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Improving Postpartum Depression Literacy: A Quality Improvement Initiative

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Improving Postpartum Depression Literacy: A Quality Improvement Initiative

Submitted in Partial Fulfillment of the Requirements
for the Degree of Doctor of Nursing Practice at Messiah University

By

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Table of Contents

Abstract	4
Keywords	4
Title of Project	5
Background	5
Problem Statement	6
Needs Assessment.....	7
Aims, Objectives, Purpose Statement.....	8
Review of Literature	9
Theoretical Model.....	11
Translation Model.....	11
Methodology	12
Participants	12
Setting.....	13
Tools	13
Intervention	14
Data Collection.....	15
Cost Analysis	16
Timeline	16
Ethics and Human Subject Protection.....	17
Results.....	17
Analysis and Evaluation	17
Discussion	18

Limitations.....	20
Significance to Advanced Practice Nursing.....	20
Conclusion	20
References.....	22
Appendices.....	26
Appendix A : SWOT Analysis	26
Appendix B : PRISMA Table	27
Appendix C : Literature Review Table	28
Appendix D : Betty Neuman’s System Model	47
Appendix E : Johns Hopkins Nursing Evidence-Based Practice Model	48
Appendix F : PoDLiS.....	49
Appendix G : Demographic Questionnaire.....	54
Appendix H : Progress Map.....	55
Appendix I : Cost Analysis	56
Appendix J : Gantt Chart	57
Appendix K : Letter of Approval.....	58
Appendix L : Information Script.....	59
Appendix M : Sample Characteristics	60
Appendix N : Individual PoDLiS Item Descriptives	61
Appendix O : PoDLiS Subscale Scores	63

Abstract

Background: Postpartum depression (PPD) is associated with increased healthcare costs, decreased levels of productivity, and negative patient outcomes, collectively affecting babies, women, and society. Women are at an increased risk for mortality and morbidity if postpartum depression is left untreated. Postpartum depression literacy improves patient outcomes.

Problem: Women may fail to effectively recognize the signs and symptoms of postpartum depression, due to inadequate postpartum education and lower health literacy levels. **Methods:** A formalized postpartum depression education program was implemented online to mothers attending a postpartum adjustment support group in the spring of 2022 and compared to usual postpartum depression education. A structured or formalized postpartum depression education program consists of the implementation of a premeditated plan, in which the topics of postpartum depression, self-care, and social support are discussed in an effective and timely manner. **Intervention:** Three PPD education sessions were presented by the project leader and were repeated once, in which participants needed to attend three out of the six sessions. **Results:** After completion of educational sessions, there was a statistically significant difference in pre- and post-test postpartum depression literacy scores (Mdn=150 vs. 126, respectively, $p=.018$). **Conclusion:** This project resulted in an increase in postpartum depression literacy scores, which reinforces the recommendation for the implementation of a formalized postpartum depression education program.

Keywords: *Educational support, postpartum literacy, educational interventions, and postpartum depression*

Improving Postpartum Depression Literacy: A Quality Improvement Initiative

Background

Postpartum depression can be defined as depression that occurs within the first year after childbirth, ranging in severity from mild to moderate (Pennsylvania State Health Assessment, 2019). One out of eight women experience postpartum depression symptoms on a national level (Centers for Disease Control and Prevention [CDC], 2020). Clinical signs and symptoms of postpartum depression vary greatly from one woman to another, ranging from feelings of anger, feeling disconnected from one's baby, or doubting one's ability to provide proper care (CDC, 2020). Risk factors for postpartum depression include history of a psychiatric illness during pregnancy, lack of health insurance, prenatal anxiety, and lack of contraceptive use (Top & Karacam, 2016). Even though postpartum depression can occur up to one year after a baby is born, it most commonly occurs between one to three weeks after delivery (The American College of Obstetricians and Gynecologists [ACOG], 2021).

According to the literature, only forty percent of women with postpartum depression are diagnosed by a healthcare provider (Mirsalimi et al., 2020). A major barrier to help-seeking behaviors for women during the postpartum period is associated with a lack of knowledge in identifying the signs and symptoms of depression (Mirsalimi et al., 2020). In addition to knowledge barriers, attitudinal barriers have been identified, which are associated with fear of disapproval by others and feelings of shame (Silva et al., 2018). Due to the fear of becoming diagnosed with a mental health disorder, women are reluctant to seek the help of others (Silva et al., 2018).

Women may normalize or minimize their depressive symptoms due to poor depression literacy, attributing the cause of their symptoms to fatigue, environmental changes, and problems

with family members (Fonseca et al., 2017). Women with poor depression literacy may fail to recognize changes in their behavior or symptoms (Fonseca et al., 2017). As a direct result of lower literacy levels, women had difficulty comparing the risks and benefits of different treatment options, such as cognitive behavioral therapy or use of antidepressants (Fonseca et al., 2017). Women who are unable to understand or comprehend the warning signs of postpartum depression have an increased risk of morbidity and mortality. Decreased or inadequate mental health literacy can be directly associated with various adverse health outcomes, including poorer self-reported health status, suboptimal management of chronic diseases, increased hospitalizations, and higher health care costs (Yee et al., 2021).

Problem Statement

Postpartum depression literacy may aid in the ability to recognize, manage, or prevent postpartum depression (Mirsalimi et al., 2020). Postpartum depression literacy, a type of mental health literacy, is defined as the beliefs and knowledge about mental health disorders that contribute to the management, recognition, and prevention of postpartum depression (Mirsalimi et al., 2020). As a result of increased mental health literacy, women have a greater probability of participating in help-seeking behaviors (Jones, 2022). By providing routine screening, structured education, and the standardized use of a literacy tool for depression throughout pregnancy and after delivery, the early identification of depressive symptoms can prevent adverse health effects from occurring. Education on self-care activities and information on how to seek additional information should be provided by healthcare providers during pregnancy, as a way to decrease anxiety or depression during the postpartum period (Mirsalimi et al., 2020). By providing the proper education on the identification of postpartum depression, women will be able to not only

recognize postpartum depression but have the knowledge to seek effective treatment (Mirsalimi et al., 2020).

The implementation of structured education was found to be an effective intervention in the prevention of postpartum depression (Top & Karacam, 2016). A more concise, standardized, and culturally sensitive approach to postpartum education is recommended for use in postpartum support groups (Wagner et al., 2020). Regardless of a mother's demographics, the distribution of culturally sensitive and patient-friendly materials needs to be distributed in all types of healthcare settings, as a way to decrease healthcare costs, optimize postnatal outcomes, and promote quality postnatal education (Wagner et al., 2020).

The introduction of structured educational programs relating to postpartum depression may be a feasible option to evaluate participants' postpartum depression literacy levels, with evaluation occurring before and after the educational intervention. Structured education can be defined as the use of an organized, timely, and informative educational session, in which specific topics are presented to a targeted audience. The population, intervention, comparison, and outcome (PICO) question for the Doctor of Nursing Practice (DNP) project is: Among women attending a postpartum peer support group in southcentral Pennsylvania (P), does the implementation of a formalized postpartum depression education program (I) increase postpartum depression literacy (O) when compared to standard postpartum depression education (C)?

Needs Assessment

The identification of postpartum depression signs and symptoms continues to be overlooked by women of child-bearing age, due largely to a lack of understandability and actionability (Wagner et al., 2020). In some organizations, support groups are offered to facilitate communication and discussion among others with similar experiences or backgrounds. The

implementation of postpartum depression education within the University of Pittsburgh Medical Center's (UPMC) Hold On Postpartum Ends (HOPE) support group consists primarily of an open-forum design, offering minimal postpartum depression education. The HOPE support group is a postpartum adjustment support group facilitated by maternal health nurses and individuals who have experienced a type of perinatal mood disorder (UPMC, n.d.). By participating in an open-forum discussion, participants of the HOPE support group are receiving feedback and personal experiences from other group participants. The program director requested DNP student assistance to find and implement the best practice to improve PPD literacy.

A strength, weaknesses, opportunities, and threats (SWOT) analysis was conducted to evaluate the context and setting of this project within UPMC's HOPE postpartum adjustment support group (see Appendix A). Even though the rate of postpartum depression for new mothers in Pennsylvania was 10.6 percent when compared to the mean of 12.5 percent for all Pregnancy Risk Assessment Monitoring System (PRAMS) sites, UPMC's HOPE postpartum adjustment support group is the only postpartum support group in the central Pennsylvania area (America's Health Rankings, 2022). Due to a lack of structured group education on the identification of postpartum depression and the desire to create structured educational classes for future use during pregnancy, the program director of the HOPE support group requested additional educational support.

Aims, Objectives, and Purpose Statement

This project aims to reduce postpartum depression. The primary objective was to increase postpartum depression literacy in at least 90% of women attending a postpartum adjustment support group over 10 weeks. At least 80% of participants will attend a biweekly structured

educational session presented by the project leader from March 7th to May 16th, 2022. At least 80% of participants will attend all three education sessions from March 7th to May 16th, 2022. At least 90% of participants attending the educational sessions will complete a pre-and post-interventional survey by May 16th, 2022. The purpose of this QI project was to implement postpartum depression education sessions for adult women attending a postpartum adjustment support group to improve PPD literacy.

