Development of a Family-Community Interactive Program to Prevent Postpartum Depression: A Mixed Method Study Protocol

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Study protocol

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Abstract

Background: Postpartum depression has become a serious public health hazard. Family and community support can be effective in alleviating the symptoms of postpartum depression. Currently, there is a lack of research directed at promoting family and community caregiver interactions to avoid postpartum depression. Therefore, this study aimed to construct a family-community interaction program to avoid postpartum depression.

Method: This mixed-methods study with the longitudinal design consists of two phases. Phase one :quantitative study. A quantitative analysis method is applied to conduct longitudinal research on the pregnant and parturient women to explore the status quo of indicators of family support, social support, quality of life, and postnatal depression. Phase two: qualitative study to explore the current status of the interaction. In this phase, the subjects will be selected through purposive sampling; In-depth individual interviewing will be used for data collection. Mixed data were used to analyze qualitative and quantitative results and to construct a family-community interaction intervention program.

Discussion: The present research is the first study to investigate family-community Interactions. For the purposes of the study, a mixed-methods approach will be used which aims to develop family-community Interactive Program, which can prevent postpartum depression of pregnant and parturient women and clarify the responsibilities of family members and Community caregivers in the prevention of postpartum depression, cultivating the awareness of interaction and collaboration between families and communities, and providing the targeted intervention policy to long-term positive interaction.

Trial registration number: ChiCTR2100045901

Plain English Summary

Postpartum depression has become a problem jeopardizing public health seriously, which have a long-term negative impact on the mentality, the quality of life of the parturient and the growth and development of infants. Family and community support can effectively alleviate the symptoms of postpartum depression, reduce its incidence and severity, thereby preventing postpartum depression. Therefore, the cooperative interaction between families and communities is critical to avoid postpartum depression. This study was conducted to avoid postpartum depression by implementing a family-community interaction program for pregnant and parturient women and to clarify the responsibilities of family members and Community caregivers in the prevention of postpartum depression. This mixed-methods study with the longitudinal design consists of two phases. Phase one :quantitative study. A quantitative analysis method is applied to conduct longitudinal research on the pregnant and parturient women to explore the status quo of indicators of family support, social support, quality of life, and postnatal depression. Phase two : qualitative study to explore the current status of the interaction. In this phase, the subjects will be selected through purposive sampling; In-depth individual interviewing will be used for data collection. The conventional content analysis approach will be employed for data analysis.

The study used qualitative and quantitative results from the previous phase to analyze family-community interactions using a mixed data analysis model. Finally, an initial program of family-community interaction for the prevention of postpartum depression was drafted using an expert meeting method; the initial program was revised by Delphi experts through a consultation method to construct a family-community interaction intervention program.

Background

Depression is a common emotional disorder, characterized by a high incidence, recurrence rate, disability rate and suicide rate. The prevalence of depression in women is about twice that of men no matter in developed or developing countries, and the morbidity mounts to the top in the perinatal period. In addition to patients with a medical history of depression who are more likely to relapse^[7], many women will suffer from depression during the first 1 year after childbirth^[8]. Postpartum depression (PPD) is the most common psychiatric problem in the one-year postpartum period with an incidence of 5-20%^[1-4]. It causes enormous suffering and disability^[9], affects both the mother's health and child's development, and influences mother-infant interactions and family life, postpartum depression has become a jeopardizing public health problem seriously^[10-12].

The occurrence of postpartum depression is linked to a variety of factors. Based on epidemiological studies, the potential risk factors of postpartum depression include perinatal stressor, psychosocial factors, demographic or medical factors, socio-economic/ socio-cultural factors, and lack of social support (family members, organizations and professionals, etc.)^[13-15]. Xiufen Zuo et al^[16-17] pointed out that the occurrence of postpartum depression is affected by family environmental, psychological and physiological factors. Abadiga et al^[8] proposed that pregnancies, social support, family support, previous history of depression, stressful events in life and substance use are also contributing factors of postpartum depression.

