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Social Support as a Risk Factor of Postpartum Depression among Women of Various Ethnicity

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Executive Summary

Postpartum depression is considered the most important mental disorder after delivery because of the high prevalence and the serious negative mother-baby outcomes. Education and support of mothers for postpartum depression are deeply held values of nursing care during pregnancy and the postpartum period (Ladewig, London & Davidson, 2014). Risk factors are the common target of these interventions, among which social support is one of the most popular factors in research currently. Social support is composed of instrumental, informational, and emotional support given by a social network to maintain an individual's mental health status when they are faced with significant or traumatic life events (Li, Long, Cao, & Cao, 2017). It is identified as a risk factor for postpartum depression by most research studies (Alhasanat-Khalil et al., 2018; Dennis, Merry, & Gagnon, 2017; Hain et al., 2016; Li, Long, Cao, & Cao, 2017; Norhayati, Hazlina, Asrenee, & Emilin, 2015; O'Neill, Cycon, & Friedman, 2019; Pao, Guintivano, Santos, & Meltzer-Brody, 2019). This project is to do group-based social support screening and education on mothers in a family birthplace to examine the effect of this intervention on postpartum mental health conditions of mothers, incidence of postpartum depression in this family birthplace over the six months, and possibly the long-term benefits on the cognitive and functional development of babies. This is an important project with immediate costs and long-term benefits. Intervention on social support is a cost-effective way to improve postpartum depression among women with various ethnicities, but interventions satisfying the unique needs of each ethnicity is still needed and policies to improve availability of community support for low-income women need to be developed.

Social Support as a Risk Factor of Postpartum Depression among Women of Various Ethnicities

Rationale

Providing adequate postpartum care is of great importance to the physical and the mental health of new mothers and babies, which is initialized by discharge education. A study on patients' satisfaction with perinatal care indicated that mothers not receiving adequate instructions on how to take care of themselves and their babies showed dissatisfaction with the care provided (Rodrigues, et al., 2014). Education on the physical recovery of mothers is part of the discharge education, especially about maternal complications associated with maternal morbidity and mortality, even though recent studies found these complications associated with deadly outcomes should be addressed more during the hospital stay and standardized among different hospitals and clinics (Suplee, Kleppel, & Bingham, 2017). Increasing numbers of recent research studies appealed to general attention on postnatal mental issues, due to its increasing prevalence, widespread effects on different populations, and long- or short-term harm to mothers, babies and their family members. Postpartum depression estimated a prevalence ranging from 13% to 19% due to different diagnostic criteria, different periods of assessment time, and different populations. Postpartum depression has a wider range of high-risk period, which is within six months after delivery (O'Hara & McCabe, 2013). The symptoms of PPD include loss of interest or pleasure, depressed mood, psychomotor agitation or retardation, fatigue or sleep disturbance, changes in appetite, feelings of worthlessness, and decreased concentration (Horowitz et al., 2013). Texas, especially Smith County, has one of the highest incidence rates of postpartum depression. The incidence of women with a recent live birth reporting experiencing depressive symptoms in the United States was 12.8% in 2018, and the incidence in Texas was 14.7%, ranking 8th among all states (America's Health Rankings, 2020).

A study on patients' satisfaction with perinatal care indicated that mothers not receiving enough instructions on how to take care of themselves and babies showed dissatisfaction with the care provided (Rodrigues et al., 2014). The maternal complications, such as postpartum depression, associated with deadly outcomes should be addressed more during the hospital stay and standardized among different hospitals and clinics (Suplee, Kleppel, & Bingham, 2017). The PICOT question that guided this review of literature is: Are women of various ethnicity (P), who have higher social support scores (I) compared to those with the lack of social support (C), at lower risk for postpartum depression (O) over 3 months after delivery (T), and possibly related to better cognitive and functional development of babies certain years later?