Review of the Literature

A literature review was conducted from June 2021 to November 2021 using the keywords: *educational interventions, support groups, postpartum literacy, and postpartum depression*. Databases searched included CINAHL, PubMed, PsycINFO, and Medline. Limits were set to only include articles written in the English language and date limits were set to the most recent five years (2016-2021). Two hundred and fifty-eight articles were found with two hundred and forty-eight articles being excluded due to male gender, adolescent females, non-English language publication, not occurring 1-year after birth, and failure to evaluate the intended intervention. A total of ten articles met inclusion criteria (see Appendix B). The Johns Hopkins Evidence-Based Practice Model was used to rate the evidence (see Appendix C; Dang et al., 2022). The level of evidence for nine out of ten articles was level III, with the remaining article being a level II. With an overall quality rating of B, the articles consisted of four cross-sectional analyses, two systematic reviews, a secondary analysis, a narrative review, a quasi-experimental study, and a descriptive qualitative study. Concerns for generalizability and small sample sizes were limitations of the literature.

The American College of Obstetricians and Gynecologists (ACOG, 2016) recommends the use of anticipatory guidance on reproductive life planning, vaccination, education about

future health, and screening for depression throughout pregnancy, with ongoing care provided during the postpartum period. Research recommends other members of the healthcare staff receive training on postpartum depression to increase awareness (Top & Karacam, 2016). The U.S. Preventive Services Task Force recommends counseling for women at risk for perinatal depression during the postpartum period as a way to minimize adverse health effects and support a woman's overall well-being (Paldaine et al., 2019). Risk factors of perinatal depression may include poor social or financial support, a history of intimate partner violence, stressful life events, medical complications, and a personal or family history of depression (Paladine et al., 2019).

Public health efforts, such as a national campaign, are recommended to reduce the stigma associated with seeking help for postpartum depression (Jones, 2022). By using educational campaigns to promote postpartum depression literacy, it may help to increase depression literacy levels among women's social networks (Fonseca et al., 2017). Given that stigma and shame are substantial barriers to help-seeking for mental health literacy, educational campaigns should focus on stigmatizing attitudes (Daehn et al., 2022). As a result of frequent smartphone use, developing and reviewing evidence-based content for smartphone use could be a method to improve perinatal mental health awareness (Daehn, et al., 2022). Additional educational resources from organizations such as March of Dimes, Postpartum Support Virginia, the American Psychological Association (APA), and the National Institutes of Health (NIH) are available at no cost to women and their families for use as clinical resources on postpartum depression and can be distributed to healthcare care workers to improve overall comprehension of depressive symptoms.

Theoretical Model

The theoretical model used to guide this quality improvement project was Betty Neuman's systems model (see Appendix D). This theoretical model focuses on the client system response to actual or potential stressors and the use of primary, secondary, and tertiary intervention (Neuman, 1982). By introducing a form of structured postpartum depression education to women, who are actively participating in a postpartum adjustment support group, a secondary intervention has been provided. For participants who have been diagnosed with postpartum depression, additional patient resources can reduce the long-term effects and improve quality of life, representing tertiary prevention. By using all three levels of prevention, Neuman's systems model directed the project to promote health and wellness, with the goal of decreasing PPD due to improvements in postpartum depression literacy.

Translation Model

The Johns Hopkins Nursing Evidence-Based Practice Model and Guidelines (see Appendix E) were used to translate the evidence into clinical practice (Dang et al., 2022). After deciding on a practice question, the practice, evidence, and translate (PET) process continued to refine, appraise, and analyze the literature (Dang et al., 2022). The implementation of structured educational sessions were administered to all project participants via a synchronous or asynchronous web-based intervention. The evaluation of outcomes included collecting data pre and post-intervention to determine postpartum depression literacy scores and the effectiveness of the postpartum depression education program. Through a synthesis of evidence-based literature, the project leader determined the best practice to promote postpartum depression literacy, emotional competence, and patient awareness of psychopathological symptoms for translation into clinical practice.

Methodology

This QI project was designed to increase postpartum depression literacy among a group of adult women attending a postpartum adjustment support group utilizing an educational intervention discussing postpartum depression identification, social support, and self-care. The tool used for assessing postpartum depression literacy was the Postpartum Depression Literacy Scale (PoDLiS), a 31-question survey, which was implemented to all participants prior to and at the conclusion of the educational intervention. The PoDLiS survey was administered pre- and postintervention to a convenience sample of patients in the Spring of 2022.

Participants

Members of a pre-existing UPMC postpartum adjustment support group were recruited with the use of an educational script, which briefly outlines the steps included for this QI project, via the group's private Facebook. In an attempt to increase participation and improve the number of educational sessions attended, group members were offered the opportunity to attend the standardized postpartum depression education program via synchronous or asynchronous web-based interventions. Synchronous web-based interventions were offered at a scheduled time on a bi-weekly basis via Zoom with the use of an interactive PowerPoint presentation, whereas, asynchronous web-based interventions consisted of pre-recorded PowerPoint presentations for independent study. Inclusion criteria included women who delivered within the past year or who are actively breastfeeding who attend UPMC's HOPE postpartum adjustment support group, 18 years of age and older, and the ability to read, write, and speak English (self-reported). The majority of HOPE group participants delivered at UPMC; therefore, their baby's date of delivery was confirmed by the group facilitator. For patients currently breastfeeding, regardless of the baby's age, confirmation was verified by the lactation consultant. Exclusion criteria include

biological male individuals, women less than 17 years of age or younger, those who are unable to read, write, or speak English, or women who have not delivered a baby in the past year or are not currently lactating.

Setting

This QI project took place within the existing UPMC Hold on Postpartum Ends (HOPE) group, meeting biweekly via a secure synchronous video conference. Zoom, an online meeting platform, was used in an encrypted, password-protected format and no identifying information was accessible to any other meeting participants. UPMC is one of the major healthcare systems in central Pennsylvania, with approximately five-thousand deliveries occurring each month between the Harrisburg and Carlisle inpatient facilities. The HOPE group is supported by the UPMC Magee-Women's Hospital with facilitation by a women's health educator and maternal health nurses (UPMC, n.d.).

Tools

The use of a mental health literacy tool, the Postpartum Depression Literacy Scale (PoDLiS; see Appendix F) was administered to participants before the educational sessions began and after the conclusion of all educational sessions. This tool consists of a total of 31 items with the following seven constructs: the ability to recognize postpartum depression and appropriate help-seeking behaviors, knowledge about professional help available, knowledge and belief of self-care activities, beliefs about professional help available, knowledge of how to seek information related to postpartum depression, and attitudes which facilitate recognition of postpartum depression and appropriate help-seeking (Mirsalimi et al., 2020). The tool is scored by adding the raw scores (1 to 5) and then dividing them into the number of items for each subscale (Mirsalimi et al., 2020).

The PoDLiS has acceptable internal reliability with Cronbach's alpha coefficients of 0.78 for the total scale and from 0.70 - 0.83 for subscales (Mirsalimi et al., 2020). Content validity of the PoDLiS consisted of quantitative and qualitative analysis, with a total of 15 experts from multiple disciplines reviewing the qualitative content and the use of the Content Validity Index (CVI) with good content validity resulting in a score of 0.79 or higher (Mirsalimi et al., 2020). The CVI score for the PoDLiS ranged from 0.80 to 1.0, with all questions found to be satisfactory (Mirsalimi et al., 2020). Permission to use the PoDLiS tool was granted by the original author via e-mail (see Appendix K).

Intervention

Participants were recruited over a 4-week period and received a preintervention survey via Qualtrics, an online survey platform for healthcare (Qualtrics, 2022). The pre-implementation survey consisted of the PoDLiS tool and demographic questions (see Appendix G). The intervention fidelity was ensured by a scripted educational intervention delivered by the same person (see Appendix L). Implied consent was obtained through the completion of the preintervention survey via Qualtrics. The project leader offered three distinct, standardized educational programs consisting of the identification of postpartum depression, the importance of self-care, and supportive techniques for a woman's family and friends. In an attempt to increase the number of project participants and improve the number of educational sessions attended, two interventions were offered: the synchronous web-based intervention and the asynchronous web-based intervention. The synchronous web-based intervention was provided to participants via a synchronous video conference, with the use of interactive PowerPoint presentations. The asynchronous web-based intervention consisted of prerecorded PowerPoint presentations for participants to complete independently.

Each educational program was repeated twice to accommodate different schedules. Each educational program lasted approximately 45 minutes and included the use of a PowerPoint presentation. The content for the educational program was obtained from the following resources: Office on Women's Health, the American College of Obstetricians and Gynecologists, March of Dimes, Mayo Clinic, and Postpartum Support Virginia. Supplemental videos from the National Institutes of Health and the Pacific Postpartum Support Society were included in the PowerPoint presentations. This content was included during the educational programs on self-care and the identification of postpartum depression. A pre-intervention PoDLiS survey was provided to participants from the existing group facilitator via email before the education sessions began. Following the preintervention surveys, the project leader offered three educational programs via scheduled synchronous video conferencing or pre-recorded PowerPoint presentations. After the conclusion of the educational sessions, participants received a link via email from the existing group facilitator for a repeat PoDLiS survey (see Appendix H).

