Factors Related to Psychological Distress in Multiparous Women in the First Trimester: A Cross-Sectional Study

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ABSTRACT

Background: The birth rate in Taiwan has declined rapidly; thus, encouraging women to give birth is an important issue in the country. Pregnant women may experience psychological distress, which may negatively impact the health of children and mothers. Prenatal psychological distress is more common in multiparous women than in primiparous women. In addition, compared with that in the second and third trimesters, psychological distress in the first trimester is relatively high. Understanding psychological distress and the associated factors for multiparous women in the first trimester is important to providing early interventions and preventing subsequent maternal and child health problems.

Purpose: This study was designed to examine the important predictive factors related to depression, anxiety, and stress among Taiwanese multiparous women in the first trimester.

Methods: A cross-sectional design was used. In all, 216 multiparous women at 16 weeks of pregnancy were recruited from three hospitals in Taiwan. Self-reported questionnaires were used to gather data on demographic characteristics, the parenting stress of motherhood, spousal support, and psychological distress. A multiple logistic regression analysis was conducted to examine the factors associated with psychological distress.

Results: The prevalence of depression, anxiety, and stress in multiparous women was found to be 31.9%, 42.6%, and 11.1%, respectively. The multiple logistic regression analysis indicated that the stress related to parent–child interaction was a significant predictor of depression and anxiety, the stress related to child-rearing was a significant predictor of anxiety, and low spousal instrumental support was a significant predictor of stress. The model respectively explained 30%, 27%, and 23% of the variance in depression, anxiety, and stress.

Conclusions/Implications for Practice: Reducing the stress related to parent–child interaction and child-rearing and encouraging spousal instrumental support should be considered during prenatal care when designing interventions to reduce the psychological distress of multiparous women in their first trimester.

Key Words: psychological distress, first trimester, spouses, parenting stress of motherhood, multiparous women.

Introduction

According to the Department of Household Registration, Ministry of the Interior (2019), the birth rate and newborn numbers have declined rapidly. Thus, encouraging women to give birth is an important issue in Taiwan. Pregnant women experience intense physical and psychological changes, which have a major impact on their psychological health and result in psychological distress (Bjelica et al., 2018). Psychological distress during pregnancy may influence fetal development and have long-term health consequences for children and mothers (Isgrut et al., 2017; Obrochta et al., 2020). Prenatal psychological distress is more common in multiparous women than in primiparous women (Bales et al., 2015). In addition, psychological distress in the first trimester is relatively high compared with that in the second and third trimesters (Glasheen et al., 2015). Therefore, understanding psychological distress and the associated factors for multiparous women in the first trimester will facilitate the provision of early interventions and prevent subsequent maternal and child health problems.

Depression, anxiety, and stress are the most common symptoms of psychological distress (Rallis et al., 2014), which, while having different meanings and characteristics, often occur simultaneously (Lovibond & Lovibond, 1995). Depression is a state typified by low mood and aversion to activity. It may lead to a variety of emotional and physical problems and result in a decreased ability to function (Niknamian, 2019). Anxiety is a natural response to stress that presents as a feeling of fear, apprehension, and/or nervousness about the present and future (American Psychiatric Association, 2013).
Stress is a bodily response to any type of demand or threat (Niknamian, 2019). Each of these three symptoms must be individually evaluated, and each may have different influencing factors (Lovibond & Lovibond, 1995). Few studies have examined the prevalence of depression, anxiety, and stress among multiparous women in the first trimester. In a previous study, the prevalence of depression and anxiety was revealed to be higher in multiparous women than primiparous women during the entire course of pregnancy and even into the postpartum period (Canário & Figueiredo, 2017). Another study reported rates of prevalence of depression, anxiety, and stress of 45.5%, 47.4%, and 51.8%, respectively, in Icelandic women in their first trimester (Jonshottir et al., 2017). A study in Taiwan reported that 21.05% and 22.22% of pregnant women, respectively, experienced depression and anxiety in the first trimester and that 37.59% and 36.07% of multiparous women experienced depression and anxiety, respectively, during pregnancy (Chuang, 2012). To the best of the authors’ knowledge, only a few studies have reported on the prevalence of stress among multiparous women in their first trimester in Taiwan.