Detailed Discussion of the Literature

Lack of social support is identified as a risk factor for postpartum depression by studies done in various countries among people with various ethnicities (Alhasanat-Khalil et al., 2018; Dennis, Merry, & Gagnon, 2017; Hain et al., 2016; Li, Long, Cao, & Cao, 2017; Norhayati, Hazlina, Asrenee, & Emilin, 2015; O'Neill, Cycon, & Friedman, 2019; Pao, Guintivano, Santos, & Meltzer-Brody, 2019). The qualitative findings of a mixed method peer support program reported mothers feeling more normal and less isolated, as one mother said, "[The program] validated what I was feeling. Helped decrease my feelings of shame and inadequacy. I recognized that what I was feeling was not unique. By listening to other women, I found comfort in expressing my hardship." Despite the changes in postpartum depressive scores after the intervention were not significant compared to the scores perceived before the intervention (Prevatt, Lowder, & Desmarais, 2018), however, another study providing a peer support intervention significantly increased the social support score from family, friends, and significant others, as well as significantly decreasing depressive scores (O'Neill et al., 2019). The higher the

level of social support the women received, the stronger the protective association against postpartum depression (Medical Outcome Social Support Total Score OR, 0.23; 95% CI, 0.19–0.27; p = 6.92E-90; Pao et al., 2019).

Dennis, Merry, and Gagnon (2017), compared differences in risk factors of PPD within and among groups of various legal status, including participants who were born in Canada and migrant participants (refugees, non-refugee immigrants, asylum-seeking women, and the subgroups in the migrant group) and found the postpartum depression group (Migrant *M*=125.8, Canadian-born *M*=149.9) had significantly lower social support score than non-postpartum depression group (Migrant *M*=144.6, *p*=0.000, Canadian-born *M*=159.4, *p*=0.005) within both migrant group and Canadian-born group, which was the same as the results of a study in Iran (Vaezi, Soojoodi, Banihashemi, & Nojomi, 2019). Significant relationships between decreasing postpartum depressive scores and the increasing social support scores were reported within the migrant group (*OR*=0.97, 95% *CI*: 0.96~0.99), asylum-seeking group (*OR*=0.97, 95% *CI*=0.96–0.99), non-refugee immigrant group (*OR*=0.96, 95% *CI*=0.94–0.98), and Canadian-born group (*OR*=0.96, 95% *CI*=0.92–1.00). Another study done in the United States with immigrant women of Arabic descent also reported a negative relationships between postpartum depression scores and social support scores (Alhasanat-Khalil et al., 2018), which was confirmed by a study in Turkey (Tambag, Turan, Tolun, & Can, 2019). A longitudinal study done in China revealed that Chinese women with high perceived social support scores were less likely to develop postpartum depression symptoms (Li et al., 2017). A study in Germany including German white women reported low social support as a predictor for postpartum depression (Hain et al., 2016). Overall social support plays an equal role in protection from postpartum depression among diverse ethnicity, which was consistent with the findings of a

study comparing Hispanic and non-Hispanic white Americans and black Americans (Pao et al., 2019), as well as in both developed and developing countries (Tambag et al., 2019; Vaezi et al., 2019; Alhasanat-Khalil et al., 2018; Dennis, Merry, & Gagnon, 2017; Hain et al., 2016; Li et al., 2017). The differences may exist in the barriers to perceived social support.

Interestingly, when mothers had antepartum depression symptoms, social support as a whole was still identified as a predictor for postnatal depression, with reassurance of worth and reliable alliance as two sub-scales of social support playing a stronger role than other sub-scales at 9-weeks postpartum (Milgrom, Hirshler, Reece, Holt, & Gemmill, 2019). O'Neill et al. (2019) found significant relationships between the decrease of depression scores and social support from significant other and friends, and no significant relationships with social support from family. Besides the support from family, friends, and the significant other, community and policy support may also reduce risks for PPD. Dennis, Merry, and Gagnon (2017) reported women who had a self-reported sense of belonging to a community were at lower risks for postpartum depression, and the needs of social support were specifically significant to women with limited health and social services.

Wagner and Washington (2016) did a quasi-experimental study reporting that the participants preferred the traditional one-to-one teaching between the bedside nurse and new mothers than a group discharge class. Those mothers that received education in a traditional way also reported to feel included in decision making about teaching and received enough helpful information to take care of themselves and babies, possibly due to the trust built during the hospital stay and better interaction between the educator and the new mothers. Also, bedside nurses were more familiar with the knowledge gap of the patient than a lecturer who designed a formal presentation structured by what the lecturer thought needed by the patient. However, the

traditional way is not realistic to do in the pilot study, so patients will be educated in a group. If the pilot study gets good results, adding education on social support will be proposed to the facility as a regular routine.

