Promoting Postpartum Knowledge and Support through the Provision of Educational and Support Resources During the Postpartum Admission Stay: A Quality Improvement Project

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Promoting Postpartum Knowledge and Support through the Provision of Educational and Support Resources During the Postpartum Admission Stay:

A Quality Improvement Project

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Abstract

BACKGROUND: The postpartum period is often imbued with heightened emotions, unfamiliar challenges, and an abundance of uncertainty. Postpartum depression and anxiety are well discussed in literature, yet postpartum mothers may lack knowledge of these conditions and their associated risk factors, signs, and symptoms as well as the support resources which are available to them. Improved postpartum support and awareness may alleviate the prevalence, severity, and progression of these conditions into more severe cases.

LOCAL PROBLEM: Within the given microsystem, a gap in postpartum educational and support resources exists due to a lack of resource awareness and ease of accessibility.

METHODS: Utilizing the Plan-Do-Study-Act model, a pre-/post-test survey design with accompanying educational materials was provided to patients within the microsystem. Responses were analyzed to examine the provided resources’ effect on participant knowledge of postpartum risk factors, signs, symptoms, and resources as well as feelings of support, knowledge, and awareness.

RESULTS: Data analysis indicates an increase in postpartum participant knowledge, support, and awareness upon the provision of postpartum support and educational materials during admission to the microsystem. 20% of participants had a history of postpartum depression or anxiety, while 80% of participants did not. There was a 16.5% increase in knowledge regarding risk factors, and a 3.85% increase in knowledge regarding signs and symptoms. There was a 70.83% increase in resource awareness.

CONCLUSIONS: Postpartum patients admitted to the microsystem feel the provision of postpartum support materials during their admission stay is beneficial. Providing these resources in an accessible manner increases patient knowledge and awareness of postpartum depression
and anxiety risk factors, signs, symptoms, and available resources. Increased knowledge and awareness of these conditions may reduce their prevalence and severity in not only the examined microsystem, but also the macrosystem and beyond.

*Keywords*: postpartum depression, postpartum anxiety, postpartum support, labor and delivery
Introduction

Problem Description

Upon discharge from the microsystem, mothers are provided a packet of information regarding newborn necessities, signs of postpartum complications, and other new mother resources. One thing that is lacking in this packet of information, however, is a straightforward, digestible list of postpartum support groups and resources. Postpartum depression alone can affect 10-20% of women within the first year after birth, and up to 25% beyond the first year (Falana & Carrington, 2019). With approximately 1,400 women giving birth at The Family Place annually, these statistics suggest that approximately 350 women being discharged each year from the microsystem have a high likelihood of developing postpartum depression.

A review of the literature demonstrates that women in the postpartum period benefit from support groups, supporting the proposal of providing all postpartum mothers discharging from the microsystem with postpartum education and support resources. In one qualitative study, researchers concluded that women attending a postpartum support group facilitated by mental health providers felt supported and were also more likely to disclose their symptoms to other women in the same situation, without fear of judgment (Cook, Goyal & Allen, 2019). The study also suggested that nurses working with childbearing women as patients should be aware of the community support services which are available.

The macrosystem offers numerous postpartum support sessions throughout each week, which are predominantly held online at this time. While the online nature of this resource reduces the need for travel and offers increased accessibility for many postpartum mothers, not all patients have access to a computer and the internet. For these individuals, traditional face-to-
face support sessions are available. At present, there may exist a gap in communicating all available resource opportunities to women in the postpartum setting.

Given the evidence supporting postpartum support groups and their effect on postpartum depression, combined with the accessibility of the macrosystem’s pre-existing support sessions, it is apparent a gap exists in communicating the availability of these resources to patients. By implementing a quality improvement project to add postpartum support resource information into each mother’s discharge education and information packet, more women may be aware that these resources exist. There is ample supporting evidence that postpartum depression rates are likely to be affected in a positive manner with more women utilizing these sessions and resources.

**Available Knowledge**

**Postpartum Mental Health**

A comprehensive literature review spanning 2012-2021 was performed to evaluate postpartum mental health and its relationship with postpartum support. Postpartum mental health is an important consideration for new mothers, with 80% of mothers in the United States having transient baby-blues and 10-15% fulfilling criteria for major postpartum depression (Stone et al, 2015). Growing literature finds that barriers preventing help-seeking for postpartum mental health conditions may include the perception that primary health care providers lack training and skills in mental health, lack of insight into a patient's individual situation, stigma surrounding mental health, and lack of available services (Stone et al, 2015). In a 2015 study by Stone et al, mothers who participated in the Massachusetts Pregnancy Risk Assessment Monitoring System between 2007 and 2010 were used as participants to collect data on maternal experiences and behaviors. Of the 5,296 participants, 58% reported greater than one stressor, and reporting
greater than one stressor was associated with increased prevalence of postpartum depressive symptoms (Stone et al, 2015). Researchers concluded that women should be routinely screened for stressors throughout pregnancy and should be encouraged to seek support for postpartum depression and other mental health concerns (Stone et al, 2015).

Whilst much of the emerging data supports women in seeking help and support to prevent postpartum mental health conditions, many of these women may not seek professional help for a variety of reasons. Some barriers to seeking support may include a lack of knowledge about the importance of mental health, its impact, and the available intervention options, as well as a lack of time and financial resources (Ruiz-Segovia et al, 2021). For these reasons, e-health interventions, such as online support groups or classes, can be an efficient, cost effective, and accessible resource for new mothers to utilize in the prevention of postpartum mental health conditions (Ruiz-Segovia, 2021).

In a 2012 study exploring how social support relates to women’s experiences with postpartum depression, it was found that online peer support provided informational support, an opportunity to express affection and empathy, and an opportunity for individuals to receive reassurance and validation (Evans et al, 2012). Stigma surrounding mental health may prevent individuals from seeking support. Providing new mothers with an opportunity to give and receive support alongside peers going through similar situations may allow mothers to feel more comfortable. These reduced feelings of stigma may work to encourage them to relinquish fears of judgment and seek help more readily. Online support groups were also found to enhance personal empowerment through the development of a sense of competence, which then contributes to increased social engagement and enhanced feelings of self-determination (Evans et al, 2012). The findings of this study also suggested that patient participation in online support
groups provides relief and comfort for those who are suffering from postpartum mental health conditions, such as postpartum depression or anxiety.

