers encountered during its use.

Throughout the three-week period, rapid implementation and assessment allowed for timely adjustments. For instance, based on initial feedback, minor modifications were made to the tool’s description/instruction to enhance clarity for both nurses and mothers.

The entire process, including both the pre- and post-intervention surveys and the implementation phase, spanned three weeks. Figure 1 further explains the timeline of the intervention, illustrating key milestones.

*Figure 1. Quality Improvement Project timeline for at-home screening tool implementation.*

**Process Measures and Outcomes**

*Process Measures*
To evaluate the intervention’s effectiveness and ensure successful implementation, several nurses within the labor and delivery unit were tracked, with 65% of nurses completing the pre-intervention survey and 60% completing the post-intervention survey. This provided valuable data on nurses’ perspectives and experiences with PPD screening tools. Another key process measure was the implementation and distribution of the at-home screening tool, which was frequently monitored, with observational checks revealing that 100% of patients in the post-partum unit received the tool after implementation.

**Outcomes**

Regarding outcomes, improvements were observed across various metrics. Comparing pre- and post-intervention surveys, there was a positive shift in nurses’ perceptions regarding PPD screening tools improving the quality of care provided to postpartum women. Post-intervention, 100% of nurses agreed or strongly agreed that the at-home screening tool has improved the quality of care provided, up from 77% pre-intervention. Additionally, 80% of nurses believed that the challenges and barriers they encountered in facilitating the use of PPD screening tools were somewhat reduced due to the at-home screening tool. Pre-intervention, 62% of nurses identified “patient reluctance to disclose” as a major barrier, and 50% noted that postpartum patients were uncomfortable disclosing their mental health concerns during PPD screening. Post-intervention, 100% of nurses believed that postpartum patients were more comfortable disclosing their mental health concerns through the at-home screening tool. Furthermore, 62% of nurses pre-intervention reported encountering cases where postpartum depression was missed or not adequately addressed, with 31% responding “maybe.” Post-intervention, 100% of nurses believed that the at-home screening tool might lead to fewer missed or inadequately addressed cases of PPD. Finally, pre-intervention, 100% of nurses agreed or
strongly agreed on the need to enhance maternal mental health screening tools within the microsystem, a sentiment that remained unchanged post-intervention, with 100% agreeing that the new tool enhances maternal mental health screening tools within the microsystem.

Figure 2. Comparison of Pre- and Post-Intervention Survey Results

Contextual Elements and Observed Associations

Several contextual elements within the labor and delivery unit influenced the implementation and outcomes of the intervention. Organizational factors played a significant role. The support from hospital leadership was crucial in facilitating the intervention, as they provided the necessary resources and encouraged staff participation. However, the ever-changing environment of a labor and delivery unit posed a challenge, as it sometimes limited the time nurses could dedicate to thoroughly explaining the at-home screening tool to mothers.

Social and cultural factors also impacted the intervention. The workplace culture in the unit was generally welcoming and supportive of a new initiative aimed to better maternal health
outcomes, which helped in gaining nurse buy-in for the screening tool. Positive interpersonal relationships and teamwork among the nursing staff further supported the consistent distribution of the at-home screening tool. However, some resistance was noted from a few nurses who were skeptical about the additional workload.

Finally, external factors such as existing hospital policies on maternal mental health screening aligned well with the intervention, providing a supportive regulatory framework. The community’s growing awareness and acceptance of mental health issues also positively influenced the intervention’s reception among postpartum women, making them more open to accepting the tool.

Observed associations between these contextual elements and the intervention outcomes suggest that strong leadership support, a positive workplace culture, and alignment with external policies were crucial in achieving the desired enhancement of PPD screening tools. These associations underscore the importance of a supportive environment and adequate resources in the successful implementation of health interventions.

