REVALIDATION OF THE HUNG POSTPARTUM STRESS SCALE

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DEDICATIONS

To my husband, Bing-Huan,

for his support, understanding, and patient;

to my children, Wan-Zhen and Geng-Dao,

for whom I wish happiness and success in life;

to my mentor, Professor Hsin-Hsin Chung,

for her constant support and faith in me;

to the rest of my family and friends

for their encouragement.

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ABSTRACT

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The postpartum period, or puerperium, is a transitional and potentially stressful time during which women need to face both the new tasks of the maternal role and physiological changes in their bodies. Along with these adjustments are changes in the quality of social support needed by new mothers. These changes may trigger postpartum stress, which it may make it difficult for postpartum women to function effectively in their new maternal roles. Postpartum stress may also affect maternal health adversely during the postpartum period. The ability to identify postpartum stressors early in the course of childbearing could facilitate the development of approaches to relieve postpartum stress and perhaps prevent more severe postpartum health problems. The Hung Postpartum Stress Scale was constructed over 16 years ago using a sample of Taiwanese postpartum women in a different social context. Since then, it has been used for research in Taiwan. The purpose of this study is to revise and psychometrically test the Hung Postpartum Stress Scale for use in a greater number of contexts. Using a proportional stratified quota sampling of hospitals and clinics by birth rate, 861 women were sampled from clinics and hospitals in

Kaohsiung City, in southern Taiwan, thereby providing an approximately 1 to 10 ratio of items to subjects to test the construct validity, discriminant validity, and internal consistency of the revised Hung Postpartum Stress Scale. Exploratory common factor analysis was done. In contrast to earlier versions of the instrument, five factors of postpartum stress were found: "concerns about maternal role attainment," "concerns about activity changes," "concerns about lack of social support," "concerns about physical appearance," and "concerns about body function." The generalizability of the factors across the subgroups within the population showed high to moderately high coefficients of congruence by education level, employment status, planning status of the pregnancy, and number of children. The Hung Postpartum Stress Scale's use in practice and research is discussed.

Key words: validity and the Hung Postpartum Stress Scale

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Chapter I

Introduction

The postpartum period, or puerperium, is a transitional time and a potentially stressful one during which a woman needs to face both the new tasks of her maternal role and changes in her body. Along with these adjustments is change in the quality of social support needed by a new mother (Hung, Chang, & Chin, 1993; Mercer, 1986). These changes may make it difficult for the postpartum woman to function effectively in her new role as a mother and may be stressful (Affonso, Lovett, Paul, Sheptak, Nussbaum, Newman, & Johnson, 1992; Arizmendi & Affonso, 1987; Brown, 1986; Kline, Martin, & Deyo, 1998; Too, 1997; Wilson-Evered & Stanley, 1986). In addition, postpartum stress may adversely affect maternal health during the postpartum period (Too, 1997).

The postpartum period is characterized by dramatic changes and requires adjustments. As conditions of change, demand, or structural constraint may occur during this dramatic period, involving many difficulties or concerns, the postpartum period may evoke stress (Wandersman, Wandersman, & Kahn, 1980). During the postpartum period, major components of women's adjustment are physical restoration, mothering capability, attachment, and the reorganization of relationships with significant others (Gruis, 1977; Ruchala & Halstead, 1994). Women have to continue

to take care of many competing concerns, as well as begin recovery from childbirth and the care of a needy infant. Hung and her associates (1993; Hung, 2001a, 2001b; Hung & Chung, 2001) found that body changes, maternal role attainment, and social support are three components of postpartum stress.

Postpartum Stress Components

Body changes.

Researchers have found that women's concerns over body changes during the early postpartum period were related primarily to perineal sutures, breast care, body image, and fatigue (Fishbein & Burggraf, 1998). The dramatic physiologic changes accompanying delivery make women more vulnerable to the effects of stress on their health (Too, 1997). For most women, parturition is an intense physical experience. Immediately after giving birth, women experience pain and a feeling of tiredness as a result of the tremendous physiological changes which they experienced during the process. Discomfort from episiotomy may inhibit sexual relations and effective elimination of waste. Breast engorgement is also a source of discomfort and women may experience nipple soreness or the annoyance of leaking milk. A woman may be afraid to explore her body because of body changes after childbirth (Gruis, 1977).

Moreover, infant care involves around-the-clock attention, and prevents adequate maternal rest (Ruchala & Halstead, 1994). Not surprisingly, fatigue has often been a

common complaint among postpartum women (McVeigh, 1997; Ruchala & Halstead, 1994; Russell, 1974; Smith, 1989). Russell's study (1974) indicated that complaints of physical tiredness, fatigue, and distress over the changes in their bodies were foremost stressors for postpartum women.

Maternal role attainment.

The second major area in which postpartum stress may occur involves adapting to the new maternal role. In addition to caring for her infant, the woman must establish a relationship with her infant. The woman begins her attachment to her infant during pregnancy. After delivery, through touching and caring for the baby, she begins to identify her infant as a whole, separate individual (Anisfeld & Lipper, 1983). Thus, in the postpartum period she needs to learn about and understand her infant's unique patterns of crying, sleeping, feeding, and other behaviors. If she feels she is not achieving such maternal tasks, stress may follow.