**Peer Support**

In further evaluating the potential benefits of peer support, it is useful to explore the use of technology in providing these resources, as well as patients' perceptions and experiences of its adoption. A qualitative study by Oh et al (2019) sought to explore women's experiences of postpartum anxiety identification and management. To do this, researchers explored these patients' engagement with healthcare professionals. Seventeen women aged 25-42 years, who self-reported anxiety during pregnancy and-or up to 12 months postpartum, were digitally interviewed (Oh et al, 2019). Three main themes were found around a centralized finding that postpartum mental health is an individualized experience (Oh et al, 2019). These themes included: barriers to disclosing postpartum mental health symptoms, help-seeking for postpartum mental health symptoms, and establishing and engaging in support networks (Oh et al, 2019). The research ultimately supported that postpartum mental health awareness needs to be improved to achieve consistency and to avoid missed opportunities for the provision of postpartum mental health care and attention.

By providing peer-support opportunities online, patients may be more able to access these resources lending to improved postpartum management and engagement. In one randomized control trial, 138 mothers (69 trial, 69 control) at risk of postpartum mental health complications participated in a four-week intervention, utilizing volunteer peer-support through phone and text message communication (Shefaly et al, 2019). Data was collected immediately upon implementation as well as at one and three months postpartum, utilizing Edinburgh Postnatal Depression Scores (EDPS). The EDPS scores of participants were found to be
statistically different between the trial and control groups at 3 months, indicating that technology-based peer-support methods are effective in reducing postpartum depression among new mothers (Shefaly et al, 2019). While the use of EPDS scores in this study specifically focused on the identification and evaluation of depression, the results also demonstrated a generally positive trend in reducing postpartum anxiety and loneliness as well as increasing perceived social support (Shefaly et al, 2019).

It is important to continuously consider women’s experiences with postpartum mental health and explore potential triggers of maternal mental health concerns. A study by Harrison et al (2020) qualitatively sought to explore postpartum experiences and triggers to gain insight into what online support options may be most admissible to women with postpartum anxiety. Five key themes emerged in their research, including holding unrealistic expectations of birth and motherhood, stigma, the importance of peer support, uncertainty and poor maternal confidence, and lack of mental health support and knowledge (Harrison et al, 2020). This study’s findings support the use of online peer-support resources, with women participating in the study feeling that their postpartum emotional needs could be effectively addressed via online support, the delivery of realistic information, education about postpartum mental health symptoms and management, and the inclusion of authentic peer experiences (Harrison et al, 2020).

**COVID-19 Considerations**

Online support and educational resources may prove beneficial to any patient or new mother at risk for postpartum mental health conditions. Perhaps now more than ever, online resources provide increased accessibility given the COVID-19 pandemic and the stringent social distancing efforts enforced to discourage the virus’s spread. The COVID-19 crisis was announced as a pandemic on March 11, 2020, setting forth a shift in healthcare delivery,
unprecedented unemployment rates, financial stress, social isolation, and emotional concerns. Poor social support and social isolation were well-documented risks for developing postpartum mental health disorders even preceding the threat of a pandemic (Vaezi et al, 2019). Now, for pregnant and postpartum women, limited social support and social isolation in combination with social distancing efforts and fears of COVID-19 exposure have even more significant implications for maternal mental health (Goyal and Selix, 2021). Increased social isolation and unemployment rates during the COVID-19 pandemic contribute to financial and emotional strain, which are both associated with an increased risk of postpartum mental health disorders (Goyal and Selix, 2021). Moreover, recent studies have determined that pregnant women assessed during the COVID-19 pandemic reported more distress and psychiatric symptoms than pregnant women who were assessed prior to the pandemic, predominantly in the form of depression and anxiety symptomatology (Berthelot et al, 2020). These findings support that with the significant maternal mental health implications provoked by COVID-19, the need for improved accessibility and support resources may also be amplified.

In one online cross-sectional survey of pregnant and postpartum women taking place across 64 countries during the COVID-19 pandemic, it was found that of the 6,894 participants, substantial proportions scored at or above the cut-offs for elevated post-traumatic stress, anxiety/depression, and loneliness symptoms (Basu et al, 2021). Basu et al (2021) found that excessive information seeking, and worries related to children and medical care exacerbated symptoms. Addressing these worries and developing strategies to target loneliness (e.g., online support groups) should be part of intervention efforts to reduce these symptoms (Basu et al, 2021). In conclusion, the researchers suggested that peer-support groups may limit information
seeking by providing new mothers with resources to discuss their worries, stressors, and other factors which may contribute to postpartum emotional issues (Basu et al, 2021).

**Implications for Practice**

In cohesion with the proposed quality improvement project, research suggests that future studies should develop and support interventions aimed at prevention, management, and combating stigma in order to support women in disclosing and addressing their mental health concerns early. It is logical, then, to include the translation of research in the form of a quality improvement project to educate women on the opportunities and resources which are available to them, including peer-support groups and opportunities for approachable, individualized support systems. Further, the availability of these resources on an online platform may provide increased accessibility to mothers who may lack the financial resources, time management, or functional ability to attend meetings or groups in an in-person environment. By providing women with early information about the postpartum resources which are readily available to them, they may be more likely to utilize and benefit from these supportive resources.

**Rationale**

The PDSA (Plan-Do-Study-Act) framework was utilized to guide this improvement process. The PDSA cycle is a four-step model including planning outcome predictions and assigning tasks, implementing the plan, studying the obtained data and results, and finally either adopting, adapting, or abandoning the process (Christoff, 2018). In regard to PDSA cycles, the knowledge and data gained from one cycle should guide the following cycles. In utilizing this framework for the proposed quality improvement project within the microsystem postpartum mothers may demonstrate increased knowledge of the support systems, resources, and educational materials which previously went largely undetected and underutilized. Pre-
intervention survey results were reviewed and compared to post-intervention survey responses. An increased score in post-intervention survey responses compared to pre-intervention survey responses indicates a corresponding increase in patient knowledge.

