Original Research – Quantitative

A longitudinal study of perinatal depression among Chinese high-risk pregnant women

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**ABSTRACT**

Background: Information is needed on the prevalence of depression in Chinese women with medically defined complications across the perinatal period, as well as key risk factors to develop appropriate perinatal mental health services and ensure the services target those most in need.

Aim: The goal of this study was to examine whether women’s perinatal depression scores change across the perinatal period and evaluate risk factors associated with postnatal depression at 6-weeks after delivery.

Methods: A sample of 167 Chinese pregnant women with medically defined complications and an Edinburgh Postnatal Depression Scale $\geq 9$ and/or a Postpartum Depression Screening Scale $\geq 60$ were followed throughout early pregnancy (<28 weeks), late pregnancy (>28 weeks), 3-days and 6-weeks after delivery.

Findings: Repeated measures analysis of variance showed that there were significant differences on the Edinburgh Postnatal Depression Scale and Postpartum Depression Screening Scale scores at each time point between high-risk depressed and low-risk depressed groups. Binary logistic regression indicated a significant association between postnatal depression at 6-weeks after delivery and depression in late pregnancy and 3-days after delivery, postnatal stress events, postnatal complications, and concerns about the fetus.

Conclusions: Postnatal depression is a common condition with limited research among Chinese pregnant women with medically defined complications. Additional research is warranted to develop strategies to identify high-risk depressed pregnant women as well as effective treatment options during the perinatal period.

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**Statement of significance**

Problem or issue

There is a gap in the literature and a need to explore the prevalence of perinatal depression throughout pregnancy as well as risk factors associated with depression among Chinese pregnant women with medically defined complications.

**What is already known**

Women with medical disorders do have considerably more depression and the association between depression and perinatal risk factors is well established, but most prior studies have not focused on pregnant women with medically defined complications and only a few studies had consistent findings.

**What this paper adds**

Chinese pregnant women with medically defined complications and higher Edinburgh Postnatal Depression Scale and Postpartum Depression Screening Scale scores at early pregnancy, also have higher scores at late pregnancy, 3-days and 6-weeks after delivery, thus, early identification of...
depressive symptoms may lead to appropriate treatment and help protect maternal and fetal health.

1. Introduction

1.1. Background

It is well documented that perinatal depression is common among the general population and in women with medically defined complications in pregnancy, with a prevalence of 10%–15% in the general population, and a higher prevalence of 37% in pregnant women with medical complications in China. Without medical complications; these findings have been described as more at risk for severe psychological problems. Some studies demonstrated that women with medical disorders do have considerably more depression than pregnant women without medically defined complications. King et al. recruited 120 pregnant women (60 with a known medical disorder and 60 without) attending the antenatal clinics of Queen Charlotte’s and Chelsea Hospital, London, and found that pregnant women with a medical disorder demonstrated a higher score on the Edinburgh Postnatal Depression Scale (EPDS) in comparison to healthy controls: 26.7% had a score of 13 or higher compared to only 6.7% of the healthy controls. Xie et al. compared the depression status between 42 pregnant women with medically defined complications and 40 pregnant women without medically defined complications in China with the EPDS and the results demonstrated that the prevalence of depression among pregnant women with complications was 30.9% at 32–36 weeks, 42.9% at 1 week before delivery, 23.8% at 1 week after delivery, and 26.2% at 6-weeks after delivery; all of these values were higher than the pregnant women without medically defined complications.9

Maternal and child health programs throughout the United States have emphasized the importance of depression screening and intervention during and around the time of pregnancy, particularly in groups deemed to be at elevated risk. Women who face pregnancy complications may require hospitalization in a high-risk pregnancy unit or an increased number of medical admissions and examinations, and this may have a negative impact on their mental health and further increase the stress burden of a complicated pregnancy. Thus, there is recognition within the Chinese health system that effective perinatal mental health services is lacking. Information is needed on the prevalence of depression across the perinatal period and key risk factors to develop appropriate perinatal mental health services and ensure the services target those most in need.

1.2. Risk factors for perinatal depression

Many studies have found that risk factors for postnatal depressive symptoms among women with pregnancies without medically defined complications include maternal age, chronic health problems, antenatal depression and anxiety, lack of social support, stressful life events, an unwanted pregnancy, socioeconomic characteristics, and poverty. In addition, Clarke et al. reported other factors related to perinatal mental disorders among postnatal mothers, such as severe food insecurity, multiple births, caesarean section deliveries, serious perinatal health problems, illiteracy of the mother, poor antenatal care and never having a son. Although the association between depression and perinatal risk factors is well established, most of the studies were not focused on pregnant women with medical complications and only a few studies had consistent findings. The multiple factors contributing to antenatal depression, the scarcity of knowledge, and the limited attention to women’s mental health may be aggravating the depressive symptoms and limiting the development of interventions. For instance, in China, despite the high prevalence of perinatal depressive symptoms in high-risk pregnant women, mental healthcare among pregnant women with medical complications is not prioritized in clinical care or research. There is therefore a gap in the literature and a need to explore the prevalence of perinatal depression throughout pregnancy as well as risk factors associated with depression among Chinese pregnant women with medical complications. These findings will contribute to the development of effective interventions for this vulnerable population.

1.3. Purpose

The aim of this study was, (1) to identify risk factors that contribute to women’s postnatal depression at 6-weeks after delivery and, (2) to evaluate the EPDS and Postpartum Depression Screening Scale (PDSS) score changes from the antenatal to postnatal period among pregnant women with medically defined complications and risk of postnatal depression.

2. Study design and participants

This is a prospective longitudinal study. Recruitment of the participants was conducted between November 2014 and August 2015. Participants were considered eligible for the study if they met the following criteria: (1) pregnancy with medically defined complications, (2) less than 28 gestational weeks, (3) have EPDS ≥ 9 and/or PDSS ≥ 60, (4) primigravida, (5) deliver in the Fudan University affiliated Obstetrics and Gynecology Hospital, and (6) attend a medical appointment at 6-weeks postnatal in the Fudan University affiliated Obstetrics and Gynecology hospital. Those diagnosed with intellectual disabilities were excluded.

The High-risk Pregnancy Scoring Criteria in Shanghai is a classification system in which each pregnancy with medical complications is scored as 5, 10, or 20 based on its severity (Shanghai High-risk Grading Criteria, nd). Different obstetric complications and their respective severity are scored individually. For example, mild gestational hypertension is scored 5, moderate is scored 10, and severe complicated preeclampsia is scored 20. If a participant has two or more complications, then the scores are added together. For instance, a participant diagnosed with moderate gestational hypertension (scored 10) and macrosomia (scored 10) would have a total score of 20. Participants enrolled in this study had to have a diagnosis of medically defined complication that is part of the scoring criteria but no cut-off score was enforced.

3. Ethical considerations

Ethical approval was obtained from the Institutional Review Board (IRB) of Fudan University affiliated Obstetrics and Gynecology Hospital. Pregnant mothers with medically defined complications were asked and written consent was obtained after discussing the confidentiality, purpose, benefits, and possible risks of the study. During the study period, psychiatric consultation was available when requested by participants. If a participant had an episode of increased depressive symptoms, medical care was administered and the participant was provided with a referral to the psychiatry clinic in Fudan University affiliated Hushan Hospital.

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