Mothering capability involves the mother's sensitivity to the infant's behavioral cues and the mother's ability to respond appropriately (Crockenberg, 1981; Leitch, 1999). Women need to learn to care for and meet the needs of a newborn infant. If a woman is unable to soothe the infant's crying or is awkward in giving care, she may view herself as a failure (Ruchala & Halstead, 1994). Challenges to a mother's self-confidence may evoke stress (Hall, Kotch, Browne, & Rayens, 1996).

Social support.

The third aspect of postpartum stress involves lack of social support, which can be disaggregated into emotional, informational, instrumental, and appraisal categories (House, 1981). Emotional support affirms that one is accepted and valued as a person. Informational support provides advice in understanding and coping with a stressful event. Instrumental support provides assistance with money, resources, or services. Appraisal support provides social activities and the sharing of leisure pursuits (House, 1981).

Because of the importance of interdependence and support for family members in Taiwanese culture, family ties play an especially dominant role in Taiwanese social interaction. In Taiwanese culture the family is the basic unit of society, is a force to keep people together, and offers every member of the family unlimited warmth and power. A lack of social support from the family may induce stress. Reece's (1993) study found that social support from spouse and family was associated with both positive self-evaluation in parenting and lower stress. A woman's husband, family, and friends can provide the major source of feedback on how she is fulfilling the role of mother. The validation she receives from these individuals influences her role expectations.

Moreover, a lack of intimacy or negative relationships can induce stress and

therefore adversely affect women's health status and infant well-being during the postpartum period (Wandersman et al., 1980). Flagler's (1990) study indicated that postpartum women's self-descriptions of negative emotional feeling were related to poorer relationships with husbands, less life satisfaction, and less support for the maternal role. Miller and Sollie (1980) conducted a longitudinal study at six months of pregnancy and at one and eight months postpartum and found that, generally, both personal and marital stress increased among new mothers. Thus, a lack of social support may influence the woman's ability to view herself as competent and capable of carrying out her role responsibilities and consequently, raise the level of stress (Crockenberg, 1981). Crnic, Greenberg, Robinson, and Ragozin (1984) found that mothers' perceptions of social support were significant predictors of maternal attitudes and the quality of interaction with their infants.

Traditional Postpartum in Taiwan

The postpartum period represents a time in a woman's life with high potential stress. This stress consequently affects the postpartum woman's health status. The traditional Chinese ritual of Tso-Yueh-Tzu is thought of as an integrated intervention for maintaining the health status of postpartum women and is translated into English as "Doing the Month." The ritual of Tso-Yueh-Tzu in China clearly defines the rules of behavior for a woman in the first month after childbirth and permits her to receive

extra care from her family during that time. Since nothing could be more important than having offspring in Chinese society--which is based on a strong family system--women are rewarded for their participation in childbirth and given the sanction to rest for an entire month. The ritual also calls for an older family member to facilitate the recovery of the postpartum woman by promoting rest, nutrition, and physical well-being. Thus, the ritual is believed to prevent future illness and to maintain her health status.

In Taiwan, the traditional ritual during the postpartum period emphasizes rest and seclusion and explicitly recognizes the changed social status of the woman. The woman's confinement to the home for a full month after giving birth is a period of culturally sanctioned time for the mother to rest and recuperate in order to promote her physical recovery, ensure her health, and to improve her future well-being and harmony. Therefore, the woman is the center of attention, having both her physical and psychosocial care met by others. Moreover, family ties play a dominant role in Taiwanese social interaction. Traditionally, in Taiwan, the mother-in-law has been the postpartum woman's key helper (Hung, et al., 1993). However, in recent years, there has been a growing trend for the woman's own mother to be the key helper (Hung & Chung, 2001).

Changes in Postpartum Care

Rapid changes in family structure are occurring in Taiwanese culture because of the demise of the extended kinship family. Women today may lack assistance and resources at home to aid in recuperation during the puerperium (Hung, 2001b). The woman's own mother or mother-in-law may no longer provide assistance to the woman because they have a job, live at a distance, are too old, or have a strained relationship with their daughter or daughter-in-law. Although the ritual of Tso-Yueh-Tzu can be carried out in a Tso-Yueh-Tzu nursing center, which is a thriving business in Taiwan and affiliated with local hospitals, the financial cost is very high. The charge is about 2,400--3,200 NT Dollars or 75--100 US Dollars a day which is equivalent to three days of a Taiwanese worker's salary. According to Hung's study (2001b) only 7% of postpartum women stayed in the Tso-Yueh-Tzu nursing center.

In addition to this potentially decreased help from family, professional help in Taiwan is limited for the postpartum woman. The length of the postpartum stay has decreased in Taiwan because of the expense of hospital care and evidence indicating that early discharge does not result in increased risk of medical complications for women and newborns (Carty & Bradley, 1990; Lemmer, 1986; Edmonson, Stoddard, & Owens, 1997; Norr & Nacion, 1987). Short hospital stays, however, may result in inadequate time for assessment and detection of possible stressors for individual

women and limited time for postpartum teaching in the hospital setting. Health care systems provide several sources of information about postpartum care. However, this period may not be a good time for women to assimilate information about home care for themselves and their infants, as they are focused on their own immediate recovery needs (Brooten, Brown, Munro, York, Cohen, Roncoli, & Hollingsworth, 1988; Edmonson, Stoddard, & Owens, 1997).

Thus, postpartum women may encounter unpredictable and stressful experiences after discharge, such as an unhealed episiotomy, sore breasts, and unestablished lactation. The women may also lack realistic knowledge of support services available in the community (Fichardt, Wyk, & Weich, 1994; Fishbein & Burggraf, 1998). Consequently, physical care needs may go undetected and psychological difficulties may be overlooked completely. This may combine to cause postpartum stress and could have an effect on women's health (Too, 1997).