Data Collection

Data was collected from March 7th, 2022 to May 16th, 2022. The HOPE postpartum adjustment support group continued to meet on the second and fourth Mondays of every month with additional sessions added on the first and third Mondays of every month to accommodate educational sessions from March 7th, 2022 to April 4th, 2022, therefore, data collection occurred biweekly. All data collected after April 4th, 2022 was received after the completion of project intervention on May 16th, 2022. Demographic data (age, level of education, number of biological children, number of pregnancies, history of mental health disorders, and marital status) was obtained during the preintervention survey sent via Qualtrics. Project outcomes were measured by collecting data from completed preintervention and postintervention surveys.

Preintervention surveys consisted of the PoDLiS and demographic surveys with a repeat PoDLiS survey after completion of the project's intervention.

Cost Analysis

The costs associated with the implementation of this QI project were minimal (see Appendix I). Project costs included the purchase of the SPSS program for project analysis and were funded by the project leader. The use of Qualtrics, an online survey tool, was available at no cost to the project leader and participants through Messiah University. The educational sessions were provided during an existing postpartum adjustment support group, and the project leader donated her time. The total cost of this project was \$34.95, which was donated by the project leader and incur no cost to the project implementation site. The expected direct cost savings would potentially include a decrease in out-of-pocket patient healthcare costs and the use of provider services. By minimalizing insurance costs, paid time off, and loss of employment, this QI project offers indirect cost savings opportunities for patients and their families. The HOPE group facilitator can continue to provide educational sessions on a bi-weekly basis, whether in-person or via synchronous video conferencing with little to no out-of-pocket expenses.

Timeline

The timeline for this quality improvement project was illustrated through a GANTT chart (see Appendix J). Project development occurred from June 2021 to October 2021. Project proposal was conducted during Fall 2021. Project site IRB submission was reviewed and received in December 2021. Data collection occurred during the implementation of the project from March 2022 to May 2022. Data analysis and interpretation of outcomes occurred from May 2022 to July 2022. The final presentation or report of findings was completed in August 2022.

Ethics and Human Subject Protection

The IRB for the project site and Messiah University's IRB determined that this was QI and exempt from review. All participants were protected by the Health Insurance Portability and Accountability Act of 1996 (HIPAA), which protects the privacy of patients' health information (Modifications to the HIPAA Privacy, Security, Enforcement, and Breach Notification Rules, 2013). The project leader completed the Protecting Human Research Participants Online Training. Informed consent was implied through the pre-intervention survey via Qualtrics. Written informed consent was waived by Messiah University and UPMC IRBs.

A randomized numeric identifier was assigned to all project participants via Qualtrics and used to compare pre and post-intervention PoDLiS scores. Participation was confirmed by the number of responses received by the group facilitator via the group's private Facebook page. All group invites were sent via email by the group facilitator. The existing group facilitator distributed surveys to participants. Some of the questions are personal and may cause discomfort. Data were stored securely by a password-protected computer and a password-protected Qualtrics login for 3 years, accessed only by the project leader

Results

Analysis and Evaluation

Data were analyzed and maintained with IBM SPSS Statistics for Windows (Version 28.0). Demographic data were evaluated by using descriptive statistics with frequencies (see Appendix M). The outcome consisted of pretest and posttest PoDLiS scores (see Appendix N). Difference scores (posttest – pretest) were evaluated for test assumptions and due to violations of normalcy (Kurtosis = -1.71), a Wilcoxon Signed-Rank Test was used. Postpartum depression literacy scores were statistically significantly higher after the intervention ($Mdn = 150$) than

before the intervention ($Mdn = 126$), $z = -2.36$, $p = .018$). Additionally, there was a large effect size ($r = 0.89$), indicating clinical significance. Statistical significance was established as $p < .05$.

Based on project findings, postpartum depression literacy was improved in greater than 90% of participants. Greater than 80% of all participants attended three educational sessions from March to May 2022, including both web-based and in-person interventions. Over 90% of adult women in the postpartum adjustment support group completed a pre-and post-interventional survey. Of the participants in the project, mean subscale pretest scores were the lowest for knowledge of how to seek information for postpartum depression ($M=3.2$, $SD=.34$) compared to the remaining PoDLiS subscale scores. Posttest subscale scores improved for all subscales except for knowledge about professional help available, which remained the same (see Appendix O).

This QI project included a convenience sample of seven postpartum patients that completed both the pre and post-test depression literacy scale that were primarily age 25 or older (89.5%, $n = 6$), married (100%, $n = 7$), and well-educated with 42.9% ($n = 3$) having a bachelor's degree. Patients reported 1 to 5 pregnancies ($Mdn = 2$) and 1 to 3 biological children ($Mdn = 2$). The majority reported a history of mental health disorders (85.7%, $n = 6$).

Discussion

After the completion of the EBP intervention, participants' postpartum depression literacy scores were statistically significantly higher than before the intervention. These findings support the continued use of structured educational sessions during the postpartum period, as a way to improve postpartum depression literacy. Postpartum depression education should be focused on the signs and symptoms of PPD, the risks of PPD, the acknowledgment of self-care activities, and the beliefs of professional help, as supported by an increase in posttest subscales

scores. As a direct result of either no improvement or a slight improvement in three of the posttest subscale scores (attitudes towards help-seeking behaviors, knowledge on how to seek professional help, and knowledge about professional help), additional research may be needed to determine if women are receiving adequate resources on how to seek professional help. Failure to provide adequate mental health resources may be related to a non-significant increase in women's attitudes towards help-seeking behaviors. Recommendations for a larger and more diverse sample size, face-to-face educational sessions, and increased access to support groups are needed to evaluate the most effective way to improve postpartum depression in outpatient settings.

Project outcomes provide further insight into the benefits of structured educational sessions, the identification of individual awareness of postpartum depression, and increased opportunities for routine screening of PPD. Future QI projects may benefit from implementing structured educational sessions during the antenatal and postpartum periods, providing greater insight into recognizing those at risk for depression during pregnancy. A multi-disciplinary approach that supports mental health treatment and increased access to sensitive information about mental health literacy is recommended for use among health care professionals (Daehn et al., 2022). Educational material should include the topics of depression, psychosis, motherhood sadness, in addition to the risk factors and treatment of PPD (Top & Karacam, 2016). By integrating the use of structured education material by nursing professionals, there will be a reduction in the number of women diagnosed with depression and lower PPD scores (Top & Karacam, 2016).

Limitations

Limitations of this QI project included a small sample size, limited access to postpartum support groups, and a lack of diversity in the project sample. Although the sample size was small, there was sufficient power to detect a difference in the pre and post-assessment of postpartum depression health literacy. However, a larger sample size may allow for more diversity. The educational sessions were conducted via synchronous video conferencing and pre-recorded PowerPoint presentations, which may affect participants' ability to openly engage in discussion. Additionally, failure to attend three educational sessions may contribute to a decrease in PPD literacy scores.

Significance to Advanced Practice Nursing

By educating mothers on the signs and symptoms of PPD, advanced practice providers (APP) can implement a standard form of primary prevention. It is important to support disease prevention, which decreases a woman's risk of morbidity and mortality. Increased awareness of postpartum depression should be an attainable goal for patients during the postpartum period. Additional interventions, such as antenatal support groups with the inclusion of postpartum depression educational content, may be recommended to increase literacy prior to delivery. Project outcomes provide further insight into the benefits of structured educational sessions, the identification of individual awareness of postpartum depression, and increased opportunities for routine screening of PPD.

Conclusion

Even though support for postpartum depression is provided in routine care, little effort is directed toward evaluating a woman's postpartum depression literacy levels. If left untreated, postpartum depression can have devastating effects on a mother and her child. The early

identification and management of postpartum depression can contribute to increased literacy levels, affecting a woman's overall health and quality of life. Preventive healthcare strategies, including patient education, can contribute to a decrease in healthcare personnel, resource utilization, and financial burdens. Recommendations for the standardized implementation of postpartum depression education to women during the perinatal period and among healthcare organizations would contribute to an increase in postpartum depression literacy and the ability to seek additional support.