Psychological distress is a response to stress (Ridner, 2004), whereas parenting stress results from the demands associated with the parenting role (Deater-Deckard, 1998). Multiparous women may face higher levels of parenting stress because of their child caring responsibilities (Noll et al., 2018). The parenting stress of motherhood mostly derives from child-rearing, the external environment, parent-child interactions, life adjustment, and interpersonal interactions (Wang, 2018). Parenting stress was suggested in a previous study to be positively correlated to psychological distress in mothers (Yeo & Lu, 2012). The relationship between psychological distress and the parenting stress of motherhood in multiparous women during the first trimester needs to be verified further.

The stress-buffering hypothesis assumes that social support buffers the impact of stress on health outcomes (Cassel, 1976). Effective social support has been considered to protect individuals from developing psychological distress problems when they encounter a stressor (S. Cohen, 1992). Support received from one’s intimate partner is a particularly vital resource, as spousal support has a greater impact on physical and mental health during pregnancy than support received from outside the intimate relationship (Cheng et al., 2016). Spousal support, which is the support and assistance received from one’s partner, includes instrumental and emotional support (Teng, 2009). Instrumental support is the support received in solving practical problems, whereas emotional support is the support involving the provision of care, trust, and empathy (Morelli et al., 2015). A previous study reported low spousal support in early pregnancy as associated with increased rates of high pregnancy-related depression and anxiety (Cheng et al., 2016). Thus, spousal support should not be neglected when exploring the factors related to psychological distress in multiparous women during the first trimester.

Many demographic characteristics have been found to be associated with psychological distress in pregnant women, with, for example, negative correlations found between psychological distress and, respectively, gestational age, family income, and maternal educational level (Nagandla et al., 2017; Vehmeijer et al., 2020). These demographic characteristics should be considered when exploring the factors associated with psychological distress in multiparous women during the first trimester.

The aims of this study were to (a) examine the associations of demographic characteristics, parenting stress of motherhood, and spousal support with psychological distress among Taiwanese multiparous women during the first trimester and (b) identify important predictive factors related to psychological distress in multiparous women during the first trimester in Taiwan.

Methods

Study Design

A cross-sectional design was employed in this study. Multiparous women who were receiving prenatal care were recruited using convenience sampling from one regional teaching hospital, one district hospital, and one local clinic in the northern and central regions of Taiwan, respectively. Multiparous women aged > 20 years with a gestational age of 16 weeks who were able to read and speak Mandarin were eligible for inclusion. Otherwise, eligible women were excluded if they had been diagnosed with a mental health disorder. On the basis of an alpha level of .05, a power of .08, and a small effect size of .15 for bivariate correlation, the required target sample size was 191 participants (J. Cohen, 1988). In all, 216 eligible women completed the study. Data were collected from October 2018 to March 2019.

Data Collection

Eligible women were referred by physicians. Before beginning the study, the researchers obtained informed consent from all of the participants and informed them that the questionnaire was anonymous and free from coercion based on their rights. The participants then signed the consent form and completed the questionnaire in the health education room. The institutional review board of Kaohsiung Medical University approved the conduct of this study in the three selected hospitals (KMUHIRB-SV[II]20180048).

Measures

A self-reported questionnaire, described in detail below, was used to collect the study data.