Accordingly, postpartum women need assistance by health care professionals through assessment and possible intervention regarding postpartum stress. It is necessary for a community health nursing perspective to assess postpartum stress and stressors in order to delineate nursing strategies that meet the postpartum needs of the women in the community. Thus, identifying postpartum stressors, assessing postpartum stress, creating primary prevention strategies, and offering nursing

interventions are all imperative for efficient, effective, and complete postpartum nursing care.

Postpartum Stress Research

Despite its potential effects on the health status of postpartum women, postpartum stress has received only limited scholarly attention. What has been reported has focused largely on stress from general life events rather than specifically on stress pertinent to childbearing. Studies reporting the use of adequately tested instruments that actually operationalized or measured the concept of postpartum stress, which has been defined differently from general stress life events occurring in the postpartum period, have not been found. The Hung Postpartum Stress Scale (Hung PSS) was developed 16 years ago in order to measure stress in the early postpartum period, but revalidation is needed. Measurement of stressors is the first step to facilitate the development of approaches to relieve postpartum stress and to test the effectiveness of interventions intended to lessen stress. This, in turn, could perhaps prevent subsequent occurrence of more severe postpartum health problems.

Significance

Because nursing support and nursing intervention vary by type of stressor, specific postpartum stressors may be obscured by the use of general measures of life stress. A match is necessary between the needs elicited by particular postpartum

stressful events and social resources perceived to be available. The development of the Hung Postpartum Stress Scale was conceptualized and operationalized from a nursing perspective to allow for assessment of postpartum stress as distinct from general life events. This was done in the hope that postpartum women experiencing specific postpartum stressors would be detected and subsequently helped by supportive nursing intervention that provides stressor-specific coping resources. The Hung PSS is a specialized stress scale to assess levels of postpartum women's perceived stress and various postpartum stressors. Future research, including testing the effectiveness of specific nursing intervention in response to specific postpartum stressors, would add significantly to our knowledge and to the role of the nursing profession in women's health.

Purpose

The Hung Postpartum Stress Scale was developed sixteen years ago in a different social context and with a total variance of 31% explained in the factor analysis solution. Therefore, the purpose of this study is to (1) revise the Hung Postpartum Stress Scale that was developed using a sample of Taiwanese postpartum women and to (2) test this revised version's construct validity, discriminant validity, and internal consistency.

Specific Aims

The specific aims of the study are to:

(1) Test the construct validity of the Hung Postpartum Stress Scale.

(2) Examine discriminant validity of the Hung Postpartum Stress Scale.

(3) Determine the internal consistency of the Hung Postpartum Stress Scale.

Chapter II

Conceptual Definitions and Literature Review

Conceptual Definitions

The postpartum period has been defined as "a bringing forth of the period following childbirth" (Webster, 1988, p.1055) or "occurring after childbirth or after delivery, with reference to the mother" (Dorland, 1988, p. 1343). In nursing or medical textbooks, the postpartum period is defined as "the 6-week interval between the birth of the newborn and the return of the reproductive organs to their normal nonpregnant state" (Wong & Perry, 1998, p. 480). This contrasts with Tulman and Fawcett's (1991) and Tulman, Fawcett, Groblewski, & Silverman's research (1990) which found that the recovery of postpartum women's functional status from childbirth takes at least 3 to 6 months. However, in this study the concept of the postpartum period will be defined from the perspective of involution as the immediate period lasting from delivery until six weeks after birth. Because the level of postpartum stress has been shown to fluctuate within the six week period (Hung & Chung, 2001), this study seeks to examine the entire period as defined by this conceptual definition of postpartum stress.

Webster's Dictionary defines stress abstractly as a "constraining force or influence" (Webster, 1983, p. 1166) and more concretely as a "physical, mental, or

emotional strain that disturbs one's normal bodily functions" (Webster, 1997, p. 735). Stress is produced by stressors. Wheaton (1996) defines stressors as "conditions of threat, demands, or structural constraints that, by the very fact of their occurrence or existence, call into question the operating integrity of the organism" (p. 32). In addition, four characteristics of stressors are described: (1) threats, demands, or structural constraints; (2) a force challenging the integrity of the organism; (3) a "problem" that requires resolution; and, (4) "identity relevant" in threats in which the pressure exerted by the stressor, in part, derives its power from its potential to threaten or alter identities. Further, awareness of the damage potential of a stressor is not a necessary condition for that stressor having negative consequences; and a stressor can be defined bidirectionally with respect to demand characteristics. That is, it is possible for both over-demand and under-demand to be stress problems (Wheaton, 1996).

Accordingly, based on the above definitions of the postpartum period, stress, and stressors, postpartum stress is defined as a constraining force produced by postpartum stressors. Postpartum stressors are defined as conditions of change, demand, or structural constraint that, by the very fact of their occurrence or existence within six weeks after delivery, call into question the operating integrity of body changes, maternal role attainment, and social support.