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Appendix A

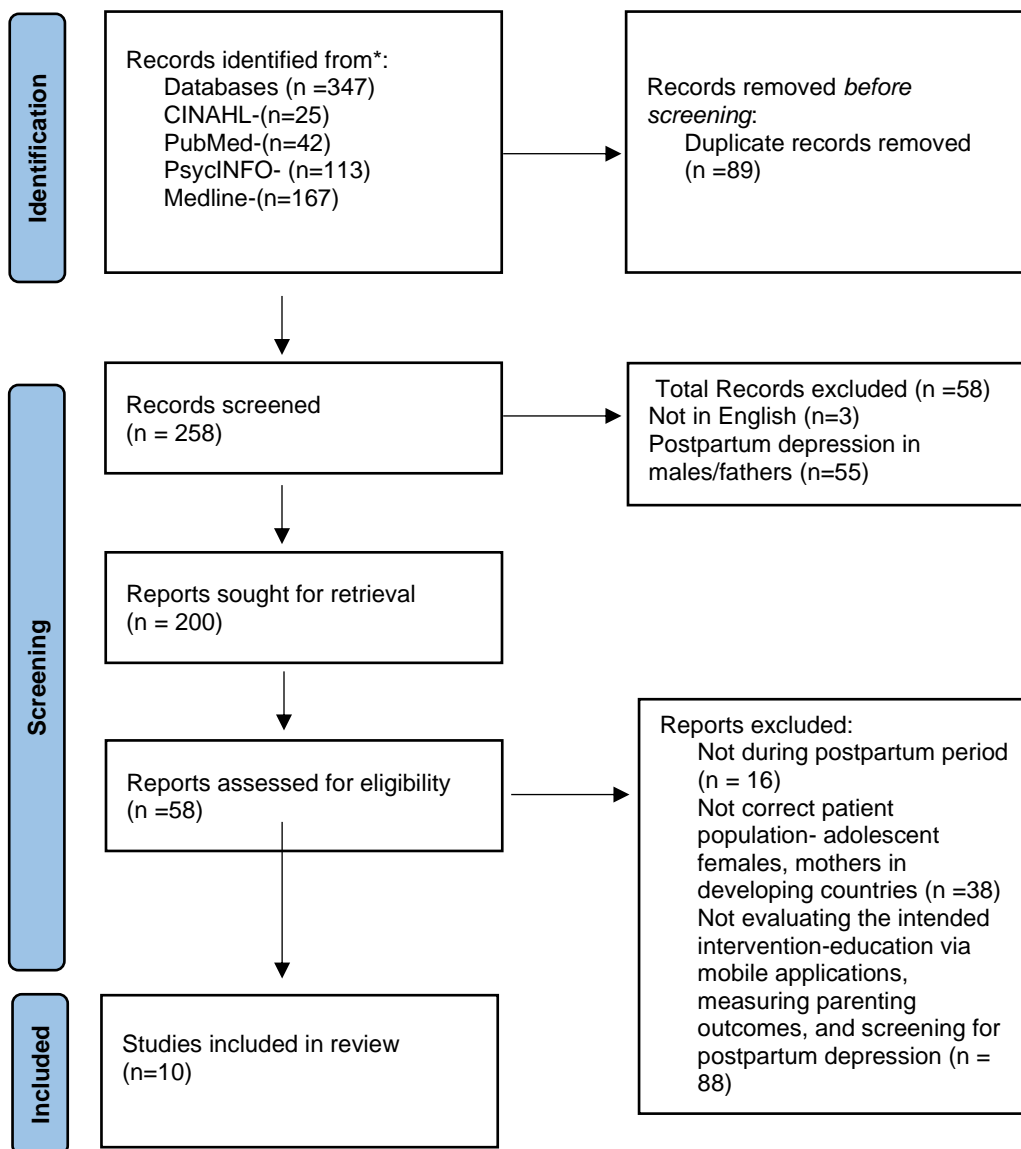
SWOT Analysis

<p><u>Strengths</u></p> <ul style="list-style-type: none"> • Established postpartum adjustment support group • Current program director seeking a PPD educational intervention • Only in-person postpartum adjustment group located in central Pennsylvania • Group participants can participate if delivery occurred within another healthcare system 	<p><u>Opportunities</u></p> <ul style="list-style-type: none"> • Increase opportunities for early intervention • Increase PPD literacy for patients and providers in the organization • Contribute to the development of a structured educational class during pregnancy
<p><u>Weaknesses</u></p> <ul style="list-style-type: none"> • Postpartum adjustment group is only for postpartum mothers up to 1 year after delivery or who are actively breastfeeding • No structured educational classes on postpartum depression • No formalized referral process to postpartum adjustment group 	<p><u>Threats</u></p> <ul style="list-style-type: none"> • Lack of acceptance from healthcare administration • Limited postpartum adjustment group participation • Limited staff involvement

Appendix B

PRISMA Diagram

Identification of studies via databases and grey literature



Appendix C

Literature Review Table

EBP Question (PICO-T): Among women attending a postpartum peer support group in southcentral Pennsylvania (P), does the implementation of a formalized postpartum depression education program (I) increase postpartum depression literacy (O) when compared to standard postpartum depression education (C)?

#	Citation (Author & Year)	Design or Evidence Type	Sample Type, Sample Size, and Setting	Findings that help answer the EBP (PICO-T) question	Observable Measures	Limitations	Level of Evidence & Quality
1	Mirsalimi, Ghofranipour, Noroozi, & Montazeri, 2020.	A quantitative, cross-sectional, psychometric analysis	A convenience sample of 693 pregnant women in a hospital-based setting in Iran.	<p>The mean PPD literacy score for the sample was 3.79 with a 3.68 ability to detect PPD.</p> <p>The Cronbach's alpha coefficient for the PPD Literacy Scale was .78 and the ability to detect PPD was .77.</p> <p>Study findings indicate that the mean score of several attributes of PPD were all in</p>	After the validity and reliability of the Postpartum Depression Literacy Scale (PoDLiS) was completed, the tool consisted of 31 items that focused on 7 different factors.	<p>The researchers identified a major gap in the literature, as this study is the first to provide an instrument that measures PPD literacy.</p> <p>Threat to generalizability: a hospital-based study that may not accurately represent the perinatal population. The study was conducted in Iran.</p>	<p>III/B</p> <p>Recommendations to perform research among different cultures and environments may contribute to a stronger validation of the psychometric properties of the PoDLiS tool.</p> <p>Even though the researchers recommend including additional psychometric analysis, their</p>