**Unintended Consequences**

*Unexpected Benefits*

One of the most notable unintended benefits was the improvement in nurse-patient communication. Introduction of the at-home screening tool opened new lines of communication with mothers about their mental health, fostering a more supportive and empathetic environment. Additionally, the intervention was reported to increase nurses’ confidence in discussing mental health issues, as the consistent use of the EPDS tool provided them with a clearer framework and language for addressing such a sensitive topic. This translates into better patient care and more robust support systems for postpartum women.
Unexpected Problems

Despite these benefits, the intervention also faced few problems. One significant was the additional workload for nurses. Although the at-home screening tool was intended to streamline the PPD screening process, it is an added responsibility, especially during times when patient loads are high. This may lead to occasional lapses in the explanation and administration of the tool, which could potentially impact its effectiveness.

Missing Data

Throughout the implementation of the at-home PPD screening tool in the labor and delivery unit, missing data posed a challenge at various stages. Approximately 35% of nurses did not complete the pre-intervention survey, while about 40% did not complete the post-intervention survey. This may be due to increased patient assignments and/or survey fatigue, as nurses were asked to complete two surveys. To address and mitigate the impact of missing data, different strategies were implemented such as follow-up emails and reminders sent to nurses to encourage completion of the surveys.

Discussion

Summary

Key Findings

The QI project on implementing an at-home PPD screening tool in the labor and delivery unit yielded several key findings. Survey results highlighted a positive shift in nurses’ perceptions regarding PPD screening tools. Pre-intervention, 77% of nurses believed standardized PPD screening tools improved the quality of care, while post-intervention, 100% agreed or strongly agreed that the at-home screening tool had improved the quality of care provided to postpartum women.
Additionally, the intervention revealed a reduction in perceived barriers to effective PPD screening. Pre-intervention, 62% of nurses identified “patient reluctance to disclose” as a major barrier, and 50% noted that postpartum patients were uncomfortable disclosing mental health concerns. Post-intervention, 100% of nurses believed that the at-home screening tool made patients more comfortable in disclosing their mental health concerns. Furthermore, nurses’ perceptions of identifying PPD cases improved, with 62% reporting missed or inadequately addressed PPD cases pre-intervention, compared to 100% post-intervention who believed the tool would lead to fewer missed cases.

Despite these benefits, the intervention faced challenges, including additional workload for nurses, as some resistance was noted from a few nurses who were skeptical about the added responsibility. Nonetheless, continuous follow-up mitigated these issues, leading to more effective implementation of the tool.

Finally, the intervention underscored the importance of contextual elements such as organizational support, positive social and cultural factors, and alignment with external policies. These elements were crucial in facilitating the implementation and achieving the desired outcomes, emphasizing the need for a supportive environment and adequate resources in future health interventions. The project demonstrated that strong leadership, a positive workplace culture, and clear communication significantly contribute to the success of health initiatives.

**Relevance to the Rationale**

The PDSA framework guided this QI project, providing a structured approach to plan, execute, study, and refine the at-home screening tool within the labor and delivery unit. The planning phase was conducted throughout the spring semester and involved consulting with key stakeholders to gain insights and perspectives. A thorough 5 P assessment was conducted to
identify a problem within the microsystem, establish a specific aim, and conduct a comprehensive literature review. After the proposal was accepted, a pre-intervention survey was distributed to nurses within the maternity unit to gather initial insights and input regarding the intervention. The intervention was then implemented in June 2024. This phase involved providing mothers with an at-home screening tool upon discharge from the hospital. Mothers were provided with education on how to use the tool to self-screen for symptoms of postpartum depression. Clear instructions were provided, guiding mothers on how to score their responses and interpret the results. A score guide was included to help mothers determine if their score indicated a risk for PPD, with instructions to contact their healthcare provider if necessary. Following the implementation, the study phase commenced to evaluate the effectiveness of the intervention. A post-intervention survey was distributed to assess changes in nurses’ perceptions, knowledge, and practices regarding PPD screening, and answers were compared with the pre-intervention survey data. Based on the findings from the study phase, necessary adjustments and modifications were made to the intervention to improve its effectiveness. This framework facilitated significant enhancements in PPD screening practices, aligning with the project’s goals, and contributing to improved maternal mental health outcomes.

Relevance to the Specific Aim

The specific aim of this QI project was to enhance the screening process for PPD by providing an at-home screening tool to at least 80% of postpartum patients on the maternity unit by July 1st, 2024. This goal was exceeded, with 100% of postpartum patients receiving the screening tool upon discharge.