Due to its many adjustments, the postpartum period has been conceptualized as a

time of vulnerability to stress for childbearing women (Affonso, Mayberry, & Sheptak, 1988; Arizmedi & Affonso, 1987; Too, 1997). During the postpartum period, women are immersed in the realities of parenting and coping with balancing their multiple roles (e.g., wife, mother, and career woman). However, women frequently report difficulty in adjusting to the needs of the baby and other children, difficulty with housework and routines, concerns over support to cope with family needs, and concerns over weight gain and body changes (Affonso, 1987; Arizmendi & Affonso, 1987; Bennett, 1981; Fichardt et al., 1994; Field & Renfrew, 1991; Gruis, 1977; Hall, 1990; Harrison & Hicks, 1983; Hiser, 1987; Kumar, Robson, & Smith, 1984; Mercre, 1986, 1995; Moran, Holt, & Martin, 1997). Accordingly, postpartum stress has an important role in a woman's life and influences her health status, both physical and mental (Milsum, 1984; Neufeld, 1982).

This study proposes three attributes of postpartum stress: (1) body changes, (2) maternal role attainment, and (3) social support. Body changes are related to changes in body sensation, structure, and function after childbirth (Rubin, 1967, 1984). Maternal role attainment is related to competence in physical care-taking for the infant and acceptance of the obligation of the role (Mercer, 1981a, 1985; Ludington-Hoe, 1977). Social support includes emotional, informational, instrumental, and appraisal support received (House, 1981).

Review of Literature

The postpartum period has been conceptualized by a variety of cultures as a time of vulnerability to stress for women (Hung, et al., 1993; Wandersman et al., 1980). It is characterized by dramatic changes and requires mandatory adjustments that involve many difficulties and concerns, possibly leading to new demands, or structural constraints and, therefore, stress. All mothers face the multiple demands of adjusting to changes in the body, learning about the new infant, and getting support from significant others. For women going through this transition, it may be a uniquely stressful life experience.

Several stressors specific to the puerperium as it exists in the literature have been identified. Those pertaining to body changes include: pain/discomfort, rest/sleep disturbances, diet, nutrition, physical restrictions, weight gain, return to prepregnancy physical shape, lochia, care of wounds, contraception, resuming sexual intercourse, discomfort of stitches, breast care, breast soreness, hemorrhoids, flabby subcutaneous tissue, and striae. Stressors pertaining to maternal role attainment include: concerns about infant crying, health, development, bathing, clothing, handling, diapering, night-time feeding, breastfeeding, conflicting expert advice, keeping the baby in an environment with a comfortable temperature, bottle feeding, appearance, safety, elimination, body weight, skin, baby's sex, breathing, spitting up, sleeping, and cord

care. Finally, those stressors pertaining to social support include: running the household, finances, perception of received emotional support, giving up work, finding time for personal interests and hobbies, father's role with the baby, relationship with the husband, restriction of social life, relationship with children, and coordinating the demands of husband, housework, and children (Affonso, 1987; Arizmendi & Affonso, 1987; Bennett, 1981; Bull, 1981; Fichardt et al., 1994; Field & Renfrew, 1991; Gruis, 1977; Hall, 1990; Harrison & Hicks, 1983; Hiser, 1987; Kumar et al., 1984; Mercre, 1986, 1995; Moran et al., 1997).

Few studies, however, have made an attempt to actually measure the intensity of stress triggered by these stressors (see Figure 1). Figure 1 shows that after childbirth women will encounter another type of stress during the postpartum period, which is characterized by dramatic changes and requires adjustment. Conditions of change, demand, or structural constraint may occur during these dramatic changes, creating many difficulties or concerns. Therefore, in addition to general stress, postpartum stress is induced after delivery during the postpartum period. From a literature review, a subsequent concept analysis (Hung, 2001c), and the researcher's previous studies on postpartum stress (see Appendixes A & B), three distinct dimensions or facets of postpartum stress are proposed: body changes, maternal role attainment, and social support.