				<p>the moderate range, which included knowledge of risk factors and causes, ability to recognize PPD, attitudes which promote recognition of PPD, and appropriate knowledge of how to seek additional information related to PPD.</p>		<p>objective was met by providing a valid measure to access all attributes of PPD as it relates to mental health literacy.</p> <p>The use of this PPD literacy tool can be used to determine the impact of programs among pregnant women to improve PPD and mental health literacy.</p>
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2	Yee, Silver, & Haas, 2021).	A secondary analysis, observational cohort study	A total of 10,038 nulliparous individuals from 8 medical centers in the US from 2010 to 2013.	<p>Study findings conclude that 1 out of 5 pregnant women are subject to inadequate health literacy.</p> <p>Differences in neonatal and maternal outcomes were associated with inadequate health literacy.</p> <p>The risk of adverse perinatal outcomes may independently be associated with health literacy.</p>	<p>Within this study, 17.5 % of participants had inadequate health literacy levels.</p> <p>Participants with inadequate health literacy levels were likely to be Hispanic, younger in age, have public insurance, less likely to be married, and have some college education.</p>	<p>Due to difficulty in detecting uncommon events (postpartum readmission), this study may be underpowered.</p> <p>Threat to generalizability- Participants were recruited from large medical centers during early pregnancy.</p>	<p>III/ B</p> <p>A strength of this study was the use of a large sample, which was representative of the US population.</p> <p>By confirming the importance of identifying and measuring health literacy levels among pregnant women, researchers are recommending the development of evidence-based interventions to improve health education.</p>
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3	Wagner, Stark, & Milenkov, 2020).	A narrative review	This study was conducted from hospital systems in the north Texas region, a convenience sample of postnatal education materials.	<p>According to the study findings, improvements in the usability of postpartum education, specifically as it pertains to the readability and understandability of postnatal discharge materials.</p> <p>This study provides postpartum education materials that are available online for mothers who are health literate.</p> <p>Postpartum education materials tested in this study met standards for readability and were below standards for actionability, understandability,</p>	<p>This study revealed that 18% of postnatal education materials met PEMAT standards for actionability and understandability.</p> <p>No postnatal education materials met Fry-based readability standards.</p>	A rubric was developed for CLAS measurement, which was imperative to ensure CLAS standards were being met.	<p>III/B</p> <p>By accessing the readability, cultural sensitivity, and understandability of postpartum education materials, this study recommends a need for culturally sensitive and health-literate postpartum education.</p> <p>Additional testing of the CLAS rubric may be needed to test the tool's validity and reliability.</p>
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				and cultural competency.			
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4	McLeish & Redshaw, 2017.	Descriptive qualitative study	A total of 47 mothers from England were included in this study.	<p>Study findings report that peer support groups can result in decreasing anxiety and low moods with improvements in mothers' feelings of self-efficacy and self-esteem.</p> <p>By sharing peer supporters' personal parenting experiences, it helped study participants to improve their confidence and self-esteem in their parenting roles.</p> <p>By developing an enduring friendship with their peer supporters, the emotional validity of the participants was affirmed.</p>	<p>This study identified two themes as a result of participant interviews, "mothers' self-identified emotional needs," and "how peer support affects mothers."</p> <p>No measurable or quantifiable data was present due to the design of this study.</p>	<p>The study coordinators were not aware of the number of participants that declined participation in the study, as the coordinators contacted the participants directly throughout the study.</p> <p>Some mothers were interviewed sooner than anticipated and had not yet received the end of their peer support.</p> <p>Threat to generalizability- this study was completed in the UK, which may not apply to other healthcare settings.</p>	<p>III/B</p> <p>The use of in-depth qualitative interviews provided an opportunity to acquire further experiences on mothers from diverse backgrounds and a range of challenging life experiences.</p> <p>Study participants from 10 different peer support groups were included, encouraging mothers with projects without or with a "mental health" focus to be presented together.</p> <p>Recommendations for further research could contain both</p>
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							<p>quantitative and qualitative research, as a way to provide further exploration of peer support and its impact on mothers from a wide range of cultural and socio-economic backgrounds.</p>
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5	U.S. Preventive Services Task Force, 2019.	A systematic evidence review	All pregnant and postpartum persons who are at an increased risk for developing perinatal depression.	<p>The use of cognitive behavioral therapy (CBT) can lead to a positive change in behavior and mood, by addressing negative thoughts, attitudes, and beliefs.</p> <p>An example of a cognitive behavioral approach to improving baby blues and postpartum depression, The Reach Out, Stand Strong, Essentials for New Mothers (ROSE) program, involved 4 or 5 prenatal sessions and 1 postpartum session, which included the topics of postpartum depression, stress management, and the development of</p>	<p>By choosing to use a type of counseling intervention, a 39% reduction (pooled RR 0.61; CI 0.47 to 0.78) in the probability of perinatal depression is reported.</p> <p>In three studies that evaluated health system-level interventions, a statistically significant risk reduction of scoring above the cutoff range on the Edinburgh Postnatal Depressions Scale (EPDS) was documented.</p> <p>Two additional studies reported a statistically significant decrease in depression</p>	<p>Not enough evidence was found to thoroughly assess the risks and benefits of other forms of non-counseling services.</p> <p>Due to barriers in accessing mental health care, several comments raised concerns regarding a provider's ability to implement recommendations.</p> <p>The USPSTF did not mention the importance of perinatal screening tools (i.e. EPDS), as this study was primarily focused on the prevention of perinatal depression.</p>	<p>III/A</p> <p>By referring at-risk pregnant and postpartum women to a form of counseling versus peer support, the USPSTF concludes with a moderate level of certainty of the net benefit in the prevention of perinatal depression.</p> <p>The results of this study are consistent with recommendations based upon a comprehensive review of the literature with clear and concise clinical recommendations.</p>
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				<p>a social support system.</p> <p>Women who experience depressive symptoms and specific socioeconomic risk factors (low income, young, or single parent) would be considered high risk and benefit from counseling interventions.</p>	<p>symptoms (weighted mean difference -3.45; CI -4.99 to -1.91), while failing to demonstrate reductions in a diagnosis of depression.</p>		
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6	Fonseca, Silva, & Canavarro, 2017.	A cross-sectional Internet study	A total of 194 women during the perinatal period in Portugal.	<p>Even though the results of this study have identified specific gaps in depression literacy, they failed to distinguish symptoms not related to depression, which may result in negative beliefs and attitudes towards mental illness.</p> <p>Study participants with prior mental health experience were found to have higher literacy levels regarding the treatment of depression.</p> <p>Women with lower depression literacy levels were found to present with an increased lack of emotional clarity, negatively affecting their</p>	<p>Based upon an EPDS score of greater than nine, 66 women experienced significant psychopathological symptoms with 43 women scoring greater than 12 on the EPDS.</p> <p>The majority of study participants had moderate levels of depression literacy (median=13, interquartile range=10-15); only 2 women answered all questions correctly with one woman answering all questions incorrectly.</p>	<p>Self-reported questionnaires were used to identify study participants with clinically significant psychopathological symptoms.</p> <p>Due to the study design, there was an inability to establish a clear directionality between the study variables, as it pertains to awareness of symptoms.</p> <p>Selection bias: a self-selected sample that consisted primarily of married women in Portugal with higher levels of income and education.</p>	<p>III/B</p> <p>Similar to findings from prior studies, the researchers associated lower literacy levels with depression-related treatments.</p> <p>Researchers are recommending that all healthcare professionals should methodically provide women with additional resources about mental health topics, allowing for disclosure of their emotional difficulties.</p> <p>The use of educational campaigns to increase the general population's awareness of</p>
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				symptom recognition and awareness.			<p>depression literacy may facilitate an improvement in women's depression literacy.</p> <p>The development of an empathetic and trusting relationship with healthcare providers is a major factor in improving women's depression literacy.</p>
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7	Top & Karacam, 2016.	A quasi-experimental study	A total of 103 Turkish women were selected via convenience sampling.	<p>Structured education on postpartum depression was provided for participants in the intervention group, with an evaluation of study participants by use of the Edinburgh Postpartum Depression Scale.</p> <p>The study demonstrated significantly lower EPDS scores for dependent groups pre-and post-tests, which demonstrated that structured education was effective at decreasing symptoms of PPD.</p> <p>Before the implementation of structured education, EPDS scores were</p>	<p>Before PPD education, women in the intervention group had higher EPDS scores than those in the control group (8.0, 4.8). Significantly lower EPDS scores resulted for women in the intervention group after PPD education. The ratio of PPD was similar for the control and intervention groups.</p>	<p>Social interaction threat-women may have provided incorrect responses relating to the family since data collection was completed through face-to-face interviews. Restriction of data reliability, as data was collected by interviewers.</p> <p>Threat to generalizability-the study was conducted in a family health center in Turkey.</p>	<p>II/B</p> <p>Researchers recommend that healthcare staff should be trained and introduced to a structured form of education for postpartum depression.</p> <p>Even though larger sample sizes are recommended in future studies, this study revealed a decrease in PPD scores with the use of a structured education program.</p>
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				statistically higher in the interventions group as opposed to the control group.			
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8	Silva, Canavarro, & Fonseca, 2018.	A cross-sectional study that consisted of an online survey	The study sample consisted of pregnant women or women within the first year after delivery in Portugal.	<p>Study findings report that women preferred sources of informal help, regardless of the presence of psychopathological symptoms.</p> <p>Study participants reported more attitudinal barriers and a lack of support from their spouses to seek professional help.</p> <p>Stigma and partner encouragement significantly contributed to a woman's intentions to seek professional recommendations.</p>	<p>Significant differences were recorded as it pertains to receiving encouragement from a partner during the help-seeking process (groups with no relevant psychopathological symptoms (M=3.65, SD=0.41) and groups with relevant psychopathological symptoms (M=3.21, SD=0.70).</p> <p>Women who did not present with relevant psychopathological symptoms and the use of prior mental healthcare (23.1%, n=34) and women who presented with relevant psychopathological</p>	<p>Threat to generalizability-study sample consists of predominately married women with higher levels of education and income.</p> <p>This study fails to mention a woman's history with mental health providers or the rationale related to previous mental health experiences.</p>	<p>III/A</p> <p>Consistent with previous study findings, women prefer to discuss their emotional experiences or difficulties with friends and family, as opposed to healthcare providers.</p> <p>Due to a higher number of women choosing to seek informal perinatal depression sources of care during the perinatal period, it will contribute to increased perinatal depression awareness.</p> <p>The researchers recommend the use of awareness-raising campaigns</p>
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					symptoms (32.1%, n=31).		that pertain to mother-related myths, the number of women who experience distress symptoms during the perinatal period, and the risks of not seeking professional treatment.
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9	Jones, 2022.	A cross-sectional study that consisted of an online survey	A total of 326 postpartum women residing in the U.S. selected by a non-probability, purposive, and snowball sampling strategies	<p>Study findings report that higher levels of perceived stigma are associated with more favorable attitudes towards professional help-seeking.</p> <p>More favorable attitudes towards mental health professionals were associated with higher levels of mental health literacy.</p> <p>The interaction between mental health literacy and stigma was non-significant.</p>	<p>Study participants in this sample experienced a moderate amount of perceived stigma related to help-seeking for PPD (M= 10.39, SD=3.38).</p> <p>According to the overall regression model, approximately 33.5% of variance in attitudes toward professional psychological help-seeking ($p<0.001$).</p>	<p>Threat to generalizability- only women using social media were able to access the survey. Participants were highly educated with high levels of mental health literacy scores.</p> <p>Response bias may be present due to women choosing to participate in the study if they had a direct interest in this topic.</p>	<p>III/B</p> <p>Even though the results of this study suggest that increased mental health literacy and decreased perception of stigma can approve attitudes towards help-seeking behaviors, the researchers recommend further research to examine the long-term effects on help-seeking behaviors.</p> <p>Researchers recommend the use of a national campaign that is aimed at reducing stigma about seeking help, in addition to increasing the frequency of screening postpartum and</p>
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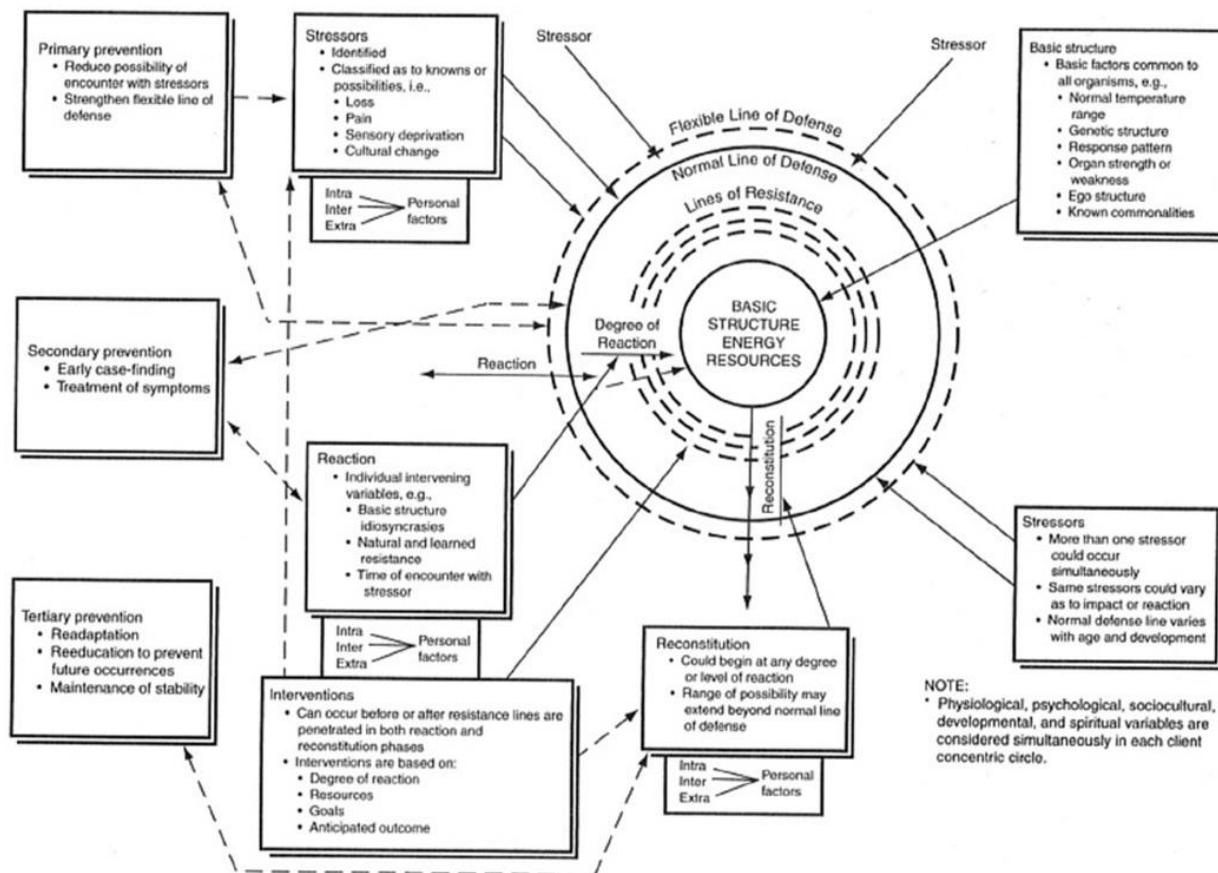
							pregnant women for PPD.
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10	Daehn, Rudolf, Pawils, & Renneberg, 2022).	A systematic evidence review	A total of 68 articles were retrieved to include all studies assessing mental health literacy of the perinatal period among women and the public.	<p>Study findings reported less heterogeneity was found with regard to the specific PMHP studied.</p> <p>Findings on the knowledge component of perinatal MHL suggest that the public and women have a partly fragmented and differing comprehension of PMHP.</p>	<p>Similar to previous research studies, shame and stigma were the most common barriers to help-seeking in perinatal women.</p> <p>Social facilitators have been found to be the most commonly reported reasons to seek help, whereas, biological factors are not among the most important risk factors.</p>	<p>A large heterogeneity of assessment of MHL components and sub-components were found, making it difficult to compare results.</p> <p>Threat to generalizability-search of literature was limited to studies in English and German and did not include any source of Grey literature; most of the studies included were conducted in Western countries.</p>	<p>III/B</p> <p>This was the first systematic review to gather and summarize findings on perinatal MHL.</p> <p>Similar to previous studies, the researchers reported a lack of uniformity in assessing MHL components among adolescents.</p> <p>Recommendations for future research should include the use of valid and reliable measures to access all components of perinatal MHL literacy, in addition to reviewing MHL in the context of other PMHP.</p>
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Appendix D