Demographic characteristics

The demographic characteristics collected included age, years of marriage, the number of children and total members in the household, the respondent’s employment status, the educational level of the respondent and her spouse, household monthly income, family type, and history of pregnancy complications (yes/no).
Psychological distress

A 21-item Chinese version of the Depression Anxiety Stress Scales (DASS-21) was used to assess the symptoms of depression, anxiety, and stress (Moussa et al., 2001). The original DASS-21 was designed by Lovibond and Lovibond (1995) and was translated into Chinese by Moussa et al. (2001). The Chinese version of the DASS-21 has been used in many studies of psychological health in pregnant women in Hong Kong and China (Chan et al., 2019; Sun et al., 2019). Each symptom was measured using seven items, with each item scored from never (0) to almost always (3), giving a possible score range of 0–21 for each of the three symptom types. These scores were subsequently multiplied by 2 to produce a possible score range of 0–42 for each symptom type, with higher scores indicating greater depression, anxiety, or stress level. Following the suggestion of Lovibond and Lovibond, severity of depression was divided into normal (no depression; ≤ 9), mild (10–13), moderate (14–20), severe (21–27), and extremely severe (≥ 28). Similarly, severity of anxiety was divided into normal (≤ 7), mild (8–9), moderate (10–14), severe (15–19), and extremely severe (≥ 20), and severity of stress was divided into normal (≤ 14), mild (15–18), moderate (19–25), severe (26–33), and extremely severe (≥ 34). In this study, Cronbach’s α values were .78, .76, .81, and .91 for the depression, anxiety, stress, and total scales, respectively.

Parenting stress of motherhood

A 24-item Chinese version of the Parenting Stress Scale was used to measure stress related to child-rearing (six items), external environment (five items), parent–child interaction (five items), life adjustment (four items), and interpersonal interactions (four items; Wang, 2018). Each item was scored from strongly disagree (1) to strongly agree (5), with higher scores indicating higher perceived parenting stress. In this study, the Cronbach’s α values were .89, .71, .86, .85, and .74, respectively, for the child-rearing, external environment, parent–child interaction, life adjustment, and interpersonal interactions subscales and .91 for the total scale.

Spousal support

The eight-item Chinese version of the Spousal Support Scale was used to measure the levels of spousal instrumental support (four items) and emotional support (four items; Teng, 2009). Each item was scored from strongly disagree (1) to strongly agree (5), with higher scores indicating greater spousal support. In this study, the Cronbach’s α values were .88, .89, and .91, respectively, for the emotional, instrumental, and total scales.

Data Analysis

Descriptive statistics were used to describe the study variables, and Pearson product–moment correlations were utilized to assess the relationships among the study variables. Multiple logistic analyses were used to examine the important predictive factors related to depression, anxiety, and stress, with a p value of < .05 interpreted as statistically significant. IBM SPSS Statistics for Windows, Version 26 (IBM, Inc., Armonk, NY, USA) was used for data analysis.

Results

Descriptive Background Analysis

The average age of the participants was 33.4 years (range: 22–49 years, SD = 5.13), and most of the participants had been married for less than 5 years (69.0%), had one child in the household (83.8%), and had three members (the woman, her husband, and one additional child) in the household (55.1%). In addition, most were employed full-time (65.7%), had a university or above level of education (84.8%), had husbands with a university or above level of education (84.2%), had a household monthly income higher than 50,000 New Taiwan dollars (86.6%), lived in a nuclear family (66.2%), and had no history of pregnancy complications (81.0%; Table 1).

Distribution of Depression, Anxiety, and Stress; Parenting Stress of Motherhood; and Spousal Support

The mean scores for depression, anxiety, and stress were 6.57 (SD = 5.00), 6.75 (SD = 5.05), and 8.18 (SD = 5.28), respectively. Overall, 31.9%, 42.6%, and 11.1% of the participants experienced mild to extremely severe depression, anxiety, and stress symptoms, respectively, whereas 47.2% of participants experienced one or more symptoms of psychological distress (Table 2).

The mean item scores for total scale and subscales of parenting stress of motherhood and spousal support are shown in Table 3. The mean item scores were calculated by summing the scores for each item and dividing them by the total number of response items. For parenting stress of motherhood, the item mean scores for stress related to external environment was the highest, followed by stress related to child-rearing, life adjustment, and interpersonal interactions. The stress related to parent–child interaction was the lowest. Regarding the two types of spousal support, the item mean scores for instrumental support were higher than those for emotional support.