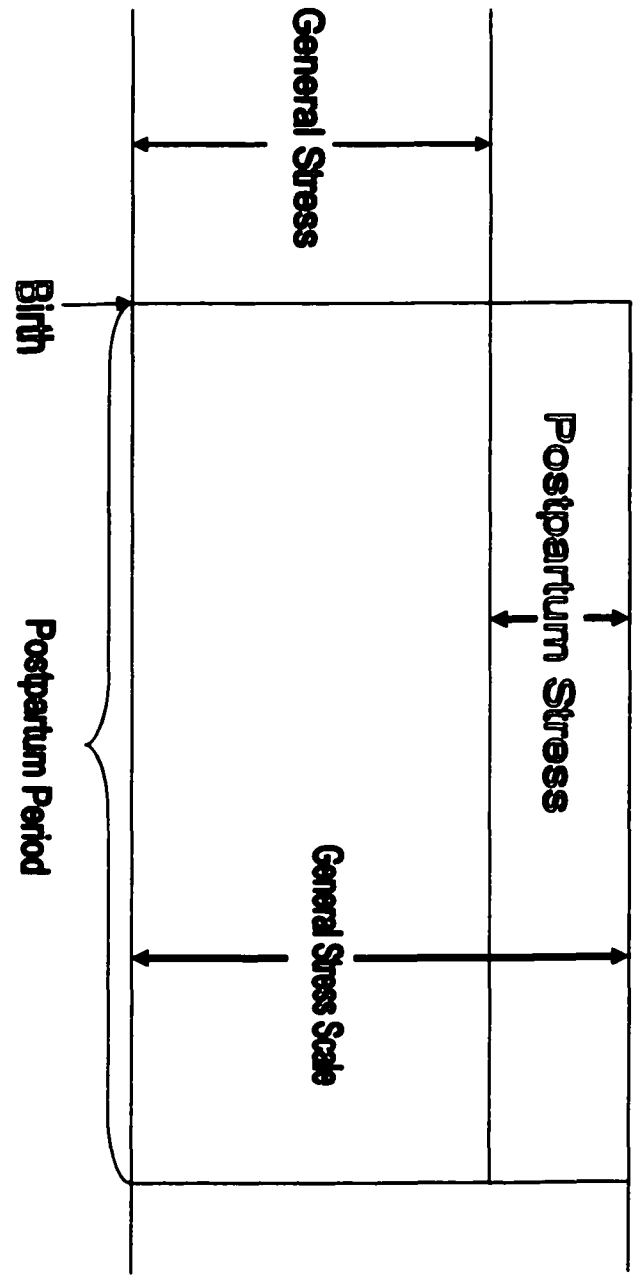

Figure 1. The Application of General Stress Scales to Postpartum Stress

Body changes.

Body changes are related to changes in body sensation, structure, and function after childbirth (Rubin, 1967, 1984). The postpartum period involves many physiological changes and can be a time of physical discomfort. Postpartum women may experience pain and discomfort due to episiotomy, breast engorgement, and nipple soreness (Fichardt et al., 1994; Gruis, 1977; Harrison & Hicks, 1983; Hiser, 1987; Fishbein & Burggraf, 1998). The return of the body to pre-pregnant shape and the related areas of diet and exercise are some of the main concerns of women after delivery (Fichardt et al., 1994; Gruis, 1977; Harrison & Hicks, 1983; Hiser, 1987). Affonso and her associates (1988) also identified fatigue, sleep disturbances, general body discomforts, and eating disturbances as stressors for postpartum women.

Fishbein and Burggraf (1998) conducted a study to describe women's concerns after delivery and identified that physiological concerns during the early postpartum period were related primarily to perineal sutures, fatigue, breast care, and body image. Fitness is a major focus of today's society, and most women are disappointed with their postpartum bodies (Mercer, 1981b; Walker, 1997, 1998; Walker & Freeland-Graves, 1998). Strang and Sullivan's (1985) study indicated that women felt more negatively about their postpartum bodies than about their pre-pregnant bodies. Moreover, primiparas felt more negative about their postpartum bodies than did the

multiparas. Russell (1974) found that worries about personal appearance, distress over the changes in their bodies, and complaints of physical tiredness and fatigue were the foremost concerns of new mothers.

In review of the many areas of concern during the postpartum period, fatigue was cited most commonly in the literature (Affonso et al., 1992; Arizmendi & Affonso, 1987; Bennett, 1981; Fichardt et al., 1994; Fishbein & Burggraf, 1998; Flagler, 1990; Gruis, 1977; Harrison & Hicks, 1983; Hiser, 1987; Hung et al., 1993; Kline et al., 1998; Ruchala & Halstead, 1994; Smith, 1989). Fatigue decreased mothers' performance in their daily activities and affected their lives profoundly. Frequent feedings every three to four hours during the night and day meant that the usual rhythm of sleep was interrupted. Hung et al. (1993) found that lack of adequate sleep was the most highly ranked of stressors for postpartum women. One study indicated that postpartum women demonstrated more disrupted sleep during the first three weeks after delivery than nonpostpartum controls (Swain, O'Hara, Starr, & Gorman, 1997). Sleep deprivation during the first month was also inversely related to the women's feelings about their infants, gratification in the maternal role, and maternal behaviors (Swain et al., 1997). Moreover, Flagler (1990) found that postpartum women's negative physical feelings resulted in decreased maternal capability.

Maternal role attainment.

Rubin (1967, 1977) described maternal role attainment as occurring in progressive stages through the operations of mimicry, role play, fantasy, introjection-rejection, and grief work during pregnancy and continuing through six months postpartum. Maternal role attainment is defined as a process in which the mother achieves competence in the role and integrates the maternal behaviors into her established role so that she is comfortable with her identity as a mother (Mercer, 1985).

Maternal role attainment has been conceptualized as involving three components: attachment, competency in caring for her infant, and acceptance of obligations of the role (Mercer, 1981a, 1985). Alternatively, Ludington-Hoe (1977) identified two components for a mother's role. One encompasses emotional factors and the other is physical care-taking. Emotional factors include feelings of warmth, devotion, protectiveness, concern for the infant's well-being, and pleasant anticipation of continuing contact with the infant. Physical care-taking tasks include such activities as feeding, diapering, bathing, and burping. These factors incorporate new attitudes, beliefs, responsibilities, and relationships, all revolving around the child (Ludington-Hoe, 1977). Regardless of definition, however, maternal role attainment always requires knowledge, skill, and motivation. A lack of knowledge, ability or motivation can produce a deficit in mothering capability and could be stressful for

women (Flagler, 1990).

Accordingly, the postpartum period is the time that is particularly crucial for the successful development of a healthy mother-child relationship. The bonding process develops simultaneously with maternal role attainment (Rubin, 1977), and is created by identification, commitment, and involvement of the mother with the child. Therefore, a good understanding of childcare and maternal skills enables most women to enjoy a smooth integration of a new family member; however, women who have concerns about maternal adjustment may encounter difficulties in fulfilling their maternal role obligations. When women face these concerns about maternal tasks, their feelings about not fulfilling their obligation can induce stress.