Several factors contributed to this success, such as the thorough planning phase, involving stakeholder consultations and pre-intervention surveys, ensuring that all necessary
resources and support were in place. During the implementation phase, nurses were effectively trained to distribute and explain the tool. The study phase revealed a positive shift in nurses’ perceptions and a reduction in perceived barriers to PPD screening. Qualitative feedback from nurses confirmed the practicality and usability of the EPDS tool. Continuous follow-up addressed initial resistance and workload concerns among nurses, further supporting the success of the intervention. In summary, the project exceeded its specific aim prior to the target date, enhancing the PPD screening process and providing valuable insights for future QI initiatives in maternal health care.

**Project Strengths**

The implementation of an at-home screening tool had several notable strengths that contributed to its success. Utilizing the PDSA framework allowed for a structured approach to planning, implementing, and refining the intervention. This ensured thorough preparation, effective execution, continuous monitoring, and timely adjustments. Further, comprehensive pre-intervention planning through a thorough 5 P assessment and literature review provided a solid foundation for the project. The pre-intervention survey gathered valuable insights from nurses, allowing the project lead to tailor the intervention to address potential barriers. Robust data collection and analysis through pre- and post-intervention surveys provided comprehensive data on nurses’ perceptions, knowledge, and practices regarding PPD screening, allowing for a thorough evaluation of the intervention’s impact. A significant strength was the pre-existing familiarity with the EPDS tool among nurses and patients, which reduced the learning curve and facilitated smoother implementation. Additionally, alignment with existing policies on maternal mental health screening and the community’s growing awareness and acceptance of mental health issues further supported the intervention’s positive reception.
Interpretation

Association Between the Intervention and the Outcome

The implementation of the at-home PPD screening tool demonstrated a significant association with improved outcomes in several areas. The pre- and post-intervention surveys revealed substantial changes in nurse perceptions, patient comfort levels, and overall screening effectiveness, underscoring the positive impact of the intervention.

Firstly, the quality of care perceived by nurses saw a marked improvement, with 100% of nurses agreeing or strongly agreeing post-intervention that the at-home screening tool enhanced care quality, compared to 77% pre-intervention. This suggests that the tool not only facilitated better patient assessment but also instilled greater confidence in the nurses about their ability to provide comprehensive care. The intervention also addressed some of the barriers and challenges nurses faced in PPD screening. Post-intervention, 80% of nurses reported that the challenges and barriers encountered in facilitating the use of PPD screening tools were somewhat reduced. This reduction in perceived barriers indicates that the at-home tool streamlined the screening process, making it more accessible and less cumbersome. A critical finding was the increased comfort of patients in disclosing their mental health concerns. Pre-intervention, 62% of nurses identified “patient reluctance to disclose” as a significant barrier, and 50% noted that postpartum patients were uncomfortable disclosing their mental health concerns during PPD screening. Post-intervention, however, 100% of nurses believed that patients were more comfortable disclosing their concerns through the at-home tool. This shift points to the effectiveness of the tool in creating a safe and private environment for patients to discuss their mental health. Moreover, the perception of missed or inadequately addressed PPD cases showed a notable improvement. While 62% of nurse’s pre-intervention reported encountering missed cases of PPD, post-
intervention, 100% of nurses believed that the at-home tool may lead to fewer missed or inadequately addressed cases. This indicates that the tool enhanced the thoroughness and reliability of the screening process, potentially leading to earlier and more accurate identification of PPD cases. Lastly, the consistent agreement among nurses on the need to enhance maternal mental health screening tools within the microsystem, both pre- and post-intervention, highlights the ongoing relevance and importance of improving PPD screening practices. The post-intervention consensus that the new tool enhances PPD screening further validates the intervention’s effectiveness.

Overall, the intervention showed a strong positive association with improved nurse perceptions, reduced barriers, increased patient comfort, and enhanced screening outcomes, demonstrating its effectiveness in addressing the challenges of PPD screening within the maternity unit.