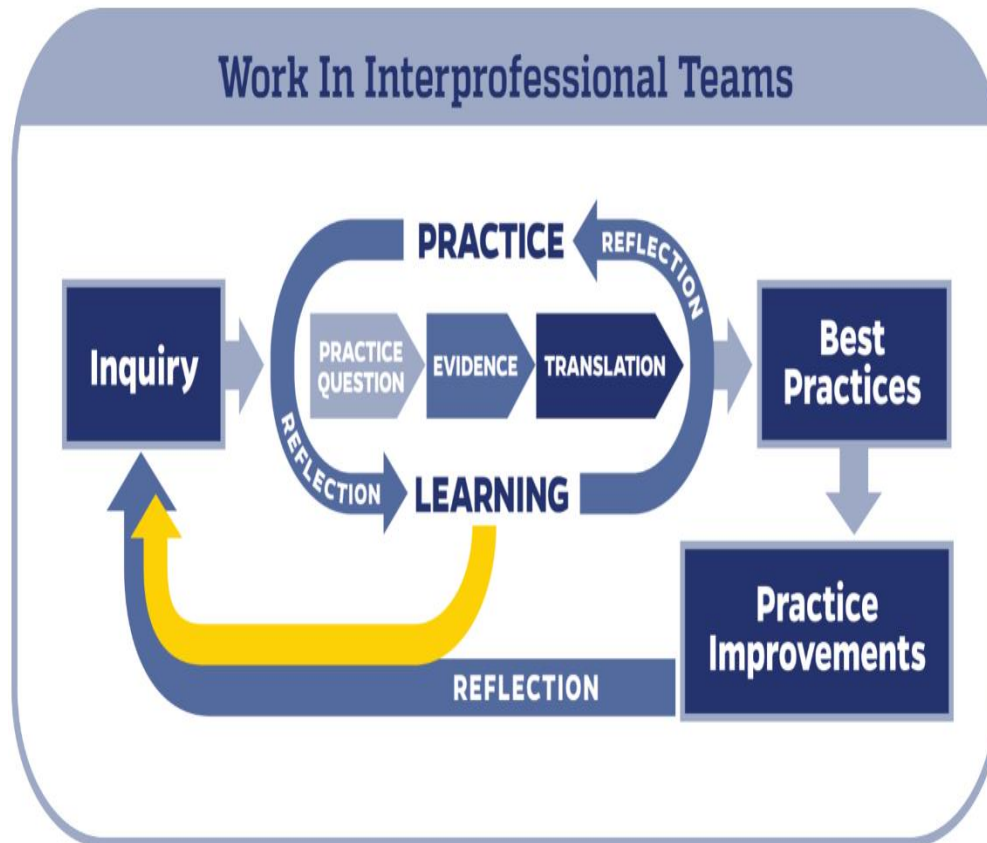
The Neuman Systems Model



Note. Adapted from The Neuman Systems Model of Nursing [Overview of the Neuman Systems Model], by B. Neuman, 2005, <https://www.neumansystemsmode.org/neuman-fawcett-2011>

Appendix E

Johns Hopkins Nursing Evidence-Based Practice Model



From *Johns Hopkins nursing evidence-based practice: Model and guidelines* by D. Dang & D.

Dearholt, 2017, Indianapolis, IN: Sigma Theta Tau International. Copyright [2017] by

The Johns Hopkins University.

Appendix F

The Postpartum Depression Literacy Scale (PoDLiS)

Dear respondent,

This questionnaire deals with your perceived knowledge, beliefs and skills on postpartum depression literacy. For each question, put a check mark or cross in the box in front of the answer that best describes your knowledge, beliefs or skills. Please answer all questions.

Item number	Items	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
1	Feeling unusually sad and teary may be a symptom of postpartum depression					
2	Sleeping too much or too little may be a sign of postpartum depression					
3	Eating too much or losing interest in food may be a sign of postpartum depression					
4	Loss of interest or pleasure in activities may be a symptom of postpartum depression					
5	Postpartum depression affects a person's memory and concentration					
6	Symptoms and signs of postpartum depression last for a period of at least two weeks					
7	How likely is it that postpartum depression might be caused by a genetic or inherited problem?					

8	How likely is it that postpartum depression might be caused by stressful circumstances in the life (such as the death of a loved one or divorce)?					
9	How likely is it that postpartum depression might be caused by lack of social support such as intimate partner support?					