Notable rates of postpartum mental and emotional concerns in conjunction with lacking postpartum support and resources reinforce the importance of the proposed quality improvement project. At present, there are numerous online courses and resources for these women to easily access through the macrosystem, yet many of the nursing staff and clinical providers are unaware of this. In turn, many patients are not aware of these valuable resources, either. By providing patients with postpartum information and support materials prior to discharge, there may be an increased likelihood that they will utilize and benefit from these support options. Further, increased utilization of these support resources may decrease postpartum emotional and behavioral concerns for patients during the postpartum period and beyond. As the proposed intervention is disseminated to patients throughout the microsystem, nursing staff and providers may also benefit from learning of the postpartum support resources which are available to all patients, although staff education is not a focus of this quality improvement intervention.

**Specific Aims**

The specific aim of this proposal is that by the end of data collection (July 1, 2022), 75% of surveyed mothers will report that they have sufficient resources to approach and address postpartum mental health concerns, such as postpartum depression and anxiety. At the end of this 6-week project, 50 patients will have completed the proposed survey and been provided the corresponding educational materials. During the intervention period, the number of surveys completed were be monitored through the online Qualtrics© platform. At the end of the 6-week period, the results will be analyzed with the assistance of the Qualtrics© platform.
Methods

Context

The age distribution for labor and delivery patients within the microsystem is typically women ranging from 18-40 years old, although some labor patients may be above or below this range. The microsystem strives to ensure all care provided is family-centered and compassionate, especially given that patients arriving to the microsystem are often at an important and emotional stage in their lives. This microsystem houses a team of experts focused on providing high-quality, compassionate care, putting their patients at ease to provide a positive labor and birthing experience (The Family Place, 2022). The microsystem provides services for women through the labor, birthing, and postpartum process during either vaginal birth or cesarean section surgeries. Patient census averages 20 daily, with an average of 5 daily admissions (A. Antognoni, personal communication, February 2, 2022). Triage will see an average of 5-10 patients per day. Patient census averages 29 weekly, 116 monthly, and 1,400 annually, with the majority of these patients being admitted for labor and delivery services (A. Antognoni, personal communication, February 2, 2022). If it is considered that for nearly every admission there is an associated newborn, then these patient census numbers can be doubled. A smaller proportion of patients may be admitted to the unit as overflow from other microsystems, or for postoperative care after a gynecologic procedure or surgery. This frequently doubled patient load combined with the care needs of overflow patients often leaves nurses within the microsystem little time to provide efficient and effective patient education and support. This further supports the intervention of providing patients with an approachable method of accessing and learning about the educational and support resources which are readily available to them during their postpartum period.
Women presenting to the microsystem for labor and delivery are initially shown to their room, assessed by both the nursing staff and the obstetrician, and monitored constantly throughout their labor, delivery, and postpartum progression. The interdisciplinary team works cohesively to provide adjustments to care and assessments throughout the stay. Monitoring systems are displayed both in patient rooms as well as at the nursing station, allowing labor progression to be continuously monitored by team members. During the labor, birth, and postpartum process, bedside rounding is performed at each change of shift, and vital signs are recorded routinely for both mother and newborn. Patients are able to order meals at their leisure, with the exception of patients who are at risk for requiring a cesarean section or who have had an epidural placed. Patients are regularly assessed by nursing staff, and emotional support is often equally as important as physical support during the labor and delivery experience. In the postpartum stage, lactation consultants, postpartum support services, and social workers may be asked to further assess and speak with patients depending on each patient’s situation, needs, and history. While postpartum support is available to all patients on the unit and beyond their admission, only women with a recognized and documented history of anxiety, depression, or postpartum mental health concerns are typically brought to the specific attention of the Postpartum Support Coordinator.

Cost and Benefit Analysis

In implementing this intervention, there were limited costs to consider. The chosen survey platform, Qualtrics®, is free with no monetary cost to the user or to the organization. Non-financial costs were incurred by the project lead implementing this project, in the form of 275 hours of project implementation with an additional 300 hours having been spent on the unit gathering information and data to develop this quality improvement project. The 275 hours were
utilized to implement the project intervention, collect data, and analyze results. Also of note, if patients participating in this intervention decide to continue their postpartum and/or maternal education within the macrosystem, the organization stands to benefit financially given classes offered range from free up to approximately $60.

By contrast, while the personal monetary cost of the proposed intervention was low, postpartum depression can be costly if undiagnosed and left untreated. In a study exploring the cost-effectiveness of postpartum depression screening versus not screening, there was found to be a cost of $3.5 million relative to not screening patients (Premji et al, 2021). While this example focused primarily on screening, the researchers utilized screening to provide high-risk participants assistance with postpartum support, promoting the concept that improved support in the postpartum period is ultimately a cost-effective measure.

**Intervention**

A pre-test/post-test design was utilized to measure the current knowledge of participants regarding the support resources which are available to them, and their existing knowledge of postpartum depression signs, symptoms, and risk factors. The project lead was present on site twice to recruit participants, until data had been collected from 20 patients of the microsystem. While on site, the project lead attended report and collaborated with nursing staff to determine which patients would be most willing to participate in a brief survey.

Each potential participant was asked for willingness to participate in a brief online survey (Appendix A) regarding postpartum mental health. If a patient was agreeable to participation, the project lead provided them with a QR code to scan which led them to the Qualtrics© survey. The first survey question was in regard to informed consent with a forced response. Those selecting yes were presented with the survey questions and those selecting no were redirected to the end of
the survey and a thank you page. Within the survey, participants were prompted to complete a series of demographic questions followed by a series of pre-test questions relating to postpartum disorders, risk factors, signs, symptoms, feelings of support, and knowledge. The pre-test measured knowledge of the subject through a combination of multiple choice and select all that apply questions. Following the pre-test, the survey led participants through educational resources, including information about risk factors, signs, and symptoms of postpartum mental and emotional issues, as well as support options including classes offered by the macrosystem, social media support groups, online support options, mobile applications, face-to-face meeting options, the Postpartum Support International HelpLine, and contact information for the microsystem’s Postpartum Support Coordinator.

Following the provision of this educational material, the survey then prompted the participant to complete a series of post-test questions. To study the intervention, the post-test questions were identical to those of the pre-test with two additional questions. Additionally, patients were asked if they feel that being provided this information during their labor and delivery experience was beneficial, and a text box was provided to answer this question, to share insights, or to provide any other additional feedback.

Stakeholders included the microsystem’s Clinical Nurse Leaders (CNL), registered nurses, the Postpartum Support Coordinator, and patients. The CNLs were an important stakeholder in supporting the implementation of this project, and registered nurses will be important in facilitating patient communication.