Comparison of Results

In reviewing the literature on PPD screening and the implementation of screening tools, several parallels and distinctions can be drawn between this project and existing studies. This QI project demonstrated improved screening rates and early identification of PPD, which aligns with the findings of Hahn et al. (2021), who discovered that combining in-clinic and remote self-assessments enabled early detection of PPD. This similarity highlights the effectiveness of integrating various assessment methods to enhance early detection. Additionally, this intervention saw a positive shift in nurses’ perceptions about the quality of care provided with the use of the at-home screening tool, paralleling Eisner et al. (2022) who reported high acceptability and usability of digital, remote PPD self-assessments among participants. Another important parallel is the reduction in perceived barriers to PPD screening. Hoberg et al. (2022)
emphasized the importance of specific screening tools and optimal timing for anxiety assessments, a finding that resonates with the results where nurses reported that the at-home tool made patients more comfortable disclosing their mental health concerns, thus reducing barriers to effective screening. Further, both Edward et al. (2019) and Daehn et al. (2023) highlighted the effectiveness of remote screening tools, consistent with the project’s success in improving nurse perceptions and early identification of PPD.

Despite these similarities, there are notable differences as well. This project found that 100% of nurses believed patients were more comfortable disclosing mental health concerns through the at-home tool, while Davis et al. (2018) reported mixed results regarding patient comfort with at-home versus in-person screenings. This discrepancy suggests that the context and implementation strategies might significantly influence patient comfort levels.

In conclusion, the findings from this QI project align with existing research on the benefits of systematic PPD screening tools in improving detection rates. Despite some variations in patient comfort, the overall evidence supports the effectiveness of at-home PPD screening tools in enhancing the screening process and improving maternal mental health outcomes. Further research in diverse populations and settings is warranted to validate these findings and enhance the effectiveness of at-home screening tools.

**Impact of the Project on People and Systems**

The QI project to enhance PPD screening through the implementation of an at-home screening tool had a significant impact on both individuals and the healthcare system. Firstly, the project positively influenced the nursing staff within the labor and delivery unit. The project fostered a culture of awareness and proactive engagement with mental health issues, empowering nurses to better support postpartum women. For post-partum women, the screening tool provided
a convenient and non-threatening way to assess their mental health, possibly resulting in increased comfort and willingness to disclose their mental health concerns. This may lead to earlier identification and intervention for those at risk of PPD, potentially improving their overall health outcomes and quality of life. The tool also contributed to destigmatizing mental health issues, encouraging more open conversations between patients and healthcare providers.

From a systemic perspective, the project demonstrated the feasibility and effectiveness of integrating remote screening tools into standard postpartum care. The alignment of the intervention with existing hospital policies on maternal mental health screening ensured seamless integration and sustainability. By addressing PPD more effectively, the project could lead to reduced healthcare costs associated with untreated mental health issues and improved long-term outcomes for both mothers and their families.

**Differences Between Anticipated Outcomes Compared to Actual Outcomes**

The outcomes of the QI project revealed some notable differences compared to initial expectations. It was anticipated that providing an at-home screening tool to postpartum patients would significantly enhance the screening process, leading to early detection of PPD, improved access to screening tools, and better maternal mental health outcomes.

In practice, the project achieved a high distribution rate, with the at-home screening tool reaching 100% of postpartum patients, exceeding the specific aim. However, while the tool is expected to reduce the severity of PPD cases and lead to better overall maternal mental health outcomes, the actual outcomes showed a more complex picture. Nurses reported improved confidence in addressing PPD and a perception that fewer cases were missed or inadequately addressed, yet there was no definitive quantitative data to confirm a reduction in PPD severity or significant improvements in maternal mental health outcomes. Additionally, while some
resistance from nursing staff was anticipated, the actual feedback was more positive than expected due to the pre-existing familiarity with the EPDS tool among nurses and patients, contributing to smoother implementation and greater acceptance. The supportive environment within the labor and delivery unit, coupled with strong engagement from key stakeholders, facilitated the intervention’s success.