Thus, a mother needs information about the normal growth and development of infants and knowledge of her child's unique patterns of crying, sleeping, feeding, and other behaviors. Moran et al. (1997) conducted a study of 1161 postpartum women and found that 87% of primiparas wanted more information about one or more baby care topics. Moreover, most often women wanted baby care information about recognizing illnesses, the baby's schedule, and calming a crying baby. Understandably, primiparas were significantly more likely than multiparas to want more information on all baby care topics.

All mothers have needs that relate to the maternal role task involving learning to

care for and meeting the needs of a dependent infant and establishing a relationship with the infant (Gruis, 1977). Numerous studies have identified infant care as a major concern of postpartum mothers and the mothers sought help most frequently for needs and concerns related to the baby (Gruis, 1977; Moran et al., 1997). At one month postpartum, a mother's priority is the capability to care for her baby (Fishbein & Burggraf, 1998; Mercer, 1981b). Review of the literature suggests that mothers' postpartum concerns included the infant's appearance, feeding, crying, sleeping, physical care, handling and dressing, safety, and elimination (Bennett, 1981; Fichardt et al., 1994; Field & Renfrew, 1991; Gruis, 1977; Harrison & Hicks, 1983; Hiser, 1987).

As noted in the literature review, mothering capabilities involve the mother's sensitivity to the infant's behavioral cues and the mother's ability to respond appropriately (Ludington-Hoe, 1977; Mercer, 1985). It is the endpoint of maternal role attainment that the mother experiences a sense of harmony, confidence, and competence in how she performs the role. Primiparous women had more major concerns related to learning to care for and meeting the needs of a dependent infant. They required information about infants and practice with infant care (Smith, 1989).

Smith (1989) found that infant feeding was the most frequently identified concern of primiparas because it encompassed the task of learning to care for and

meeting the demands of a dependent infant. Furthermore, successful infant feeding is basic to the establishment of maternal self-confidence and to the growth of the infant. Coming full circle, Walker, Crain, and Thompson (1986) confirmed that self-confidence for primiparas was related to maternal feeding behavior.

Multiparas, however, have encountered a different difficulty in fulfilling their maternal role obligations. While primiparas were especially concerned about infant care, multiparas were concerned about the effect of a new child on the family (Affonso, et al., 1988; Gruis, 1977; Mercer, 1979; Ruchala & Halstead, 1994; Smith, 1989). Regardless of the mother's status as primipara or multipara, Ruchala and James (1997) found that knowledge of infant development and social support were significantly correlated with confidence in providing infant care.

Social support.

Social support refers to the perceived comfort, caring, esteem, or help a person receives from other people or groups (Cohen & Wills, 1985). There are four categories of support: emotional, informational, instrumental, and appraisal (House, 1981). Emotional support affirms that one is accepted and valued as a person. Informational support provides advice in understanding and coping with a stressful event. Instrumental support provides assistance with money, resources, or services. Appraisal support provides social activities and the sharing of leisure pursuits (House,

1981). Therefore, social support systems provide both emotional support and task-oriented assistance (Too, 1997).

Most existing studies posit that support buffers individuals from potentially adverse effects of stressful events. In the author's previous studies using the Hung Postpartum Stress Scale, the lack of social support emerged from the data analysis as one component of postpartum stress (Hung et al., 1993; Hung, 2001a, 2001b; Hung & Chung, 2001). This confirms Pillsbury's conclusion of the significance of social support in the Chinese postpartum (Pillsbury, 1978, 1982). The ritual of Tso-Yueh-Tzu has been imbedded firmly in Chinese culture. Conceptually, nearly all Chinese women still follow the indigenous beliefs and practices, which include a distinct postpartum period, protective rituals reflecting the vulnerability of the new mother, social seclusion, mandated rest, assistance in tasks from relatives, and social recognition of new social status through rituals. These basic components provide necessary social support and protect postpartum women from ailments.

As shown in the literature, an individual's social network, and the support it provides, is a coping resource for stress (Achat, Kawachi, Levine, Berkey, Coakley, & Colditz, 1998; Logsdon, Birkimer, & Barbee, 1997). Research findings indicated that adaptive maternal behavior was influenced favorably by the mother's perception of the amount of positive support she received (Anisfeld & Lipper, 1983; Baker & Taylor,

1997; Crnic et al., 1984; Logsdon et al., 1997; Mercer, 1986; Reece, 1993; Tulman & Fawcett, 1991). A study conducted by Tarkka and Paunonen (1996) indicated that the network of social support is a major source of emotional support, aid, and affirmation for mothers during pregnancy and childbirth. A significant association was found between the emotional support and mothers' positive experiences of childbirth (Tarkka & Paunonen, 1996).

Moreover, social support has been found to be important to postpartum women in terms of helping with adaptation to a new role, in helping them to be more responsive to their babies, and in facilitating their intimate relationships. Anisfeld and Lipper (1983) confirmed that the social support system of mothers influences the effectiveness of mother-infant attachment.

A complexity of adjustments is required in the postpartum period. Postpartum women have to continue to care for a needy infant, to begin recovering from childbirth, and to deal with the burden of many competing concerns. This stress induced by these changes may be heightened by a lack of social support. The results of Bennett's study (1981) indicated that laundry, cleaning, personal hygiene, cooking, financial problems, restricted social life, giving up work, and a lack of spare time for interests caused the most concern in the early puerperium. Moran et al. (1997) conducted a study related to postpartum women's desires for more information on

self-care and infant care and found that all women who reported high levels of support from friends and family wanted significantly less information than those with fair or poor support.