**Study of the Intervention**

Upon review and analysis of survey results within the Qualtrics© platform, knowledge gained on the topic will be demonstrated by improved post-test scores when compared to pre-test
scores. Scores reflecting a 20% or greater increase in correctness from pre-test to post-test will indicate that the provided educational materials led to increased participant knowledge of postpartum mental health disorder risk factors, signs and symptoms, and available support resources. It is also anticipated that responses will be overall positive in the free-text box provided at the end of the survey, with most mothers feeling that the provision of this information during their labor and delivery stay was beneficial to them. These responses were recorded for qualitative analysis and will be helpful in determining if patients felt this information to be valuable.

Analysis

Upon completion of this study, an analysis was performed comparing pre- and post-test scores to determine if supplying educational materials to women regarding postpartum mental health risk factors, signs and symptoms, and support options increased their knowledge on the topic. The pre-test was utilized to determine initial knowledge of the topic, and the intervention educated participants on the topic. To assess the impact of the intervention, the post-test was utilized to determine knowledge after the provision of these materials. Quantitative assessment was performed using descriptive statistical analysis, and frequency and percentage was reported for categorical data while means, standard deviations, and ranges were reported for continuous data. Supplemental qualitative data was obtained using text-box responses at the end of each survey and analyzed by noting themes. Survey responses were analyzed utilizing the Qualtrics© platform.

Ethical Considerations

It is important to consider the potential emotional lability of patients receiving a survey touching on potentially difficult or triggering topics. This ethical consideration was met by
providing informed consent in the form of a brief description of the survey topic, the estimated length of time commitment, information regarding anonymity, and an option to not participate at the start of the survey. As previously noted, this response will use the forced response functionality so that the next question will only be provided to participants who select yes to the informed consent question. For consenting participants, the survey continued through the pre-test, educational materials, and post-test questions. Participants were required to answer all within the survey via continued use of the forced response function. However, each question had an optional response of “I choose not to answer”. This option allowed each survey to be fully completed while also providing an opportunity for participants to omit questions which may have felt uncomfortable to answer. The quality improvement project was reviewed by the University of New Hampshire’s Department of Nursing Quality Review Committee, verified that this project is exempt from a complete Institutional Review Board review. Additionally, the microsystem’s CNLs reviewed and approved the quality improvement project proposal prior to and throughout its implementation.

**Results**

*Initial steps of the intervention*

The project leader developed a pre-test/post-test survey, which included educational material within the survey between the pre-test and post-test questions. The project leader initially intended for 50 participants to participate in the intervention, however as the project evolved it was determined that a lower number was more practical. Considering that patient turnover for the given microsystem is approximately 2-5 days, it was impractical to survey patients daily, as the project leader would have had a high likelihood of surveying repeat
participants. With just over a week of time allocated for the implementation phase, it was decided that the project leader would survey patients within the microsystem twice, with a 5-6 day separation between. This spacing of the intervention increased the likelihood that previously surveyed patients had been discharged from the microsystem, therefore decreasing the likelihood of collecting data on the same participant twice. Ultimately, 20 microsystem patients completed the survey within this intervention.

**Process measures and outcomes**

Of the 20 patient participants, 95% identified as female while 5% identified as male. No participants were 18-19 years of age, 45% of participants were aged 20-29, 45% were aged 30-39, and 10% of patients were greater than 40 years of age. 50% of participants stated that this was their first child, 30% stated this was their second child, and 20% of patients stated that this was their third child or greater. 60% of surveyed patients stated that they were married and 40% stated that they were in a relationship (Figure 1).

**Figure 1**

*Demographic data*

![Demographic Data Chart]

- **Female**: 19
- **Male**: 1
- **18-19 years old**: 9
- **20-29 years old**: 9
- **30-39 years old**: 2
- **40+ years old**: 8
- **First child**: 10
- **Second child**: 6
- **Third child**: 4
- **Married**: 12
- **In a relationship**: 8
20% of participants stated that they have experienced postpartum depression or anxiety in the past or present, while 80% stated that they have never experienced postpartum depression or anxiety. When asked about professional interactions regarding postpartum support and resources, 55% of participants stated they had been counseled by a healthcare professional and felt supported and prepared, 25% stated they had not been counseled by a healthcare professional, 15% stated they had been counseled but would like more information, and 5% of participants stated they do not feel that they need postpartum support. No participants stated that they had found support resources on their own (Figure 2).

**Figure 2**

*History of Postpartum Depression/Anxiety & Professional Interactions Regarding Support*

Prior to reading the educational materials provided within the survey, 85% of patients felt knowledgeable about postpartum depression and anxiety risk factors, signs, and symptoms, while 15% of patients did not. After reviewing the provided educational materials, 95% of participants felt knowledgeable about postpartum depression and anxiety risk factors, signs, and symptoms, while 5% of patients did not (Figure 3).
Of surveyed participants, 90% of participants stated they have not utilized postpartum support resources in the past, while 10% of participants stated that they have utilized these resources in the past. When participants were asked if they feel they will utilize postpartum support resources in the future, the most frequently chosen response was that they might or might not utilize these resources. This response was chosen by 55% of participants in both the pre- and post-test response data. In the pre-test data, 25% of participants stated that they probably would utilize these resources, 10% stated they would definitely utilize these resources, 10% stated they would probably not utilize these resources, and no participants stated that they would definitely not utilize these resources. In the post-test data, 25% of participants stated that they would probably utilize these resources, 10% of participants stated that they would definitely utilize
these resources, 5% stated they probably would not utilize these resources and 5% stated that they would definitely not utilize these resources (Figure 4).

**Figure 4**

*Participant feelings toward utilizing postpartum support resources in the future*

From pre- to post-test, there was a 16.5% increase in participants knowledge of postpartum depression and anxiety risk factors, and a 3.85% increase in participant’s knowledge of postpartum depression and anxiety signs and symptoms (Figure 5; Figure 6). There was a 70.83% increase in participant awareness of postpartum support resources when comparing pre- and post-test data (Figure 7).
Figure 5

Knowledge of Postpartum Depression and Anxiety Risk Factors

What are some postpartum depression and anxiety risk factors?

- Higher level of education
- Negative delivery experience
- Gestational diabetes
- Cesarean section
- Unplanned pregnancy
- Stressful pregnancy
- Lack of support
- History of depression/anxiety

![Bar chart showing comparison between pre-test and post-test knowledge of risk factors.]