According to relevant research^[7], support from family members is of great significance for preventing postpartum depression. From the viewpoint of Yulan Wei et al^[5], family-provided postpartum care can effectively relieve the symptoms of maternal depression, prevent and reduce the occurrence of postpartum depression. Jierong Chen et al^[18] indicated that family support reduces the incidence and severity of maternal depression, thereby promoting maternal family harmony and healthy infant development. This finding^[19-22] showed that postnatal depression is not only a problem which occurs during the postpartum period and indicated the importance of intervention in the prenatal period to prevent postnatal depression. To implement comprehensive preventive interventions throughout the maternity process, it is necessary to use the community as a platform^[7], so the community plays a vital role in preventing postnatal depression^[23]. The importance of functionality of the relationship between the community worker and the family, and being professional are significant for addressing the families' needs where mothers are at risk for postnatal depression. Christopher Mundorf et al.^[24] held that consolidating relationship between community worker and maternal families during the perinatal period

can effectively decrease the occurrence of postpartum depression. Then community worker should encourage the members of maternal families to give the parturient more life care, and create a good living environment, thus ensuring their physical and mental health, and preventing postpartum depression^[25]. According to the services provided by Community caregivers, providing information and counselling, meeting the family can help prevent postpartum depression^[26]. In addition, Mundorf C et al^[27, 24] suggested that communities should adopt timely screening and intervention measures in order to strengthen health care during pregnancy, and health education for family members is the key to preventing postpartum depression^[8, 24]. According to the view of Wenxiang Guo et al^[28], the community should make timely visits to postpartum families timely, provide psychological counseling for the parturient, remind family members to give reliable emotional support to mothers and create a warm family atmosphere to effectively help mothers regulate their emotions, improve their psychological status, and prevent postpartum depression.

Therefore, the interaction between families and communities is a key factor in preventing postpartum depression. However, there is a lack of studies on family-community Interactive Program, and all of them did not take into account an important influencing factor: the different stages during pregnancy. Therefore, based on a social interaction theory and a timing theory, a multi-dimensional longitudinal study will be conducted on the current status of family members, Community caregivers and maternity by means of multidisciplinary research and data analysis, so as to deeply analyze the influencing factors and problems in family-community interactions, formulate a family-community Interactive Program to prevent postpartum depression, and provide scientific countermeasures and suggestions for carrying out the prevention of postpartum depression, attaching more importance to family core functions, and improving community participation.

Objectives

The project is aimed at formulating a family-community interactive mechanism to prevent postpartum depression. The objectives of each phase are as follows:

Objectives of the first phase: quantitative study

To conduct longitudinal quantitative researchs on the maternity to explore the status quo of indicators of family support, social support, quality of life, and postnatal depression.

Objectives of the second phase: qualitative study

To conduct qualitative interviews with family members, Community caregivers and maternity to explore the current status of the interaction, existing problems, obstacles and willingness of the interaction between family and community, which provide a basis for building family-community Interactive Program.

Methods And Design

Study Design

A mixed methods longitudinal design will be used to conduct this study by collecting, analyzing, and integrating the qualitative and quantitative data. The mixed-methods paradigm is based on the principles and logic of pragmatism. According to this paradigm, the mixed use of qualitative and quantitative approaches results in a better understanding of the problem^[29]. This study will have two phases, and the quantitative and qualitative data will be collected in the first and second phases, respectively. Phase one is quantitative study, which aims to explore the status quo of indicators of family support, social support, quality of life, and postnatal depression. Phase two is qualitative study, which aims to assess the current status of the family-community interactions. Finally, the findings of the quantitative and qualitative phases will be used to establish Interactive Program to prevent postpartum depression. Figure 1 shows the study flowchart. A literature review will be conducted within 1 month of the start of the study to sort out the research ideas. The pre-study will be conducted in Henan, Zhejiang, Tianjin and Shanghai, China, with quantitative and qualitative data collected over a period of 12 months^[7] (data collection will stop in July 2022).

First phase: quantitative study

First, A quantitative analysis method is applied to conduct longitudinal research on the pregnant and parturient women to explore the status quo of indicators of family support, social support, quality of life, and postnatal depression.

Sampling method

According to the criteria advocated by Kendall.M (1975), the sample size in a study is at least 5 to 10 times the number of variables^[30]. The required sample size was calculated using the formula: sample size = [number of dimensions × (5 -10)] × [1 + (10% -15%)]. The total number of independent variables in this study was 26 entries, and assuming that each entry was used as an analysis variable, the sample size was calculated to be at least 143 cases, taking into account 10% of invalid questionnaires, and the final sample size was expanded to 158 cases.

Inclusion criteria

The inclusion criteria consisted of 1) aged 20-35 years; 2) being in the first trimester of pregnancy and one year postnatal; 3) no major negative emotional events happened during pregnancy, and the delivery went smoothly; 4) obtaining depression score less than 10 from Edinburgh Postpartum Depression Scale; 5) spent pregnancy and postpartum recuperation in the communities; 6) abling to communicate effectively; 7) consented after being informed and voluntarily participated in this study.