Not only has social support been postulated to play an important role in stressful transition periods, but it also plays a statistically significant role in predicting postpartum women's health status (Baker & Taylor, 1997; Maguire, 1991; Vaux, 1988; Veiel, 1995). Support is likely to increase a mother's sense of infant- and self-care capability and success in relating to the infant, which will influence her ability to successfully execute household, maternal, and personal tasks. Crnic et al. (1984) conducted a longitudinal study and indicated that mothers with more support reported significantly greater satisfaction with both life and parenting, as well as more positive specific child rearing attitudes. In addition, the quality of infants' interactive behavior was also affected by maternal support. These findings are consistent with the findings of the relationship of social support to health status during the stressful perinatal period (Maguire, 1991; Vaux, 1988). Therefore, women with larger support resources appear to have higher health status (Dalgard, Anstorp, Benum, & Sorensen, 1995; Karen & Deborah, 1995; Maguire, 1991; Vaux, 1988).

A core network of family and friends is frequently cited as an important source of postpartum support and plays a statistically significant role for mothers in

predicting postpartum adjustment (Baker & Taylor, 1997; Maguire, 1991; Reece, 1993; Smith, 1989; Tulman & Fawcett, 1991). A woman's partner, family, and friends provide the major sources of feedback on how the woman is fulfilling the role of mother. The validation she receives from these individuals influences her role expectations and her evaluation of how she is performing the role.

The family is the predominant source of support for most postpartum women. It provides instrumental and emotional support in daily life, as well as assistance during the postpartum period or times of need. Hung and her associates' (1993) study documented that the supporting role of family is significantly associated with a low occurrence of stress during the postpartum period. The woman's partner, in particular, is a key source of validation and assistance during the early weeks of motherhood (Gruis, 1977; Harrison & Hicks, 1983; Logsdon et al., 1997; McVeigh, 1997; Smith, 1989). Flagler's comparative study (1990) found that postpartum women's self-descriptions of negative emotional feelings were related to poorer relationships with husbands, less life satisfaction, and less support for the maternal role than those with positive self-descriptions. Tulman and Fawcett's (1991) study indicated that husbands and other family members were major sources of help during the first six months after delivery. Reece (1993) also found that social support from spouse and family was associated with mothers' positive self-evaluation in parenting and lower

postpartum stress.

Postpartum measurements of stress.

Several studies have used only general measures of stress rather than measures specifically designed to examine postpartum stress (see Figure 1). In Gottlieb and Mendelson's (1995) study, the Crockenberg Stress Checklist was used to measure women's general stress, not postpartum-specific stress, during the postpartum period. The Crockenberg Stress Checklist was originally developed by Crockenberg (1981), who conducted a study of infant irritability, mother responsiveness, and social support influences on the security of infant-mother attachment. Mothers were interviewed about their sources of support and stress three months after delivery. The mothers were asked if they had experienced any stress during those early months. An event was considered stressful if it appeared to be experienced as such by the mother. Stressors included serious illness of the baby or other family member, loss of employment, a move to another house, or other pressing responsibilities. A measure of social support was computed by subtracting the number of stressors from the combined support ratings (Crockenberg, 1981).

Paykel, Emms, Fletcher, and Rassaby (1980) used interviews on recent stressful events to assess general, not specifically postpartum, stress at approximately six weeks postpartum. The interview for recent stressful events covering 64 defined life

events (such as serious illness of close family member, lawsuit, engagement, starting new type of work, and so on) was originally administered as a semi-structured interview. Detailed further questioning was then carried out to determine the exact timing and nature of each event reported. Moreover, the time period covered comprised approximately 10.5 months, from the start of pregnancy to the date of the interview at approximately six weeks postpartum (Paykel et al., 1980).

Miller and Sollie (1980) asked husbands and wives to rate how they felt about their lives on nine semantically differential adjective pairs, such as boring-interesting, enjoyable-miserable, and so on, once before and twice after having their first child. Two of the items, easy-hard and tied down-free, were summed to create a scale of personal general stress for husbands and wives at each of three points in time, including six months pregnant, one month postpartum, and eight months postpartum (Miller & Sollie, 1980). However, their measure of the women during the postpartum period refers to general stress, not specifically to postpartum stress.

Wilson-Evered and Stanley (1986) used the Stress-Arousal Adjective Checklist to study the relationship between general stress and arousal during the postpartum period. This checklist was generated by re-analysis from Thayer's original list of words of self-reported "activation" using the responses of British undergraduates to a number of mood-describing adjectives. The measures of general stress and arousal were in the

form of an adjective checklist. General stress was envisioned as an internal response indicating an inability to cope with the external environment, whereas arousal was seen as a representation of ongoing autonomic and somatic activity (Mackay, Cox, Burrows, & Lazzerini, 1978).

A study conducted by Hall, Kotch, Browne, and Rayens (1996) used the Everyday Stressors Index, a general stress scale, to assess daily stressors at one-to-two months postpartum. This 20-item instrument was originally developed to assess financial concerns, role overload, employment problems, parenting worries, and interpersonal conflict. Each respondent was asked to describe how much each problem worried, upset, or bothered mothers with young children from day to day (Hall, 1990).

In Reece's study (1993), stress was measured by the last question of the What Being the Parent of a Baby is Like Instrument-Revised (WPL-R). This global question was: "On the whole, how stressful is your life, being the parent of a young baby and perhaps having other expected and unexpected things with which to deal?" Although stress was identified as an outcome variable and was again labeled stress, it was really a depiction of general stress, not stress specific to the postpartum period.