Figure 6

Knowledge of Postpartum Depression and Anxiety Signs and Symptoms

What are some postpartum depression and anxiety signs and symptoms?

- Seeking constant reassurance
- Feelings of dread
- Constant worrying
- Feelings of shame, guilt, or inadequacy
- Overwhelming fatigue
- Withdrawal from family and friends
- Loss of appetite
- Difficulty bonding with baby
- Insomnia

![Bar chart showing comparison between pre-test and post-test knowledge of signs and symptoms.]

Figure 7

Knowledge of Available Postpartum Support Resources

85% of participants felt that they were more likely to seek postpartum support after reviewing and completing the provided survey and educational materials, while 15% felt that they were not more likely to seek support after completing this intervention. 85% of participants felt that being provided this information during their labor and delivery was beneficial, 15% were indifferent to the provision of this information, and no participants stated that the provision of this information was not beneficial. 100% of participants felt that the educational material provided in this survey helped them to better understand what support resources are available to them (Figure 8).
At the end of the provided survey, a text box was provided for participants to leave any thoughts or insights regarding the survey and included educational materials. Responses included: *This survey helped me to better understand the signs and symptoms of postpartum depression* as well as, *I think it is both educational and informational for those who do and don’t struggle with PPD, providing services and links to where to get help if you are a struggling mom.*

**Contextual elements**

A noteworthy contextual element playing into this intervention was the fact that all participants of this survey were within 2-5 days of their labor and delivery experience. Labor and delivery is often a time of high stress and emotions, leading some patients who were offered the opportunity to participate in this project to opt out. Recruitment was limited to those who agreed to participate in a student project and those not in active labor. The project leader worked to gather as many survey responses as possible while remaining conscientious by recognizing and
adapting to potential barriers within this dynamic microsystem. This was done by collaborating with each patient’s nurse to identify a time the patient would likely be available to complete the survey intervention. Once the project leader approached a given patient about participating in the intervention, the patient was offered to take a photo of the provided QR code. Allowing patients to take a photo of the QR code allowed them to take the survey on their own time if they so chose, or if they were preoccupied at the time of the visit from the project lead.

**Observed associations**

Allowing patients the opportunity to photograph the provided QR code to scan at their convenience likely boosted participation as patients were not forced to take the survey at one time and one time only. Despite this, it is also possible that patients could have forgotten to go back and participate in the survey at a later time, potentially decreasing participant numbers. The contextual element of patients being in a period of often heightened emotions and stress likely reduced the number of participants during this intervention, as well. However, of those that did participate in the survey, 100% of participants provided informed consent and were willing participants.

**Unintended consequences**

There were no unexpected or unintended costs or failures associated with this intervention. A potential benefit, which was not necessarily unexpected, is that by participating in the provided survey intervention patients received a list of postpartum educational and support resources which are readily available to them.

**Details about missing data**

One survey out of the 20 surveys collected is missing question answers in the section of the survey which states that the patient has read or not read the provided educational material. In
this section of the survey, there are long sections of educational text leaving room for patients to potentially miss some answer boxes. While these questions were not necessarily related to the pre-test/post-test outcomes and data analysis, it did make the project leader aware of the fact that some questions may be missed accidentally, on purpose, or for other reasons. For this reason, the project leader decided to transition to forced responses within the survey. Forced responses ensure that all participants will answer all questions. Forced responses can lead to participants opting out of surveys in some cases. To help prevent this, the project lead ensured that each had an option for the participant to not provide an answer if they preferred. By doing this, the project leader was able to reduce the chances of missing data while also providing participants an opportunity to continue the survey if they felt uncomfortable providing responses to sensitive questions.

**Discussion**

**Summary**

**Key Findings**

Important data gathered from this quality improvement project suggest that providing labor and delivery patients postpartum education and support resources during their admission to the microsystem is beneficial to patients in regard to postpartum support and knowledge. 100% of patient’s participating in this intervention felt that the provided materials helped them to better understand the support resources which are available to them. While 50% of participants were postpartum with their first child and, as such, not likely to have experienced postpartum concerns previously, knowledge of risk factors, signs, and symptoms is critical as they move forward in their postpartum experience and transition to the outpatient setting. The data also support that participants felt more knowledgeable about postpartum depression and anxiety risk factors,
signs, and symptoms after reviewing educational and support materials during their admission stay, with a 16.5% increase in risk factor knowledge and a 3.85% increase in sign and symptom knowledge. Perhaps most profound was the 70.83% increase in participant awareness of the postpartum support resources which are available to them. This increased awareness is essential for all postpartum women, although first time mothers may have the additional benefit of more readily recognizing concerns and seeking early interventions throughout their first and future postpartum experiences.

**Relevance to Rationale**

The PDSA cycle framework utilized in this quality improvement project proved valuable in demonstrating the benefits of providing postpartum support education and resources to patients within the microsystem. Moving forward with the *Act* portion of the framework may prove to benefit microsystem’s patients in both the short- and long-term, as improved knowledge and support regarding postpartum depression and anxiety has been shown to decrease postpartum mental and emotional concerns and conditions. Data analysis derived from this quality improvement project reports that not all postpartum patients in the microsystem feel supported. While not all patients stated that they would be utilizing the provided resources in the future, all patients felt that receiving these resources during their admission was beneficial.

**Relevance to Specific Aims**

The global aim of this quality improvement project was to increase participant knowledge, support, and awareness of postpartum depression and anxiety risk factors, signs, and symptoms. The project’s more direct specific aim was for 75% of participants to report they have sufficient resources to approach and address postpartum mental health concerns, such as postpartum depression and anxiety. Patient’s felt strongly that the provision of the materials
provided within this intervention was beneficial to them during their postpartum period, with 100% of patient participants feeling that this helped them to better understand what support resources are available to them. Data analysis further supports the specific aim as evidenced by a 70.83% increase in patient awareness of these resources, as well as higher post-test scores when compared to pre-test scores. The increased knowledge of postpartum risk factors and postpartum signs and symptoms were 16.5% and 3.85%, respectively. Therefore, while there were increases in participant knowledge regarding postpartum risk factors and postpartum signs, and symptoms, they did not meet the 20% increase suggested in the project proposal to adequately denote a gain in knowledge.