The most common barriers identified by these participants was the lack of time, especially for participants that had to return to work right away or in a short period of time after childbirth. so participants can finish their assessments and education by phone in the follow-ups. The American Academy of Family Physicians (Hirst & Moutier, 2010). strongly recommended all women to be screened for depression using the Edinburgh Postnatal Depression Scale (EPDS) with acceptable sensitivity and specificity, during pregnancy or after childbirth. Follow-up screenings are recommended to be done at the postpartum visit or two-month well-child visit, which will be done in this project. The American College of Obstetricians and Gynecologists recommended at least one screening for depression or anxiety symptoms with a standardized, validated tool during the perinatal period, due to the evident clinical benefits from screening alone and early initiation of treatment or referral to mental health care (American College of Obstetricians and Gynecologists, 2010). They also gave recommendations on more screening tools other than EPDS, including the Postpartum Depression Screening Scale (PDSS), and Beck Depression Inventory (BDI). Women who have postpartum major depression or suicidal ideations should be referred for emergent psychiatric evaluation or hospitalization with a level C evidence (Hirst & Moutier, 2010). Interpersonal therapy and cognitive behavior therapy, of which the theories contain the construct “social support”, are both recommended to be effective in treating patients with mild or moderate depression with level C evidence.

Perceived Social Support Scale (PSSS) evaluates the support from family, friends, and significant ones. Social support is defined as the people on whom one can be dependent on and

from whom one can experience love, value, and care. This is categorized into four types, emotional, instrumental, appraisal, and informational support (Liu, Gou, & Zuo, 2016). Postpartum mothers mainly get support of all types from their spouse if they have one. The education will address the role of the father. Mothers will need a good rest, especially those mothers who will do breastfeeding. They have to rest when the newborn is sleeping and someone else, and ideally the spouse, will take care of the housework and other kids, if present. If the participant cannot get any support from their family members, they will be taught to seek help from the community. For example, the community may send someone to their home to help them on housework, shopping and other things. A very important content of the education includes self-screening. If mothers feel support is lacking, they are encouraged to ask for help and share with people about their feelings.

Project Stakeholders

Stakeholders of this project include the health care facilities, health care professionals, patients, their babies and family members. The prior prevention for postpartum depression by increasing the perceived social support helps reduce the economic and psychological burden of patients and their family members caused by postpartum depression. Medical resources used to treat postpartum depression could also be saved with this social support intervention. This project has its meaning in the population health field as well. With policies made to improve the availability of community support, large groups of women will benefit from increased access to postpartum support, and the incidence and prevalence of postpartum depression could be reduced.

Implementation

This project is implemented with six steps (Hockenberry, Brown, & Rodgers, 2015, p.211), and the flowchart of this implementation is shown in Figure 1.

Phase I. Current postpartum depression screening is done immediately after childbirth and at their first follow-up visit (six weeks after) at the primary health care clinic (Moraes, Lorenzo, Pontes, Montenegro & Cantilino, 2017). Nurses must be included in this implementation team because they are the main stakeholders to implement the screening and education for postpartum depression in different health-care settings including large general hospitals, primary care clinics, or women's clinics. Several studies have provided evidence that patients showed high trust in nurses in clinical settings (Leslie & Lonneman, 2016; Ozaras & Abaan, 2018). The three nurses in the team are composed of one from the family birth unit with the experience of educating staff nurses, one from a local primary health clinic or a local woman health clinic who is required to have at least five-year experiences of postpartum depression screening or patient education, and one who majorly implements this project. The primary nurse takes the most responsibilities in the whole team, who will organize team meetings, sort out the needed materials, make assessments on social support and postpartum depression in participants in the pilot study, and give the presentation in the last step. The other two nurses will participate in making the education and screening plan, due to their familiarity with the needs of local patients on postpartum mental health and then provide education on patients in the hospital or clinic. The last member in the team is a psychologist or psychiatrist specializing in woman's mental health considering the human resources of the hospital or clinic where this project is implemented. This psychologist or psychiatrist acts as a supervisor to evaluate the education and screening tools.

Phase II. The second step is to determine the education materials and screening (assessment) tools for this project. A questionnaire will be used to collect demographic information, including the age, height, weight, terms, annual family income, education level, feeding method, and ethnicity. This study will use EPDS, which is the most common tool, to test postpartum depression and the PSSS (Cronbach alpha coefficient: 0.914) to test social support.