Relationship of Parenting Stress of Motherhood and Spousal Support with Psychological Distress

As shown in Table 3, each subscale of parenting stress of motherhood was significantly and positively associated with depression, anxiety, and stress. Moreover, spousal emotional support was significantly and negatively associated with depression, and spousal instrumental support was negatively associated with stress.
Important Predictive Factors of Psychological Distress

Multiple logistic regression analysis was used to identify the predictive factors significantly related to depression, anxiety, and stress. In the multiple logistic regression, depression, anxiety, and stress were dichotomized into “with” (mild, moderate, severe, and extremely severe) and “without” symptoms. Spousal support was dichotomized based on each item’s score. The sum of the midpoint value (24 points) was set as the cutoff point, with higher total scores associated with higher levels of spousal support. The odds ratios (ORs) and their corresponding 95% confidence intervals (CIs) were estimated. The tolerance value and variance inflation factor were used to examine the multicollinearity of the independent variables, with results showing that all of the variables had a tolerance value greater than 0.10 and a variance inflation factor value less than 10, indicating no collinearity among the independent variables.

The results indicate that stress related to parent–child interaction (OR = 1.21, p < .01) is an important predictive factor in depression, meaning that higher levels of stress related to parent–child interaction are associated with a higher risk of depression. The stresses related to child-rearing (OR = 1.11, p < .05) and parent–child interaction (OR = 1.14, p < .05) were shown to be important predictive factors in anxiety, indicating that high stress related to child-rearing and stress related to parent–child interaction are associated with a higher risk of anxiety. Low spousal instrumental support (OR = 4.51, p < .05) was found to be an important predictive factor in stress, indicating an association between low spousal instrumental support and a higher risk of stress. Specifically, low spousal instrumental support increased the odds of stress by 4 times compared with high spousal instrumental support. The model explained 30%, 27%, and 23% of the total variance in depression, anxiety, and stress, respectively (Table 4).

Discussion

Overall, 31.9%, 42.6%, and 11.1% of the participants in this study experienced symptoms of depression, anxiety, and stress, respectively, in their first trimester. As noted, few studies have examined psychological distress in multiparous

| Variable | n | % |
|----------|---|---|
| Age (years) | | |
| 22–34 | 129 | 59.7 |
| ≥ 35 | 87 | 40.3 |
| Years of marriage | | |
| 0–5 | 149 | 69.0 |
| ≥ 6 | 67 | 31.0 |
| Number of children in the household | | |
| 1 | 181 | 83.8 |
| ≥ 2 | 35 | 16.2 |
| Number of members in the household | | |
| 3 | 119 | 55.1 |
| ≥ 4 | 97 | 44.9 |
| Employment | | |
| Full-time | 142 | 65.7 |
| Part-time and unemployed | 74 | 34.3 |
| Educational level of participant | | |
| Senior high school and below | 33 | 15.2 |
| University and above | 183 | 84.8 |
| Educational level of spouse | | |
| Senior high school and below | 34 | 15.8 |
| University and above | 182 | 84.2 |
| Household monthly income (New Taiwan dollars) | | |
| ≤ 50,000 | 29 | 13.4 |
| > 50,000 | 187 | 86.6 |
| Family type | | |
| Nuclear family | 143 | 66.2 |
| Three-generation family and extended family | 73 | 33.8 |
| History of pregnancy complications | | |
| No | 175 | 81.0 |
| Yes | 41 | 19.0 |