10	How likely is it that postpartum depression might be caused by a previous history of depression?					
11	How likely is it that postpartum depression might be caused by a hormonal imbalance?					
12	Physical activity is effective for the prevention or management of postpartum depression					
13	Seeking help with tasks like infant care and house hold chores from intimate partners and family members is helpful for the prevention or management of postpartum depression					
14	Religious practices, prayer and going to holy shrine are helpful for the prevention or management of postpartum depression					
15	Having a balanced diet is helpful for the prevention or management of postpartum depression					

16	Good sleep is helpful for the prevention or management of postpartum depression					
17	Treatment for postpartum depression, provided by a mental health professional, can be effective					
18	Psychotherapy (for example, talking therapy or counselling) can be effective in treating postpartum depression					
19	Antidepressants are addictive					
20	Antidepressants cause brain damage					
21	I would rather live with postpartum depression than go through the ordeal of getting psychiatric treatment					
22	Although there are clinics for women with postpartum depression, I would not have much faith in them					
23	Most women who have postpartum depression are violent					
24	It is best to avoid women with postpartum depression so that you don't develop this problem					
25	If I had postpartum depression I would not tell anyone					
26	I am afraid of what my family and/or friends might think of me for attending psychology and/or psychiatry appointments					

27	I know where to seek information about postpartum depression					
28	I know how to use various sources to seek information					
29	I can appraise the accuracy of information about postpartum depression on the radio and television					
30	I can appraise the accuracy of information about postpartum depression on the Internet					
31	I can appraise the accuracy of advices about postpartum depression given to me by friends and family members					

Reverse scored items: 19-26

Thank you for completing the questionnaire

©Mirsalimi F. et al., 2019

Attributes	Number of items	Minimum possible raw score	Maximum possible raw score
Ability to recognize postpartum depression	6 (item 1-6)	1	5
Knowledge of risk factors and causes	5 (item 7-11)	1	5
Knowledge and beliefs of self-care activities	5 (item 12-16)	1	5
Knowledge about professional help available	2 (item 17-18)	1	5
Beliefs about professional help available	2 (item 19-20)	1	5
Attitudes which facilitate recognition of postpartum depression and appropriate help-seeking	6 (item 21-26)	1	5
Knowledge of how to seek information related to postpartum depression	5 (item 27-31)	1	5

To calculate each subscale or total score for the PoDLiS, first add raw scores and then divide into the number of items for each subscale or for the whole questionnaire that gives a score of 1 to 5 using the following formula.

Appendix G

Demographic Questionnaire

What is your age?

What is your race?

What is your highest level of education?

How many pregnancies have you had?

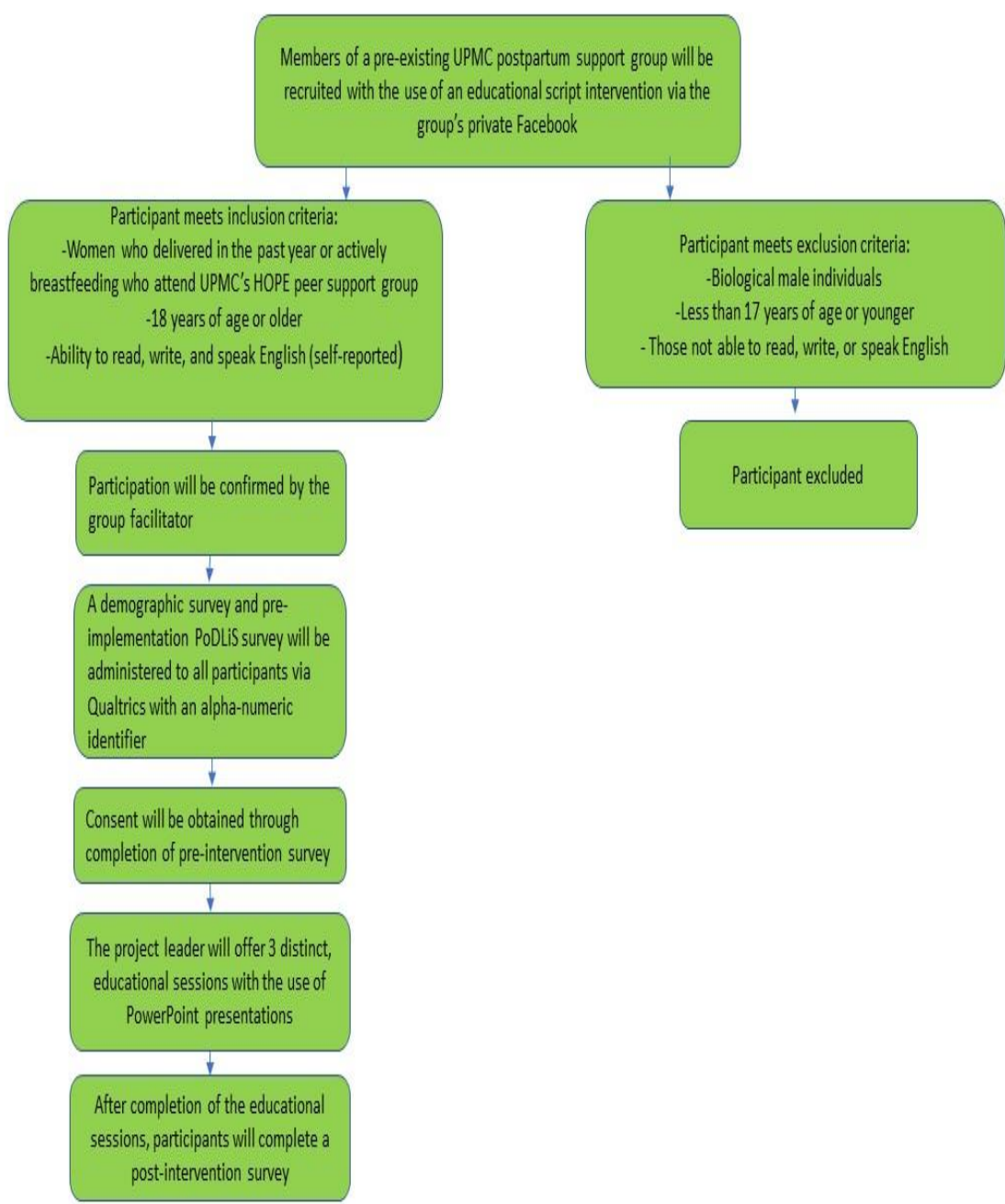
How many biological children do you have?

Do you have a history of a mental health disorder? If "yes," please explain. (i.e. depression, anxiety)

What is your marital status?