Phase III. The evaluation and screening tool will be submitted to the gatekeepers, including the lead nurse of the health care facilities where the project is implemented and the quality control team of the facility. The content will also be shared with the nursing staff in the facility to collect their suggestions. If a large amount of data is collected from these gatekeepers and support staff and large changes need to be made, the team will meet again to talk about updating the content.

Phase IV. The nurse from the family birth unit will review all the patients who gave birth in the family birth unit on weeks 3, 4, and 5 who meet the inclusion requirements. The inclusion criteria includes age 18 years or above, no psychiatric history before pregnancy, fluent in English, and without cognitive dysfunction.

After the participants will be assessed in an interview in person with the major nurse on social support and depression using the assessment tools, when their family members are commonly there, and the interviewer will request the family members to learn about the support mothers need and provide support as much as possible. Then education on how to improve social support will be provided. This will occur in a group setting the day before they are discharged. The group-based intervention on behavior changes is better supported than the individual-based treatments at 12 months (Paul-Ebhohimhen & Avenell, 2009). Participants will be called two weeks after childbirth to do an assessment on social support and postpartum depression. If

desired, they will be educated on social support, but this education will target what the participant needs rather than following a specific script. At the same time, the team will schedule an in-person assessment and intervention at their first follow-up after childbirth (six weeks). Nurses will call patients with an appointment reminder the day proceeding their six-week follow-up visit. At the six-week follow-up visit, the mother will receive additional information on social support. Wenze and Battle (2018) identified that within three months after childbirth was considered the most difficult time by patients. Therefore, the last intervention in this project will be done three months after childbirth dependent on the preferences of participants.

Phase V. The primary nurse will review the data after completion of the data collection. Data analysis is comprised of three steps and details as described in the evaluation section.

Phase VI. Present the project to the team, gatekeepers, and staff nurses.