Exclusion criteria

The exclusion criteria were failure to complete the questionnaire completely and unwillingness to continue the study.

Quantitative data collection

The main outcome measure for pregnant and parturient women is the severity of postpartum depression, which is based on the results of previous studies^[31, 32]. Those indicated that preventing postpartum depression can solve physical and psychological problems of the parturient, improve quality of life, and benefit the development of physical and mental health. The secondary measures included levels of happiness, quality of life, and satisfaction. For the family members and Community caregivers, the main outcome measure is the interaction between the families and communities, which are based on the results of studies^[33, 34]. Those indicated that strengthening the interaction between families and communities is conducive to preventing postpartum depression.

Quantitative data will be collected using 6 questioners, an overview of the measurements used in this study is provided in Table 1.

including:

1-Sociodemographic characteristics questionnaire: including the pregnant and parturient women, family members and Community caregivers, according to the aim of the study and literature review, was consisted of questions about the ages, education, no history of adverse pregnancy or childbirth, sleep quality, and expectations for your baby etc.

2-Self-Rating Anxiety Scale (SAS): This scale was compiled by Professor William WK Zung in 1971^[35], characterized by large suitability and convenience. it can well reflect the subjective feeling of depression suffers. It consists of 20 items answered on a four-point Likert scale which range from 1 (none, or a little of the time) to 4 (most, or all of the time). Among them, items 5,9,13,17,19 are scored inversely, with 50-59 classified as mild anxiety, 60-69 as moderate anxiety, and 70 or above as severe anxiety. The scale has a high efficiency(Cronbach's alpha 0.897)^[36-39].

3-Quality of Life Measurement Scale of WHO (WHOQOL-BREF): This scale includes 26 items, including 24-item generic QOL comprising 4 scored domains (physical, psychological, social relationships, and environment) plus 2 unscored questions about overall QOL and health. Each field is scored by means of positive scoring, which means that the higher the score, the better the quality of life. This scale performs well in reliability and validity (Cronbach's alpha nurses 0.922)^[40-42].

4-Chinese version of Edinburgh Postpartum Depression Scale (EPDS): This scale was developed by Cox et al^[43]. It includes ten questions on depressive symptoms, each of which has four response options describing increasing severity and scored from 0 to 3, giving a maximum sum score of 30. Symptoms are graded according to the reference standard: the total scores of EDPS less than 9 represent normal; 10 to 12 represent mild postpartum depression; 13 to 15 represent moderate levels; scores over 16 represent severe levels – the higher the score, the more severe the depressive symptoms. The scale performs well in reliability and validity (Cronbach's alpha nurses 0.79, the test-retest reliability is 0.85)^[44]. A large number of studies have shown that it can also be applied for screening and evaluating prenatal and postpartum depression of pregnant women^[45-47].

5-Family Support Self-rating Scale (PSS-Fa) : This scale will be used to measure the family support. It consists of 15 items, which are scored according to two points. A “yes” answer is scored 1, and a “no” is scored 0. The total score is 15, and the higher the score, the higher the family support. Respondents with no less than 10 points are regarded as the ones giving high-level family support, and those with less than 10 are regarded as the ones giving low-level family support. The Chinese version of the 15-item MPSS-Fa has proved to have satisfactory validity and reliability (Cronbach’s alpha 0.95)^[48–50].

6-Social Support Rating Scale: This scale was designed by Ganster in 1988^[51] to measure the social support level. It includes 10 items, covering 3 dimensions such as objective support, subjective support and the utilization of social support. The higher the scale score, the higher the social support level (Cronbach’s alpha 0.80)^[52, 53].

Data analysis

EpiData 3.1 software is applied to build a database, and data is input by two recorders. The data is locked after dual verification, and counted with IBM SPSS 21.0. The basic data of pregnant and parturient women is analyzed by means of descriptive statistics. Multiple linear regression analysis is conducted to explore the status of indicators of family support, social support, quality of life, and postnatal depression.

Second phase: qualitative study

The second phase is a qualitative study to explore the status quo of the interaction, existing problems, obstacles and willingness to the interaction between families and communities.

Inclusion criteria

pregnant and parturient women: 1) aged 20-35 years; 2) being in the first trimester of pregnancy and one year postnatal; 3) no major negative emotional events happened during pregnancy, and the delivery went smoothly; 4) obtaining depression score less than 10 from Edinburgh Postpartum Depression Scale; 5) spent pregnancy and postpartum recuperation in the communities; 6) able to communicate effectively; 7) consented after being informed and voluntarily participated in this study.