**Project Strengths**

The user-friendly design and adaptability of this quality improvement project enables similar microsystems to reproduce this intervention, potentiating a larger impact and generating a rousing influence on the postpartum population. A comprehensive review of the literature further bolsters the benefits of this intervention, providing evidence of the protective effects postpartum support and education have on the development of postpartum mental and emotional concerns and conditions. Further, the use of the Qualtrics© platform adds to the intervention’s versatility and usability. Qualtrics© provides for smooth dissemination of materials, the ability for future project leaders to adapt questions and educational materials unique to their own microsystem, convenient data collection and analysis mechanisms, and ease of use for the end user.

**Interpretations**

**Patient Outcomes**

Qualitative and quantitative data gathered from this quality improvement project propose that patients within the microsystem, when provided with educational resources during their
admission, have an increased awareness of the postpartum resources which are available to them.

An increased proficiency in accessing postpartum support resources may support a decrease in postpartum depression and anxiety for the microsystem population. As discussed in the literature, women supported during the postpartum period are less likely to feel stigmatized and more likely to discuss their symptoms with both healthcare providers and other women who are in the same situation (Stone et al, 2015; Cook, Goyal & Allen, 2019). Women who are comfortable disclosing their symptoms to healthcare providers may be identified earlier as needing additional postpartum support. Early identification of these patients may prevent their symptoms from intensifying and becoming more severe conditions. Women who find support with peers may also benefit from boosted confidence, authentic peer experiences, and realistic expectations (Harrison et al, 2020). Increased postpartum support and awareness in combination with reduced stigma will aid in the promotion of postpartum support, thereby decreasing postpartum depression and anxiety prevalence, severity, and progression.

**Comparison of similar literature**

While there has not been a quality improvement project performed that closely resembles this intervention, evidence corroborates that increased support during the postpartum period is beneficial to patients within the microsystem. By increasing knowledge and awareness of the resources which are readily available, the microsystem population will have the capacity to engage in support opportunities at their own leisure and may be more apt to discuss concerns with a healthcare provider. This increased engagement may decrease progression of postpartum mental and emotional concerns to more severe cases of postpartum conditions such as postpartum depression, anxiety, and psychosis.
Impact on population and systems

Expanding postpartum knowledge and awareness presents patients within the microsystem support opportunities which may prevent postpartum symptom escalation and may reduce future cost and resource allocation for not only the individual, but also for the microsystem, macrosystem, and beyond. Additionally, providing a deliberate and encompassing summary of postpartum education and support resources at the microsystem level may be influential in decreasing contradictory and confusing information seeking by patients. Patients pursuing postpartum education and support without the microsystem’s guidance may contribute to misinformation and excessive information seeking, both of which may exacerbate postpartum depression and anxiety symptoms. Providing support and resources to the microsystem population during their admission may promote a decrease in these behaviors.

Differences between observed and anticipated outcomes

An anticipated outcome of this quality improvement project was that participants would have an increased knowledge of not only the postpartum support resources available to them, but also the risk factors, signs, and symptoms of postpartum depression and anxiety. While there was a slight increase in knowledge of the risk factors, signs, and symptoms, the increased awareness of postpartum support resources was notably more profound.

Opportunity costs and strategic tradeoffs

As previously recognized, the cost of care for an individual with postpartum depression or anxiety pales in comparison to the cost of materials, time, and labor required for this quality improvement project, which was nominal. The Qualtrics® platform incurs no financial cost to the organization nor the end-user. Non-financial costs were incurred by the project lead in the form of 275 hours of project implementation and data analysis, with 300 additional hours having been
spent developing the quality improvement project. Should patients participating in the intervention decide to continue their postpartum and/or maternal education within the macrosystem, the organization may benefit financially. Courses offered by the organization range in value from free up to approximately $60.

Limitations

Limits to the generalizability

Generalizability of this quality improvement project is limited to the labor and delivery microsystem in that it is tailored to patients in the postpartum period. Additionally, the project may be limited in its generalizability to young mothers as well as non-binary individuals, given that no participant was less than 20 years of age and that all participants identified as female.

The high prevalence of first-time mothers participating in this intervention may have led to a decreased incidence of postpartum depression and anxiety history, given that this population has had minimal, if any, time to experience these conditions. In comparison, participants who have had multiple children have therefore experienced multiple postpartum periods and may have a higher likelihood of reporting a history of postpartum depression or anxiety. Regardless, the pre-and post-test design may prove useful in other microsystem settings seeking to provide their population with a readily available source of educational and support resource materials.

Factors limiting internal validity

The observed outcome may have differed from the expected outcome for portions of the intervention due to the context of the survey material. The intervention was provided in the form of two assessments divided by a section of educational material. Testing participants on material utilizing nearly identical pre- and post-test questions may confused participants or cultivated test-anxiety
**Efforts made to minimize and adjust for limitations**

Early in the intervention period, the project leader observed missing data and identified this as a limitation requiring prompt remediation. The first participants of this intervention did not respond to two answer boxes in the “I have read over this material” section of the survey. At this point, the project lead changed the response requirements to forced, as discussed previously under details about missing data. This remedial action prevented future omissions of data throughout the duration of the intervention.

**Conclusions**

Providing patients within the microsystem an accessible form of postpartum education improves patient awareness of postpartum depression and anxiety risk factors, signs, symptoms, and support options. By improving awareness, the prevalence of these conditions may decrease for the given microsystem population. In the case patients do have risk factors for, or develop signs and symptoms of, postpartum depression and anxiety, patients may be more likely to recognize these and seek help through the appropriate channels more readily. While the high prevalence of first-time mothers participating in this quality improvement project may have limited data generalizability, the provision of these resources to first time mothers may prove to be even more beneficial in identifying concerns early and preventing condition escalation.

By furnishing these educational materials to all postpartum mothers during their admission stay, the microsystem is promoting feelings of support within its population during an often challenging and emotional period. A review of the literature demonstrates that increased levels of support are essential in the prevention and treatment of postpartum depression and anxiety, further supporting the use of this intervention within this microsystem.
The ability to increase postpartum knowledge and support may lend to a decreased prevalence of postpartum depression and anxiety in the microsystem population. In instances where prevalence is not significantly affected, the patient population will, at least, have been provided with accessible educational and support resources. In these cases, the provision of these resources may prove beneficial in reducing condition severity by boosting patient confidence and increasing their likelihood of seeking support.