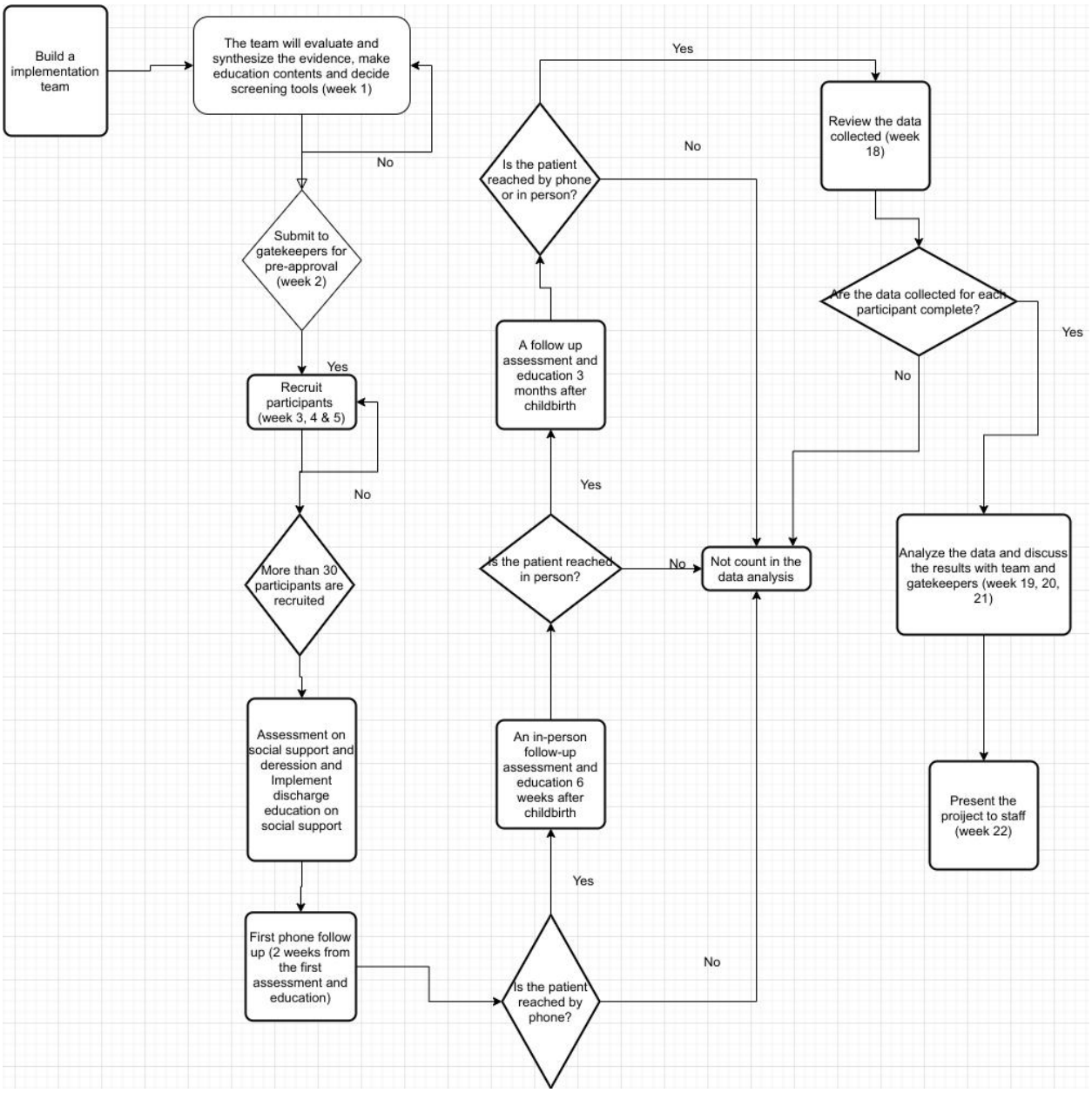

Figure 1. Timetable/Flowchart.

Data Collection Methods/Planned Evaluation

Postpartum depression risk is scored with the Edinburgh Postpartum Depressive Scale (EPDS). The social support score is evaluated with the Perceived Social Support Scale (PSSS), and the incidence of PPD (EPDS score > 13) in the facility. Improvements on social support will be evaluated as outcome measures. Steps of outcome evaluation are shown in Table 1. If

possible, long-term complications of mothers and babies related to PPD should also be evaluated in follow-ups years after the project (Table 2.), which reveals the possible effect of this project on quality care improvement to positively impact organizations longitudinally. The longitudinal evaluation is mainly composed of the assessment of cognitive and functional development. The current literature recorded the onset of postpartum depression 1.5 years after childbirth. At the one-year evaluation, mothers will be screened for postpartum depression, and their social support will be evaluated. This is the last time to assess depression and social support for this project. Two years, five years, and twelve years after childbirth, mothers and babies will be interviewed for the babies' cognitive and functional development based will also be evaluated. At one-year-, two-years- and five-years, developmental assessments will be done using the milestone checklist recommended by the World Health Organization (CDC, 2020). The twelve-years-developmental assessment will target developmental disabilities, such as autism or attention-deficit/hyperactivity disorder (Boyle et al., 2011), which are commonly not identified until they are in school. Based on the results of project, current procedures and policies of the organization or department should be reviewed considering resource availability (Hockenberry, Brown, & Rodgers, 2015, p. 217). The final goal is to improve mental health of new mothers, as well as to improve the quality of postpartum care with little additional costs to care.

Time	Assessments	Method
At childbirth	Social support score and depressive score	Interview in person in the hospital
Two weeks after childbirth	Social support score and depressive score	Interview on the phone
Six weeks after childbirth	Social support score and depressive score	Interview in person at the follow-up visit
Three months after childbirth	➢ Social support score and depressive score ➢ Opinion on this education project	Dependent on the participants

Table 1. Outcome Measurement Timetable

Time	Assessments	Methods
One year after childbirth	➢ Depressive score and social support score of the mother ➢ Child developmental assessment	On the phone or in person dependent on the participants
Two years after childbirth	➢ Child developmental assessment	On the phone or in person dependent on the participants
Five years after childbirth	➢ Child developmental assessment	On the phone or in person dependent on the participants
Twelve years after childbirth	➢ Child developmental assessment	On the phone or in person dependent on the participants

Table 2. Longitudinal Outcome Evaluation Table

Statistics

First, the descriptive analysis will be done to present the characteristics of this group with means and standard deviation for continuous data and frequency for ordinal data. Second, One-way ANOVA will be used to test the changes of average social support score and average postpartum depressive score of each assessment vertically to examine the improvements of this whole group. Pearson's correlation coefficient will be used to test the relativity between social support and postpartum depression. Third, linear regression will be done to test the prediction for postpartum depression with social support adjusting the demograhic data.