Appendix H

Process Map



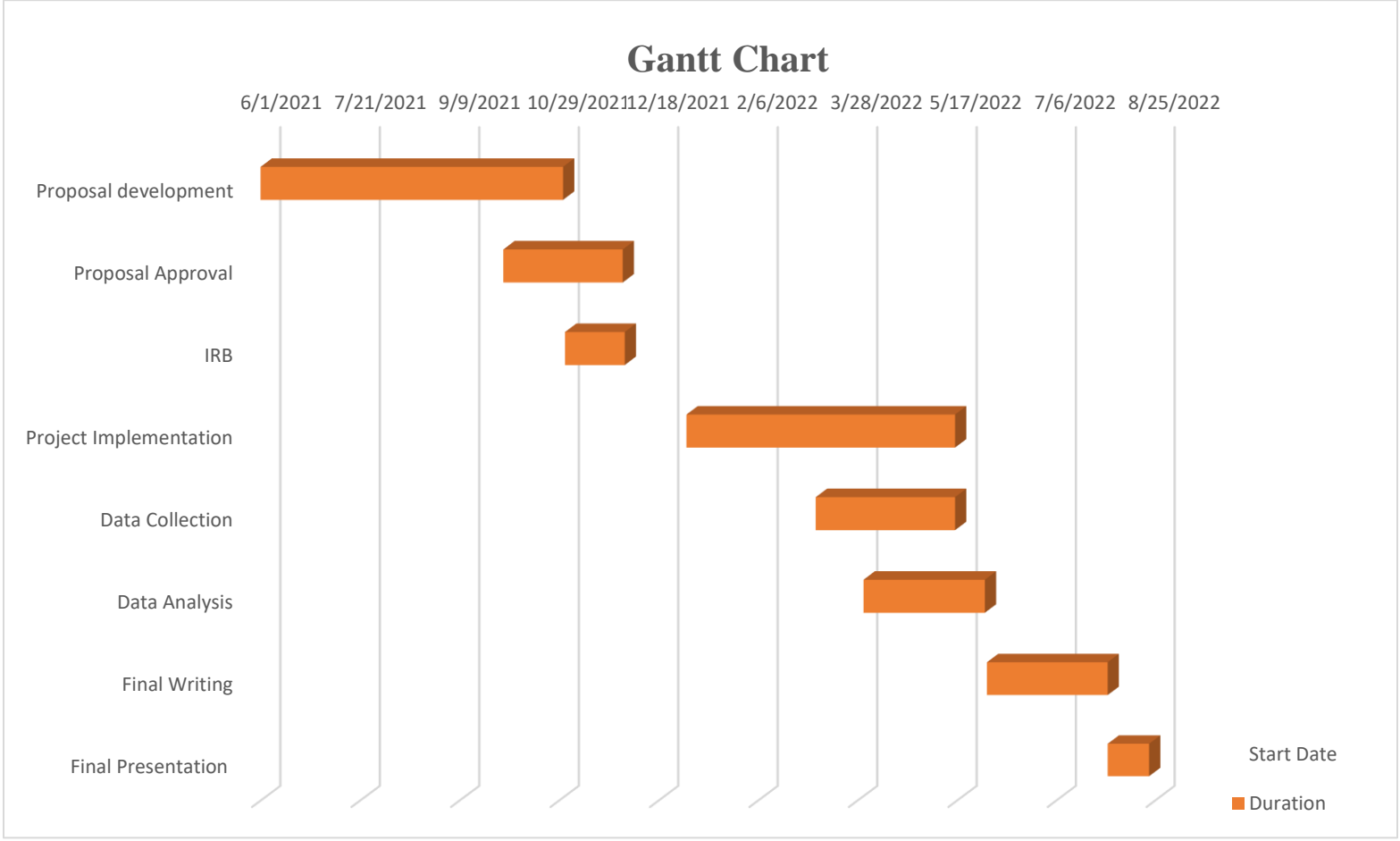
Appendix I

Cost Analysis

Project Expenses		
Startup Costs		
	Monthly	Total
Education Handouts	\$0	\$0
EMR Consult	\$0	\$0
Total Startup Costs	\$0	
	*All educational information provided via Zoom and PowerPoint presentations, no use of patient charts	
Salaries/wages		
	\$0	\$0
	*The HOPE group facilitator has been leading this group before the implementation of this project	
Capital Costs		
SPSS Statistics Program	\$34.95	\$34.95
Operational Costs		
	\$0	\$0
	*The PPD support group has been established before the onset of this project	
Total Project Expenses		
	\$34.95	

Appendix J

GANTT Chart



Appendix K

Letter of Approval

Dr. Ali Montazeri <montazeri@acecr.ac.ir>
Wed 10/13/2021 9:27 AM

To: Neal, Ashton
Cc: fatemeh mirsalimi <mirsalimi_f@yahoo.com>

Dear Ashton,

Thank you for your e-mail. You are welcome to use the PoDLiS in your study. I will ask my colleague Dr. Mirsalimi to send you a copy of the questionnaire.

Best wishes.

Ali Montazeri

Appendix L

Information Script

Scripting/Invite via Facebook

Hello, my name is Ashton Neal and I'm a nurse practitioner student at Messiah University. I'm providing talks to help new moms understand the signs and symptoms of postpartum depression. These talks will be free to women in the UPMC HOPE support group. Each talk will take about one hour and will be given online. We'll focus on the importance of self-care, social support, and how to know if you might be experiencing postpartum depression. Before and after listening to the talks, participants will be asked to complete a 10-15 minute online survey to see if the teaching was helpful. No patient information will be shared during this project. I hope you can join us!

Appendix M

Sample Characteristics

	Frequency (n)	Mean (SD)
Age		
18-24 yrs	14.3% (n=1)	
25-34 yrs	42.9% (n=3)	
35-46 yrs	42.9% (n=3)	
Race		
White	85.7% (n=6)	
Black	14.3% (n=1)	
Educational Level		
Some college	25.6% (n=2)	
Associates Degree	25.6% (n=2)	
Bachelor's Degree	42.9% (n=3)	
History of Mental Health Disorder		
Yes	85.7% (n=6)	
No	14.3% (n=1)	
Marital Status		
Married	100.0% (n=7)	
Number of pregnancies		
		2.43 (1.272)
Number of biological children		
		2.00 (.816)

Appendix N

Individual PoDLiS Item Descriptives

#	PoDLiS Questions (Likert Scale 1 – 5)	Pretest		Posttest	
		Mean (SD)	Median	Mean (SD)	Median
1	Feeling unusually sad and teary may be a symptom of postpartum depression	4.00 (1.41)	4.00	4.71 (.49)	5.00
2	Sleeping too much or too little may be a sign of postpartum depression	4.29 (.49)	4.00	4.71 (.49)	5.00
3	Eating too much or losing interest in food may be a sign of postpartum depression	4.29 (.49)	4.00	4.71 (.49)	5.00
4	Loss of interest or pleasure in activities may be a symptom of postpartum depression	4.43 (.54)	4.00	4.71 (.49)	5.00
5	Postpartum depression affects a person's memory and concentration	4.43 (.54)	4.00	4.71 (.49)	5.00
6	Symptoms and signs of postpartum depression last for a period of at least two weeks	3.43 (1.40)	4.00	4.71 (.76)	5.00
7	How likely is it that postpartum depression might be caused by a genetic or inherited problem?	3.14 (.90)	3.00	4.29 (.54)	4.00
8	How likely is it that postpartum depression might be caused by stressful circumstances in the life (such as the death of a loved one or divorce)?	3.86 (.69)	4.00	4.57 (.54)	5.00
9	How likely is it that postpartum depression might be caused by lack of social support such as intimate partner support?	4.14 (.38)	4.00	4.86 (.38)	5.00
10	How likely is it that postpartum depression might be caused by a previous history of depression?	4.29 (.49)	4.00	4.71 (.49)	5.00
11	How likely is it that postpartum depression might be caused by a hormonal imbalance?	4.57 (.54)	5.00	4.57 (.79)	5.00
12	Physical activity is effective for the prevention or management of postpartum depression	4.00 (.58)	4.00	4.57 (.54)	5.00
13	Seeking help with tasks like infant care and household chores from intimate partners and family members is helpful for the prevention or management of postpartum depression	4.14 (1.07)	4.00	4.86 (.38)	5.00
14	Religious practices, prayer and going to holy shrine are helpful for the prevention or management of postpartum depression	3.71 (.76)	4.00	4.43 (.79)	5.00
15	Having a balanced diet is helpful for the prevention or management of postpartum depression	3.71 (.76)	4.00	4.71 (.49)	5.00

#	PoDLiS Questions (Likert Scale 1 – 5)	Pretest		Posttest	
		Mean (SD)	Median	Mean (SD)	Median
16	Good sleep is helpful for the prevention or management of postpartum depression	4.14 (.38)	4.00	4.86 (.38)	5.00
17	Treatment for postpartum depression, provided by a mental health professional, can be effective	4.86 (.38)	5.00	4.86 (.38)	5.00
18	Psychotherapy (for example, talking therapy or counseling) can be effective in treating postpartum depression	4.86 (.38)	5.00	4.86 (.38)	5.00
19	Antidepressants are addictive	4.14 (1.07)	4.00	5.00 (.00)	5.00
20	Antidepressants cause brain damage	4.57 (.54)	5.00	4.86 (.38)	5.00
21	I would rather live with postpartum depression than go through the ordeal of getting psychiatric treatment	4.57 (.54)	5.00	4.71 (.49)	5.00
22	Although there are clinics for women with postpartum depression, I would not have much faith in them	4.71 (.49)	5.00	4.71 (.49)	5.00
23	Most women who have postpartum depression are violent	4.43 (.54)	4.00	4.86 (.38)	5.00
28	I know how to use various sources to seek information	4.14 (.34)	4.00	4.86 (.38)	5.00
29	I can appraise the accuracy of information about postpartum depression on the radio and television	2.29 (.95)	3.00	3.57 (1.27)	4.00
30	I can appraise the accuracy of information about postpartum depression on the Internet	2.71 (.95)	3.00	3.57 (1.27)	4.00
31	I can appraise the accuracy of advices about postpartum depression given to me by friends and family members	3.14 (.69)	3.00	4.00 (1.16)	4.00
	Total PoDLiS Score (Likert Scale 1 – 5)	4.14 (.21)		4.68 (.34)	
24	It is best to avoid women with postpartum depression so that you don't develop this problem	5.00 (.00)	5.00	5.00 (.00)	5.00
25	If I had postpartum depression I would not tell anyone	4.00 (1.00)	4.00	4.71 (.49)	5.00
26	I am afraid of what my family and/or friends might think of me for attending psychology and/ or psychiatry appointments	4.14 (1.07)	4.00	4.57 (1.13)	5.00
27	I know where to seek information about postpartum depression	3.86 (.90)	4.00	5.00 (.00)	5.00

Appendix O

PoDLiS Subscale Scores

PoDLiS Subscales	Pretest		Posttest		<i>p</i> -value*
	Mean (SD)	Median	Mean (SD)	Median	
Ability to recognize postpartum depression (questions 1-6)	4.14 (.54)	4.00	4.71 (.49)	5.00	.017
Knowledge of risk factors and causes (questions 7-11)	4.00 (.38)	4.00	4.60 (.50)	4.80	.063
Knowledge and beliefs of self-care activities (questions 12-16)	3.94 (.51)	4.00	4.69 (.41)	5.00	.027
Knowledge about professional help available (questions 17-18)	4.86 (.38)	5.00	4.86 (.38)	5.00	1.00
Beliefs about professional help available (questions 19-20, reversed scored)	4.35 (.75)	4.50	4.93 (.19)	5.00	.066
Attitudes which facilitate recognition of postpartum depression and appropriate help-seeking (questions 21-26)	4.48 (.33)	4.50	4.76 (.36)	4.83	.042
Knowledge of how to seek information related to postpartum depression (questions 27-31)	3.22 (.34)	3.40	4.20 (.74)	4.40	.018
TOTAL SUBSCALE SCORES	4.14 (.21)	4.1	4.68 (.34)	4.86	.018

*Wilcoxon Signed-Rank Test