Table 1

Distribution of Participant Demographic Characteristics (N = 216)

| Variable | n | % |
|----------|---|---|
| Psychological total scale (M and SD) | 22.93 | 14.89 |
| Depression (M and SD) | 6.57 | 5.00 |
| No | 147 | 68.1 |
| Mild | 45 | 20.8 |
| Moderate | 22 | 10.2 |
| Severe | 2 | 0.9 |
| Extremely severe | 0 | 0 |
| Anxiety (M and SD) | 6.75 | 5.05 |
| No | 124 | 57.4 |
| Mild | 30 | 13.9 |
| Moderate | 50 | 23.1 |
| Severe | 9 | 4.2 |
| Extremely severe | 3 | 1.4 |
| Stress (M and SD) | 8.18 | 5.28 |
| No | 192 | 88.9 |
| Mild | 17 | 7.9 |
| Moderate | 7 | 3.2 |
| Severe | 0 | 0 |
| Extremely severe | 0 | 0 |
| Number of symptoms of depression, anxiety, and stress | | |
| 0 | 114 | 52.8 |
| 1 | 40 | 18.5 |
| 2 | 41 | 19.0 |
| 3 | 21 | 9.7 |

Table 2

Distribution of Depression, Anxiety, and Stress (N = 216)
women specifically in the first trimester. Without considering parity, a previous study by Chuang (2012) found rates of depression and anxiety in the first trimester of 21.05% and 22.22%, respectively, in Taiwan. An Iranian study revealed the prevalence of depression, anxiety, and stress as 22.8%, 17.3%, and 19.8%, respectively, in the first trimester (Effati-Daryani et al., 2018). In Portugal, Figueiredo and Conde (2011) reported the prevalence of depression and anxiety to be 13.1% and 20.0%, respectively, in the first trimester. These findings suggest that multiparous women experience higher psychological distress than pregnant women, without considering parity in the first trimester, which requires further studies to confirm this outcome. In this study, depression and anxiety were found to be the most common types of psychological distress in multiparous women during the first trimester. Therefore, providing preventive interventions to address depression and anxiety is important for health professionals.

In this study, 47.2% of the participants experienced at least one symptom of psychological distress in the first trimester. This was higher than the percentage reported by Nagandla et al. (2017) in Malaysia, which found that 23.6% and 24.7% of pregnant women experienced at least one symptom of psychological distress in the second and third trimesters, respectively, without considering parity. Regardless of cultural background, the prevalence of psychological distress of multiparous women in the first trimester seemed to be higher than that in the second and third trimesters. Given that prenatal psychological distress has been shown as significantly associated with postnatal psychological distress, especially among women with more than one type of psychological distress in pregnancy (Obrochta et al., 2020), early assessments and intervention in psychological distress of multiparous women in the first trimester should be considered.

In this study, each parenting stress of motherhood subscale was found to be significantly associated with depression, anxiety, and stress in the first trimester. Without considering parity, this finding is similar to that of Vismara et al. (2016), who reported that parenting stress was associated with depression and anxiety of primiparous women in the postpartum period. Multiparous women usually have multiple role stresses and responsibilities such as taking care of other children and family members and maintaining social relationships (Volling et al., 2015) that may increase levels of depression, anxiety, and stress. In addition, the findings of this study revealed that the level of stress related to parent–child interaction was the lowest among the five dimensions of parenting stress of motherhood. Nevertheless, high stress related to parent–child interaction was found to increase the risk of depression and anxiety in the first trimester. Previous research considered that the advent of a second child may lead to tremendous pressure for multiparous women because of the impact on her relationship with her other children (Kuo et al., 2017). Multiparous women may be expected to experience low mood related to the possibility of feeling frustrated or powerless when they had poor communication and relationships with their children (Volling, 2012), which may then interfere with their ability to adequately adjust psychologically (Chapman & Hart, 2017). When children do not perform or behave in accordance to expectations, multiparous women may ascribe this to neglectful or uninvolved parenting (Abidin, 1990). This may further elevate their level of experienced anxiety.