Data collected in the longitudinal evaluation will be organized and analyzed. Milestone checklist has no scores for each item, so we will suppose each item is worth 1 point. If the baby does not show one certain behavior or sign at a certain age, they will get one point off. The total score of each baby will be recorded. One-way ANOVA will be used to examine the improvements of developmental score over time. At the 12-year assessment, frequency of each reported developmental disability will be calculated and logistic regression will be used to analyze the prediction for developmental disabilities by postpartum depression or social support.

Cost/Benefit Discussion

Social support education and screening provide a cost-effective way for patients to prevent or PPD compared to pharmacological interventions, which reduces the immediate and long-term economic burden and psychological distress of the patients and their family to satisfy the preference of most patients. Medical resources are also greatly saved in this way, which could not be calculate but satisfies the preference of most health-care facilities, due to prevention of the long-term and short-term complications of PPD, in which health care providers, psychologists, and psychiatrists are involved.

Besides the benefits mentioend above, there are costs to implement this project. There is no cost for the screening tools or education materials, but there is an invisible cost paid by the health-care facility where it is implemented. Nurses have to spend extra time on the social support education and screening at work and the work hours are paid by their employers. Suppose a nurse is paid $35 per hour, the education is done for 28 days multiply 1 hour per day (for week 3,4,5,6) equal to 28 hours in total. The preparation is estimated for 10 hours. Each interview is estimated to use 20 minutes. Supposing there would be 50 patients enrolled, the total assessment time will be 1/3x50x4=66.7 hours. So the total cost for the first period of this project will be (66.7+10+28)x35=$3664.5. Supposing no one drops in the follow-ups, even if there must be some drop-offs, and each assessment for baby developments will be for 15 minutes, the longitudinal outcome evaluation will cost $35x50x4x1/4=$1750. Hence the total cost will be $5414.5.

The team members may have less rest time if they use their rest time for meetings or developing materials. If they have meetings during work hours, even if they count those hours

out of work hours, which means their employers do not pay for those hours, they will work less time for their employers and that would be a loss for their employers also.

Overall Discussion/Results

Social support intervention, composed of education and screening, is a cost-effective way to improve postnatal mental health of mothers of various ethnicity. However, women of various ethnicity has various reason for the lack of social support. For example, Dennis, Merry, and Gagnon (2017) identified that the main reason for refugee women to feel not supported was family separation. Another study done in Vietnam found women with limited communication or interaction with others and low satisfaction with family life were more likely to have postpartum depression (Do, Nguyen, & Pham, 2018), which was consistent with results done among American women. Based on these findings, intervention to improve social support should be individualized, which means a one-to-one interview specifically designed based on the needs of the subject done by the primary nurse at the family birthplace might work better than a group-based class. The various needs to improve social support among various ethnicity provides basis to improve community support. Interventions focused on different aspects of social support will have different levels of effectiveness among communities with different main ethnicity of residents.

Even though this project is of great benefits to patients, family, and the health-care facilities, there are some barriers and potential harms. There was a study done by McCarter-Spaulding and Shea (2016) exploring the effect of discharge education on postpartum depression. One of the barriers identified the nurses was that the education specifically for postpartum depression would cause extra burden to their work. Some nurses also stated that the discharge education for mothers should include how to take care of themselves and the baby for the better physical and

mental health of mothers and babies, and there were other points, such as breastfeeding education and lochia elimination care, should be of equal importance to the postpartum health. And the extra education on postpartum depression might make mothers ignore other care.

Recommendations

The direction for this project is to add the social support screening and education to regular postnatal care, possibly with the next step to develop policies to improve the availability of community support, especially for the women with low household income. The low-income communities generally lack the support from volunteers or welfare organizations, however, women from these communities are more likely to have postpartum depression and have higher needs for these support. Each step of the implementation of a project has costs, but not all evidence-based projects can achieve the expected health outcome immediately. This is the general barrier to implementation of a project with immediate costs and long-term benefits, like this project. However, health maintenance is a long-term war. Leadership staff should take serious considerations of the projects with long-term benefits. Adding social support screening and education is a minor change in regular nursing care. A total of these minor changes will improve the quality of health care by a lot. Staff nurses should always keep the principles of evidence-based practice in mind and raise these minor changes to the leadership staff for better health-care services.

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