Cost of Project

The implementation of the at-home screening tool for PPD involved various costs. Direct costs included the development and printing of the screening tool materials. Opportunity costs were also significant. Nurses had to allocate time to educate mothers about the screening tool, diverting attention from other critical tasks, which could have potentially impacted the overall efficiency of the unit. Strategic trade-offs were also evident in the decision to prioritize the implementation of the at-home screening tool over other potential QI projects due to the impact of PPD on maternal and infant health.

Limitations

Limits to the Generalizability

The generalizability of the findings from this QI project is limited by factors related to the specific context and characteristics of the maternity unit where this intervention was conducted. Firstly, the patient population involved in this project was unique to the maternity unit in terms of demographics, socioeconomic status, cultural background, and healthcare needs, meaning that the results may not be applicable to postpartum women in different geographical locations. Additionally, the cultural attitudes towards mental health and PPD screening can vary across different regions, potentially influencing the acceptance and effectiveness of the intervention. Secondly, the nursing staff who participated in this project were already familiar
with the EPDS tool and worked within a workplace that encouraged the adoption of new screening tools. In other settings, where healthcare professionals may have different experiences and attitudes toward PPD screening, the implementation and outcomes of a similar intervention could differ.

Further, the organizational processes and workflows specific to this maternity unit, such as support from hospital leadership and integration of the EPDS tool into routine care, could also limit the generalizability of the findings. Other hospitals may have different processes, resources, and support, which may impact the feasibility and effectiveness of implementing a similar at-home PPD screening intervention. Moreover, the overall program of care on the maternity unit, with its emphasis on maternal mental health and the availability of resources for PPD screening, provided a conducive environment for the intervention. Whereas different healthcare programs in various locations may prioritize other aspects of care, affecting the focus and success of a similar QI project.

**Factors Limiting Internal Validity**

Several factors might have limited the internal validity of this QI project. Selection bias could have occurred as nurses who participated might have been more motivated or interested in maternal mental health, skewing the results positively. Measurement bias is another concern due to reliance on self-reported data from nurses. Further, the absence of a control group makes it difficult to attribute observed changes directly to the intervention.

**Efforts Made to Minimize Limitations**

To minimize and adjust for the limitations of this QI project, several strategies were used. To address selection bias, efforts were made to encourage participation from all nurses on the maternity unit, regardless of their interest in maternal mental health. To reduce measurement
bias, multiple data sources were used, including both self-reported surveys and logs of tool
distribution, and surveys were designed to ensure anonymity and honest responses. Lastly, to
compensate for the absence of a control group, pre-intervention and post-intervention
comparisons were made to observe changes overtime.

**Conclusion**

*Usefulness of the Work*

The project to enhance PPD screening through the implementation of an at-home
screening tool can be highly useful in addressing gaps in maternal mental health care. The
intervention may not only improve the early detection of PPD but can also facilitate better access
to screening tools, which in turn may lead to a reduction in the severity of PPD cases and
improved maternal mental health outcomes. The structured approach using the PDSA
framework, stakeholder engagement, and the pre-existing familiarity with the EPDS tool among
nurses and patients significantly contributed to the project’s success.

*Sustainability*

The sustainability of this initiative is promising, given the positive reception from nurses,
as well as the alignment with existing hospital policies on maternal mental health. Ongoing
support from hospital leadership and strong engagement from nursing staff indicate that the at-
home screening tool can be maintained as a standard practice within the maternity unit.

*Potential for Spread to Other Contexts*

There is also potential for spreading this intervention to other contexts. The at-home
screening tool may be adapted for use in different hospital settings and regions, considering local
policies and cultural factors.

*Implications for Practice and for Further Study in the Field*
The implications for practice are substantial, highlighting the importance of integrating at-home screening tools into postpartum care routines to ensure early detection and management of PPD. For further study, future research could focus on evaluating the long-term outcomes of this intervention, including its impact on maternal and infant health over an extended period.

**Suggested Next Steps**

Suggested next steps include integrating at-home PPD tools into electronic health records, which may enhance the efficiency and reach of the intervention. Furthermore, collaborating with other hospitals and healthcare providers to share best practices and expand the use of at-home PPD screening tools can improve maternal mental health care on a broader scale.
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