Family members: 1) no less than 18 years old; 2) people who are family members of the parturient and took care of them as a main caregiver; 3) with a good ability of communication.

Community caregivers: 1) staff who is mainly responsible for taking cares pregnant and parturient women in the community, and often came into contact with them; 2) worked in a community health service center for more than 6 months; 3) consented after being informed and voluntarily participated in this study.

Exclusion criteria

Pregnant and parturient women have a history of mental illness, severe organ dysfunction or taking antidepressants, suffered from pregnancy complications, and miscarriage, stillbirth, or stillbirth occurred

during pregnancy and childbirth. Family members and Community caregivers are unwilling or unable to participate in this study.

Sampling method

Among the above study participants who participated in the questionnaire phase based on the results of the questionnaire, a purposive sample of 25% of individuals with good family member-community caregiver interactions and 25% of individuals with poor interactions were interviewed. The sample size was determined in accordance with the requirements related to qualitative research, and data were usually considered saturated when the information on the respondent was repeated and no new themes reappeared in the analysis of the data.

Interview Outline

Pregnant and parturient women: 1. How was your mood during the perinatal period? If not good, what were the reasons for not being good? 2. What would you like family members to provide for you, such as companionship, care, etc.? 3. What form of care would you like community caregivers to provide for you? 4. What are your thoughts about the relationship between family members and community caregivers?

Family members: 1. How do you view your relationship with community caregivers? 2. What are your main concerns during the perinatal process for pregnant women? What are the most important of these concerns? Why? 3. What help would you like to receive from community caregivers for these problems? In what way would you like to receive it? 4. What would you highlight about your relationship with the community caregivers? 5. Have you ever had a conflict with a community caregiver? How did this happen? In what way was it resolved after it was discovered?

Community caregivers: 1. What do you think are the most important aspects of maternal care during the perinatal period and how should they be taken care of? 2. What kind of help do you think is lacking in these areas? 4. What do you think are the problems in communication with families? How do you solve them?

Data collection

Researchers conduct semi-structured interviews with families, Community caregivers, and pregnant and parturient women separately, which can explore the problems in the interaction between the families and communities, dilemmas they face and related reasons, and learn about the willingness of pregnant and parturient women, family members and Community caregivers to interaction between the families and communities. Researchers will explain to the interviewees, on a first face-to-face contact, the purpose and design of the study. The interviews will take place in a quiet private and warm room in the facility at a mutually convenient prearranged time. During the interviews, researchers listen carefully, respond appropriately, and timely record meaningful information, interview scenarios, the behavior of the interviewee and the thoughts and feelings of the researchers themselves. Interviews will be performed until saturation is achieved^[54].

Data analysis

Pregnant and parturient women, family members and Community caregivers are numbered, and interview recordings are transcribed into words within 48 hours, so as to protect the privacy of the research subjects. A descriptive and traditional content analysis method and an inductive method are adopted to derive a subject directly from the interview data^[55, 56]. The data is analyzed with NVivo10 software, and a Colaizzi seven-step analysis method^[57] is used to derive the subject: carefully read all the records; find disjunctive significant statements; encode a recurring point of view; bring the encoded view together; write a detailed and exhaustive description; identify a similar view; sublimate the theme concept; and return to the participants for the confirmation^[58].

Finally, an Ovi Gebuzz and Tedley's model involving in mixed data analysis is used to integrate the results of longitudinal quantitative and qualitative research to develop a family-community Interactive Program.

Ethics and dissemination

The study has been approved by the relevant ethical review committee (ZZUIRB2021-20). All participants will receive written and verbal information about the aim of the study. They will be informed that participation is voluntary, that they have the right to withdraw without specifying why, and that confidentiality will be assured. Informed consent will be specified by all participants. The findings will be disseminated through conference presentations and peer-reviewed publications.

Validity and reliability

To validate the results, at first efforts will be made to build a friendly relationship with the participants. The researcher or research assistant will fully disclose the purposes and components of the study and provide written consent to participate in the study. They will discuss with them any potential risks of participating in the study. Those who require clarification on the nature and purpose of the study will be on a need-by-need basis. Refusal to participate in the study will in no way influence the services they receive at the clinics. For the qualitative data analysis, the transcribed verbatim will be verified against the taped interview by the first author and the research assistant who conducted the interview. Data credibility will also be maintained by conducting an audit trail and periodic debriefing of the research team. Meanwhile, we will also analyse and report the validity of the established survey tools in our population.

Trial status

The trial is an ongoing project; due to the impact of the outbreak, baseline surveys and data collection are now being implemented.

