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## Severe Antenatal Depressive Symptoms Before and After the 2008 Wenchuan Earthquake in Chengdu, China

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#### **ABSTRACT**

**Objective:** To investigate the prevalence and correlates of severe antenatal depressive symptoms among pregnant women in Chengdu before and after the Wenchuan earthquake.

Design: An exploratory and comparative cross-sectional study.

Settings: Four regional public hospitals in Chengdu located 90 km from the epicenter of the Wenchuan earthquake.

Participants: The convenience sample was composed of 1,156 pregnant women at 12 to 24 weeks' gestation.

**Methods:** The women were identified as having depressive symptoms using the Edinburgh Postnatal Depression Scale (EPDS). Marital conflict and parent-in-law conflict were assessed using the Dyadic Adjustment Scale (DAS) and the Stryker Adjustment Checklist (SAC), respectively. The Interpersonal Support Evaluation List (ISEL) was used to measure the functional aspects of the perceived availability of social support.

**Results:** Using the EPDS with a cutoff score of 14/15 for severe symptoms of depression, 9.2% and 7.1% of the women screened positive before and after the earthquake. Women who had been married for a shorter time were more likely to have depressive symptoms before the earthquake; those who had lived in Chengdu for a shorter period and who had more infants were more likely to suffer after it. Marital conflict and lack of social support were consistent risk factors before and after the earthquake.

**Conclusion:** Additional research is needed to investigate the long-term, earthquake-related psychopathology. Nurses should receive more education about disaster-related psychological health skills to provide more effective prenatal screening and intervene successfully to assist women to optimize their psychological health status after a disaster.

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n May 12, 2008, an earthquake measuring 8.0 on the Richter scale hit the Chinese province of Sichuan. Official figures indicated that more than 69,000 people died, with 370,000 injured and 18,000 missing and presumed dead (Chan, 2008). Pregnant women may be vulnerable to post-disaster psychopathology (Hibino et al., 2009), and there is evidence that the experience of living through an earthquake is associated with serious consequences such as fetal malformations, low birth weight, and preterm infants (Tan et al., 2009; Xiong et al., 2008). There is also some evidence that pregnant women exposed to such a disaster may be at greater risk of psychological morbidity (Hibino et al.), negative pregnancy intention (Liu, Han, Xiao, Ma, & Chen, 2010), and inadequate antenatal care (Harville, Xiong, & Buekens, 2009). Therefore, the

impact of the earthquake on pregnancies in the region merited closer investigation. Although several publications have documented maternal vulnerability to earthquakes, few studies have fully examined the prevalence and correlates of earthquake-related depressive symptoms among pregnant women (Hibino et al.; Liu et al.).

### Prevalence Rates of Earthquake-Related Depressive Symptoms During Pregnancy

Depression is the second most common disorder to emerge in the aftermath of a disaster (Norris et al., 2002). Collectively, the prevalence of earthquake-related depression ranges from 11% to 42% (Aker,

2006) and of antenatal depression from 10% to 52% (Leung & Kaplan, 2009). To our knowledge, only one small, sample-based study has reported on minor psychiatric morbidity after an earthquake, reporting that 29.2% of pregnant women were affected (Chang, Chang, Lin, & Kuo, 2002). Therefore, it is difficult to interpret the phenomena of earthquake-related, severe, depressive symptoms during pregnancy. Theoretically, traumatic experiences may result in positive and negative adjustment (Lindgaard, Iglebaek, & Jensen, 2009; Yu, Lau, Zhang, Mak, & Choi, 2010), so data on the prevalence rate among pregnant women before and after an earthquake is equivocal.

Antenatal depression is a significant issue because research indicates that there is a risk of potentially devastating adverse consequences for mothers and their families (Dossett, 2008), particularly among those suffering from severe depressive symptoms. Inadequate treatment and inappropriate intervention in severe cases may be fatal because of the risk of suicide (Gausia, Fisher, Ali, & Oosthuizen, 2009). Therefore, the identification of antenatal depressive symptoms is important for early detection and developing effective therapeutic interventions.

### Demographic, Socioeconomic, and Obstetric Factors

Although an earthquake may have a significant impact on pregnant women, not all pregnant women will suffer depressive symptoms. Apart from the nature and intensity of the disaster, demographic, socioeconomic, and obstetric factors may be associated with antenatal depressive symptoms. Factors recently found to be associated with such symptoms include being younger (Pottinger, Trotman-Edwards, & Younger, 2009), low levels of education (Bunevicius et al., 2009), being a newly arrived immigrant (Gagnon et al., 2009), being single (Lara-Cinisomo, Griffin, & Daugherty, 2009), suffering financial hardship (Leigh & Milgrom, 2008), living in poor accommodations (Kitamura et al., 2006), and maternal employment (Karmaliani et al., 2009). Furthermore, an unwanted (Karmaliani et al.) or first pregnancy (Records & Rice, 2007), a first infant (Dhillon & MacArthur, 2010), late antenatal booking (Kim et al., 2006), and negative attitudes to breastfeeding (Leung & Kaplan, 2009) all increase the risk of suffering antenatal depressive symptoms. Although evidence for these risk factors has been found among pregnant women, their applicability to mainland Chinese populations before and after an earthquake is a matter of debate.

The prevalence of severe antenatal depressive symptoms among pregnant women in Chengdu was lower in the 3 months immediately after the earthquake.

## Marital Conflict and Antenatal Depressive Symptoms

Becoming a mother is a life-changing experience that can make a woman feel uncertain, insecure, and unstable, contributing to symptoms of tension, anxiety, and distress (Meleis, 2007). Studies suggest that couples experience a decline in marital satisfaction after parenthood (Medina, Lederhos, & Lillis, 2009). The adverse effects of an earthquake can include marital conflict (Lindgaard et al., 2009) as well as a decreased frequency of sex (Liu et al., 2010). As the world continues to experience natural disasters, understanding more about how the marital relationship changes in their aftermath is important in enabling us to identify relationships that may be at risk. However, there is little research data on marital conflict among pregnant women in mainland China. Establishing the magnitude of the association between depression and marital conflict will help to provide a solid foundation for treatment recommendations in terms of marital conflict itself and associated depression (Brock & Barnard, 2009).

# Social Support and Antenatal Depressive Symptoms

Perinatal researchers have found a lack of social support to be an important factor related to the frequency of depressive symptoms during pregnancy (Spoozak, Gotman, Smith, Belanger, & Yonkers, 2009). Trauma studies (Wang et al., 2009; Wu, Chen, Weng, & Wu, 2009) have also found that social support is one of the most important risk/protective factors for coping with an earthquake or other natural disasters. Previous studies have demonstrated dysfunction in social support because of the loss of support systems following an earthquake (Toyabe et al., 2006; Wang et al.). In contrast, other evidence shows that social support is beneficial regardless of the level of victimization experienced after a natural disaster (Bokszczanin, 2008). Regrettably, existing evidence about social support in the context of earthquakes mainly focuses on the elderly (Toyabe et al.) or adolescents (Wu et al.). Fewer studies have been conducted focusing on pregnant women, where the patterns of association may differ.

Although a substantial body of research focuses on postdisaster mental health, little is known about the

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