Sustaining the provision of educational and support resources to postpartum women in the microsystem has the potential to be implemented in a variety of ways. Perhaps the most viable way to sustain the intervention would be to provide patients with a QR code upon admission, leading to a curated list of postpartum educational and support resources. Providing the microsystem population with this information during their admission may also encourage patients to ask questions regarding the postpartum period, seek immediate support if needed, and gather additional information from reliable sources while they are admitted to the microsystem.

Improved postpartum education and support may ultimately lead to a decreased prevalence rate in the microsystem, macrosystem, and beyond. Further studies on the topic may benefit from examining specific postpartum conditions or risk factors which are most likely to effect different subsets of the postpartum population. It may prove advantageous to explore the effects of circumstance on postpartum risk factors and feelings of support, including marital status, maternal age, parity, geographical location, and more. In addition, further examinations may benefit from identifying which support interventions have the highest levels of patient follow through, positive feedback, and/or association with decreased postpartum mental and emotional concerns and conditions.
Ultimately, the postpartum period is often imbued with high emotions, uncertainties, and a lack of support and guidance. Providing a clear avenue of support and direction to postpartum women at the microsystem level has demonstrated promise in increasing postpartum feelings of support and knowledge. Advancing these findings into similar microsystems holds potential in providing an even larger postpartum population with support and knowledge, thereby decreasing postpartum depression and anxiety prevalence and severity on a more massive scale.
References


https://www.concordhospital.org/medical-services/maternity-care/delivering-on-the-family-place-a-patient-resource/

https://doi.org/10.1016/j.wombi.2018.07.014
Appendix A: Postpartum Knowledge and Support Pre-/Post-Test Survey and Education

Start of Block: Informed Consent

INFORMED CONSENT LETTER

Date: June 2022

Dear patient:

My name is Danielle Woodman, and I am a graduate nursing student at the University of New Hampshire. I am conducting a Quality Improvement project here on The Family Place, with the intent of improving postpartum mental health awareness and education, as well as increasing overall knowledge of the support resources which are available to each patient, such as yourself. The purpose of this project is to identify the current awareness of postpartum risk factors, signs and symptoms, and knowledge of what resources are available to all postpartum women. Ultimately, the goal of this project is to further educate patients admitted to The Family Place about these postpartum mental health and available support resources. I am writing to invite you to participate in this quality improvement project.

This consent form describes the quality improvement project and helps you to decide if you want to participate. It provides important information about what you will be asked to do in the quality improvement project, about the risks and benefits of participating, and about your rights as a participant. You should:

• Read the information in this document carefully, and ask myself or your nursing staff any questions, particularly if you do not understand something.
• Not agree to participate until all your questions have been answered, or until you are sure that you want to.
• Understand that your participation in this quality improvement project involves you to complete a pre-test survey, read over educational materials, and finally complete a post-test survey. At the end of the survey, you will also be provided an opportunity to provide your thoughts on this survey and corresponding project. The survey will take approximately 10-15 minutes of your time.
• Understand that the potential risks of participating in this quality improvement project are minimal, but that some questions relating to postpartum mental health and depression may be emotionally sensitive and act as emotional triggers.

I plan to work with approximately 50 patient participants in this quality improvement project. You must be at least 18 years old to participate in this quality improvement project and have been admitted for labor and delivery on The Family Place unit.

If you agree to participate in this quality improvement project after reading this document, you will be asked to complete a pre-test survey, review a brief educational section, and finally complete a post-test survey. It is anticipated that the completion of this survey will take you approximately 10-15 minutes. You will not be paid to participate in this project.

You should complete the survey only once. The project leader may exclude your data if they
determine that you did not meet the eligibility criteria for the. For questions about eligibility, please contact the project leader (information provided at the end of the form).

Although you are not anticipated to receive any direct benefits from participating in this quality improvement project, the benefits of the knowledge gained are expected to be beneficial to you, as the patient, by increasing your ability to seek and effectively utilize postpartum support and resources. Increased patient knowledge regarding these support resources may also benefit the community and society by decreasing postpartum mental health concerns, such as postpartum depression and anxiety.

Taking part in this quality improvement project is completely voluntary. You may choose not to take part at all. If you agree to participate, you may refuse to answer any question. If you change your mind, you may stop participating at any time. Any data collected as part of your participation will remain part of the project records. If you decide not to participate or if you stop participating at any time, you will not be penalized.

I plan to maintain the confidentiality of all data and records associated with your participation in this research. Further, any communication via the internet poses minimal risk of a breach of confidentiality.

To help protect the confidentiality of your information, Qualtrics © servers are protected by high-end firewall systems, and the platform performs regular scans to ensure any vulnerabilities are quickly identified and fixed. Access to systems is restricted to individuals who are bound by confidentiality and need-to-know obligations. Access is monitored and audited for compliance. More information can be found at https://www.qualtrics.com/security-statement/. For purposes of data analysis, survey results will be analyzed using demographic and aggregate data, and no personally identifying data will be collected. I will report the data in aggregate. The results may be used in reports, presentations, and publications.

If you have any questions about this quality improvement project or would like more information before, during, or after the survey, you may contact the project leader, Danielle Woodman, at dw1030@wildcats.unh.edu. If you have questions about your rights as a participant, you may contact Pamela Kallmerten, Direct-Entry Master's in Nursing Program Director, at (603) 862-1123 or pamela.kallmerten@unh.edu to discuss them. Thank you for your consideration.

Sincerely,
Danielle Woodman
Graduate Nursing Student

June, 2022
I consent to participate in this Quality Improvement Project (1)

I do not consent to participate in this Quality Improvement Project (2)

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End of Block: Informed Consent

Start of Block: Demographics

Gender

- Male (1)
- Female (2)
- Non-binary / third gender (3)
- Prefer not to say (4)

Age

- 18-19 (1)
- 20-29 (2)
- 30-39 (3)
- 40+ (4)
This is my...

- First child (1)
- Second child (2)
- Third child or higher (3)

I am...

- Married (1)
- In a relationship (2)
- Divorced (3)
- Separated (4)
- Single (5)
- I prefer not to answer (6)

End of Block: Demographics

Start of Block: Pre-test

Have you ever, past or present, experienced postpartum depression or anxiety?

- Yes (1)
- No (2)
- I prefer not to answer (3)
Do you feel knowledgeable about postpartum depression and anxiety risk factors, signs and symptoms?