Discussion

To construct the family-community Interactive Program is not only preventing postpartum depression of pregnant and parturient women but also but also clarifying the responsibilities of family members and

Community caregivers in the prevention of postpartum depression, cultivating the awareness of interaction and collaboration between families and communities, and providing the targeted intervention policy to long-term positive interaction. Literature review demonstrated that enhancing interaction between families and communities is conducive to preventing postpartum depression^[8, 27, 33, 34]. However, similar studies are scarce worldwide, and similar Interactive Program have not been tested or implemented in relevant communities.

It is of great significance that a family-community Interactive Program to prevent postpartum depression will be developed for the first time. The formulation of an Interactive Program can strengthen the integration of families and communities^[24, 25, 59], and the timely feedback from family members and Community caregivers can help Community caregivers provide more effective care, thus better preventing postpartum depression.

The study will be conducted in 7 community sites, which is a small sample and deemed as lack of universality, but the results will lay a foundation for the further development of family-community interaction, and provide suggestions and point out directions for such research.

Researching the family-community Interactive Program will be described as highly valuable. The collection of quantitative and qualitative data will give us an opportunity to introduce Interactive Program from different perspectives, allow us to roughly understand their impact, and help us evaluate their credibility and quality. In turn, it will benefit the development and dissemination of Interactive Program. In this study, social interaction theory and timing theory are used to form a theoretical framework, which coupled with the introduction of the background of the Interactive Program, will provide opportunities for the further development of intervention.

The study will be completed in collaboration with the pregnant and parturient women, family members and Community caregivers. According to Storm and Edwards^[60], this method is the basis for promoting users' participation. Nevertheless, the non-standardization of the Interactive Program may be regarded as a research limitation. Nonetheless, it is still a key to introducing a feasible Interactive Program. If the program proves to be viable, then implementation will be just around corner. As mentioned above, the potential of the program cannot be overshadowed, since it requires no additional labor or costs, and fulfills the wishes of pregnant and parturient women and family members, as well as the ideals of Community caregivers.

Limitations

As our research will be conducted in China, relatively small scale could pose a threat to generalisation. And because of the cultural difference, the results may not be generalized into other countries. This study will use a longitudinal design, which means that participant's dropout could be another potential limitation. To prevent that, we will make an appointment before each survey and give a nice gift to the participants after each survey.

Abbreviations

Not applicable

Declarations

Competing Interests

The authors declare that they have no conflicts of interest.

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Author contributions

PW, DZ, RM and MLN conceived of and designed the study. DZ, PPG, CQW, SSW, MLN, YW and HSY are responsible for the acquisition of data. PW and HSY are responsible for Methodology. SSW and PW are responsible for data management. YW, MLN and DZ are responsible for software. All authors were involved in revising the article. All authors read and approved the final article.

Availability of data and materials

Not applicable.

Ethics approval and consent to participate

The study has been approved by Life Sciences Ethics Committee of Zhengzhou University (ZZUIRB2021-20). All participants will receive written and verbal information about the aim of the study. They will be informed that participation is voluntary, that they have the right to withdraw without specifying why, and that confidentiality will be assured. Informed consent will be specified by all participants. The findings will be disseminated through conference presentations and peer-reviewed publications.

Consent for publication

Not applicable.

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Table

Table 1 Study variables, measurement instruments and timing of data collection

Variables	Measurement instrument	Type of response	Score (range/dimension)	Cronbach's alpha	Data Collection				
					Baseline	Follow-up			
						3 months	6 months	9 months	12 months
Dependent variables	Edinburgh Postpartum Depression Scale	scored from 0 to 30	10items	0.79	✓	✓	✓	✓	✓
Anxiety level	Self-Reating Anxiety Scale	Likert(1=none 4=most)	20 items	0.897	✓	✓	✓	✓	✓
Quality of Life	World Health Organization Quality of Life	5-point scale	24items,plus 2 unscored questions, 4domains:(physical, psychological, Environment social relationships)	0.922	✓	✓	✓	✓	✓
Family support	Chinese of Peraived Social Support from Family Scale	Dichotomyc (Yes/No type)	15 items	0.95	✓	✓	✓	✓	✓
Social support	Social support rating Scale		10 items,3dimensions (objective support, subjective Support and support utilization)	0.80	✓	✓	✓	✓	✓
Independent variables									
Socio-demographic	Ad hoc questionnaire	Nominal			✓				
Fmaily members and Nursing home staff	Ad hoc questionnaire	Nominal			✓				

Figures

Figure 1

Study flow chart

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