### Table 3

| Variable                           | M     | SD    | Psychological Distress (r) |
|------------------------------------|-------|-------|---------------------------|
|                                    |       |       | Depression | Anxiety | Stress | Total |
| Parenting stress of motherhood     |       |       |        |        |        |        |
| Child-rearing                      | 3.04  | 0.84  | .368*** | .448*** | .438*** | .435*** |
| External environment               | 3.13  | 0.94  | .272*** | .367*** | .375*** | .358*** |
| Parent–child interaction           | 1.97  | 0.68  | .197**  | .290*** | .299*** | .279*** |
| Life adjustment                    | 2.98  | 0.94  | .314*** | .370*** | .322*** | .334*** |
| Interpersonal interactions         | 2.67  | 0.77  | .325*** | .356*** | .353*** | .360*** |
| Spousal support                    |       |       | .329*** | .328*** | .311*** | .331*** |
| Emotional support                  | 3.94  | 0.64  | −.158*  | −.097  | −.146*  | −.157*  |
| Instrumental support               | 4.00  | 0.74  | −.140*  | −.080  | −.126   | −.130*  |
|                                    |       |       | −.129   | −.096  | −.140*  | −.146*  |

*p < .05. **p < .01. ***p < .001.
during the first trimester. In summary, strengthening the ability of these women to adjust to their parent-child interaction and child-rearing stresses may help minimize the depression and anxiety experienced by multiparous women in the first trimester.

Furthermore, the findings of this study revealed that instrumental support rather than emotional support from spouse is an important predictive factor for stress among multiparous women in the first trimester. Edmonds et al. (2011) also reported that, even more than emotional support, multiparous women wanted practical assistance from their spouse such as sharing household duties and assisting in child-rearing because this type of assistance allowed time for rest and the opportunity to reduce stress. These findings echoed the statement of the stress buffering hypothesis and indicated that spousal support, especially instrumental support, may decrease the risk of stress in multiparous women during the first trimester. Thus, strategies that strengthen instrumental support from a woman’s spouse are likely to be beneficial to reducing stress in multiparous women in the first trimester.

**Limitations**

Because this study recruited multiparous women from three hospitals in Taiwan only, it should not be generalized to all multiparous women in the first trimester in Taiwan or other...
countries. Therefore, it is necessary to recruit a variety of multiparous women to understand the generalizability of this study. In addition, family structure, family function, and socioeconomic status have been identified as associated with psychological distress during pregnancy (Adhikari et al., 2020; González-Mesa et al., 2019). Further studies are required to confirm the associations between these variables and psychological distress in multiparous women in the first trimester. This was a cross-sectional study, which cannot provide information about causal relationships among variables. Longitudinal and experimental studies are required to confirm causal relationships among the parenting stress of motherhood and spousal support with the psychological distress of multiparous women in the first trimester.

Conclusions
In this study, we showed the prevalence of psychological distress and the important predictive factors among multiparous women during their first trimester in Taiwan. Considering that 47.2% of the participants experienced at least one symptom of psychological distress in the first trimester, early screening of psychological distress in multiparous women during the first trimester should be taken seriously by healthcare providers. Moreover, we found that parenting stress, particularly that related to parent–child interaction and child-rearing, is more important than spousal support (e.g., instrumental support) as a predictor of depression and anxiety in multiparous women during the first trimester. In contrast, spousal instrumental support is more important than the stress related to parent–child interaction and child-rearing as a predictor of stress. These findings imply that different symptoms of psychological distress have different influencing factors and thus must be individually evaluated and intervened. Prenatal educational programs for multiparous women in the first trimester may strengthen their ability to manage the stresses related to parent–child interaction and child-rearing to reduce depression and anxiety. Furthermore, healthcare providers should encourage multiparous women’s spouses to provide instrumental support to decrease the stress perceived by these women in the first trimester.

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Author Contributions
Study conception and design: SWW, RHW
Data collection: SWW
Data analysis and interpretation: SWW, JLC, RHW
Drafting of the article: All authors
Critical revision of the article: JLC, RHW

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