- Yes (1)
- No (2)
- I prefer not to answer (3)

What are some postpartum depression and anxiety risk factors?
Multiple answers may be selected.

- History of depression/anxiety (1)
- Lack of support (2)
- Stressful pregnancy (3)
- Unplanned pregnancy (4)
- Cesarean section (5)
- Gestational diabetes (6)
- Negative delivery experience (7)
- Higher level of education (8)

What are some postpartum depression and anxiety signs and symptoms?
Multiple answers may be selected.

- Insomnia or hypersomnia (excessive sleeping) (1)
- Difficulty bonding with baby (2)
PROMOTING POSTPARTUM KNOWLEDGE AND SUPPORT

☐ Loss of appetite (3)

☐ Withdrawal from family and friends (4)

☐ Overwhelming fatigue (5)

☐ Feelings of shame, guilt, or inadequacy (6)

☐ Constant worrying (7)

☐ Feelings of dread (8)

☐ Seeking constant reassurance (9)

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Page Break

Have you been talked to by a healthcare professional about postpartum support opportunities and resources?

☐ Yes, and I feel supported and prepared (1)

☐ Yes, but I would like more information (2)

☐ No, I have not been talked to by a healthcare professional (3)

☐ No, I have found support resources on my own (4)

☐ No, I do not feel that I need postpartum support (5)

☐ I prefer not to answer (6)
What support resources are you aware of?
Multiple answers may be selected.

☐ Classes offered by Concord Hospital (1)
☐ Social media support groups (2)
☐ Mobile applications (3)
☐ Online support groups (4)
☐ Face to face support groups (5)
☐ Postpartum Support International HelpLine (6)
☐ The Family Place's Postpartum Support Coordinator (7)
☐ I was not aware of any of these resources (8)

Have you ever utilized any of these resources?

☐ Yes (1)
☐ No (2)
☐ I prefer not to answer (3)
Do you feel you will utilize any of these resources in the future?

- Definitely not (1)
- Probably not (2)
- Might or might not (3)
- Probably yes (4)
- Definitely yes (5)
- I prefer not to answer (6)

End of Block: Pre-test

Start of Block: Support Resources Available

Risk Factors

**Postpartum Depression**
History of psychiatric illness
Lack of support
Domestic violence/abuse
Gestational Diabetes
Cesarean Section
Obesity
Negative birth experience
Low-birth weight infant
Vitamin D deficiency

**Postpartum Anxiety**
Higher level of education
History of depression/anxiety
Negative experience during delivery and/or first week postpartum
Excessive infant crying
Low partner support
Poor current maternal health
Signs and Symptoms

**Postpartum Depression**
- Insomnia or hypersomnia (excessive sleeping)
- Difficulty bonding with baby
- Loss of appetite
- Agitation
- Withdrawal from family and friends
- Overwhelming fatigue
- Feelings of shame, guilt, or inadequacy
- Impaired concentration or indecisiveness
- Suicidal ideation or recurrent thoughts of death

**Postpartum Anxiety**
- Tension
- Irritability
- Racing thoughts
- Changes in concentration
- Insomnia
- Constant worrying
- Feelings of dread
- Seeking constant reassurance

Postpartum Support Resources
Classes offered through Concord Hospital (most often online/over zoom)
Social media support groups
Online support options (e.g. www.supportgroupcentral.com)
Mobile Applications (e.g. MamaMend)
Face-to-face meeting opportunities
Postpartum Support International HelpLine
   Call: 1-800-944-4773 (#1 En Espanol or #2 English
   Text: 800-944-4773 (English) 971-203-7773 (En Espanol)
The Family Place’s own Postpartum Support Coordinator
   Gerry Mitchell, MSW, LICSW
   Phone: (603) 227-7000 ext. 4927

☐ I have read over this material (1)

☐ I chose not to read over this material (2)

End of Block: Support Resources Available

Start of Block: Post test

Have you ever, past or present, experienced postpartum depression or anxiety?

☐ Yes (1)

☐ No (2)

☐ I prefer not to answer (3)

Do you feel knowledgeable about postpartum depression and anxiety risk factors, signs and symptoms?

☐ Yes (1)

☐ No (2)

☐ I prefer not to answer (3)
What are some postpartum depression and anxiety risk factors? Multiple answers may be selected.

- History of depression/anxiety (1)
- Lack of support (2)
- Stressful pregnancy (3)
- Unplanned pregnancy (4)
- Cesarean section (5)
- Gestational diabetes (6)
- Negative delivery experience (7)
- Higher level of education (8)

What are some postpartum depression and anxiety signs and symptoms? Multiple answers may be selected.

- Insomnia (1)
- Difficulty bonding with baby (2)
- Loss of appetite (3)
- Withdrawal from family and friends (4)
- Overwhelming fatigue (5)
- Feelings of shame, guilt, or inadequacy (6)
Constant worrying (7)
Feelings of dread (8)
Seeking constant reassurance (9)

Do you feel that the educational material provided in this survey helped you to better understand what postpartum support resources are available to you?

- Yes (1)
- No (2)
- I prefer not to answer (3)
What support resources are you aware of?  
Multiple answers may be selected.

- Classes offered by Concord Hospital (1)
- Social media support groups (2)
- Mobile applications (3)
- Online support groups (4)
- Face to face support groups (5)
- Postpartum Support International HelpLine (6)
- The Family Place's Postpartum Support Coordinator (7)
- I was not aware of any of these resources (8)

Do you feel you will utilize any of these resources in the future?

- Definitely not (1)
- Probably not (2)
- Might or might not (3)
- Probably yes (4)
- Definitely yes (5)
- I prefer not to answer (6)
Do you feel that you are more likely to seek postpartum support after reviewing and completing this survey?

- Yes (1)
- No (2)
- I prefer not to answer (3)

End of Block: Post test

Start of Block: Final Remarks

Thank you for completing this survey.
Do you feel being provided this information during your labor and delivery admission was beneficial?

- Yes (1)
- No (2)
- Indifferent (3)

Please use this text box to provide any thoughts or insights you have regarding this survey. If this survey has brought any uncomfortable or unwelcome emotions to surface, please do not hesitate in reaching out to The Family Place's Postpartum Support Coordinator, Gerry Mitchell. Thank you!

________________________________________________________________
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End of Block: Final Remarks