Conclusion

As defined earlier, postpartum stress is a constraining force produced by

postpartum stressors. These stressors are defined as conditions of change, demand, or structural constraint that, by the very fact of their occurrence or existence within six weeks after delivery, call into question the operating integrity of body changes, maternal role attainment, and social support. Generally, tests designed for one purpose will not optimally meet other possible validity requirements. Similarly, a published test developed for multiple uses may not be as valid for a specific application as a test designed especially for that particular use. Existing measures of general stress that have been used to assess postpartum stress fail to measure women's specific childbearing stressors during the postpartum period. They are therefore not adequate to assess postpartum stress, which is embedded in general stress during the postpartum period (see Figure 1), because they focus on general stressors or everyday life events and not on stressors specific to the postpartum period. In contrast, this study conceptualizes postpartum stress in terms of those events and situations specific to the childbearing process during the postpartum period (see Figure 2).

The absence of measures specific to postpartum stress makes measurement of this concept difficult. A valid and reliable instrument for measuring postpartum stress is needed if health professionals are serious about postpartum women's health status. If the presence of postpartum stress proves to be a predictor of postpartum health status, an appropriate measure of such stress would provide a useful tool for

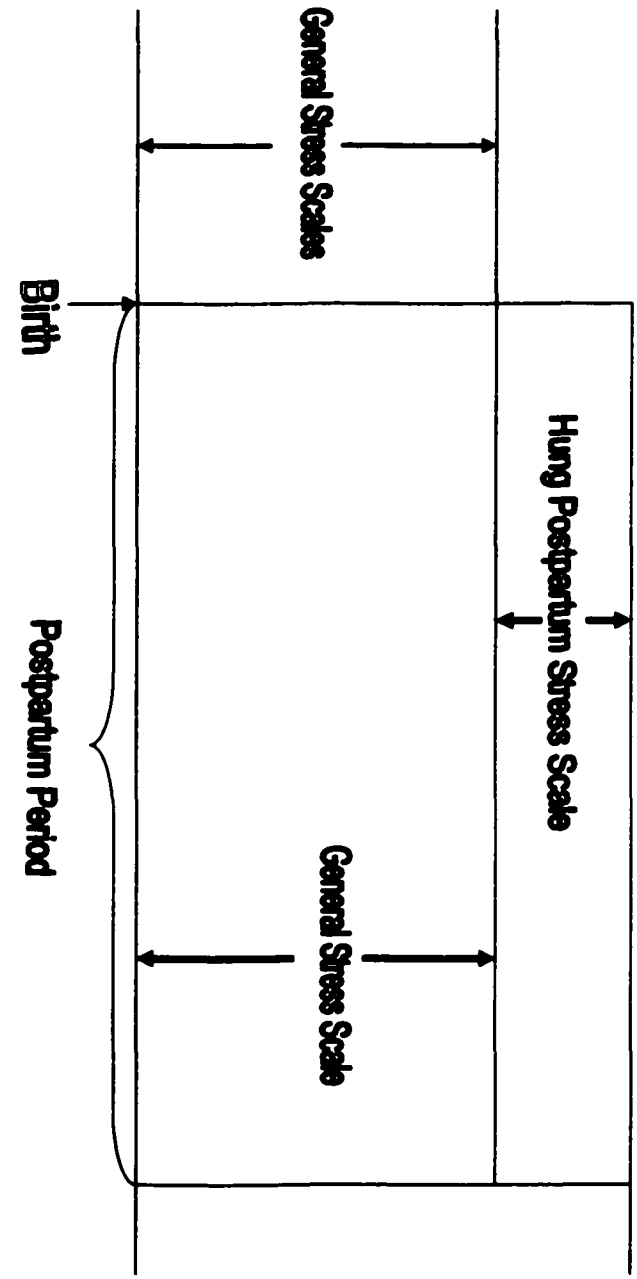

Figure 2. The Content Domain of Hung's Postpartum Stress Scale versus General Stress Scales

identifying women at risk for health problems following childbirth and throughout the postpartum period.

Chapter III

Methodology

A non-experimental quantitative research design was used to examine the factor structure, discriminant validity, and internal consistency of the revised Hung Postpartum Stress Scale over the six weeks following childbirth.

Population and Sample

The accessible population for this study was postpartum women who had delivered a full-term, healthy, single child in Kaohsiung City, Taiwan. The sample was recruited from hospitals and clinics in Kaohsiung City, which is located in the southern part of Taiwan. This city has 58 registered general hospitals and specialty birth clinics. Fourteen hospitals and eight clinics that had birth rates of 30 births or more per month during the year 2000 were used to recruit subjects. Because two clinics declined to participate in the study, a total of 877 postpartum women were recruited based on a ratio of ten subjects for each item and a 1.8% attrition rate from time of consent until completion of the questionnaires. The criteria for inclusion in the sample were women who: (a) had had a single, healthy, and full-term baby without complications; (b) had no major postnatal complications or underlying medical problems; (c) were married Taiwanese residents; and (d) could speak Mandarin Chinese.

Proportional stratified quota sampling from those hospitals or clinics with the highest birth rates were used to obtain a greater degree of representation. A woman's decision to choose a particular hospital or clinic for delivery might be based on several criteria, such as the hospital or clinic's facilities, reputation for quality nursing service, skillful medical staff, or attachment to a Tso Yueh-Tzu nursing center. The woman's choice of a specific hospital or clinic for childbirth might have an effect on her level of postpartum stress. Therefore, proportional stratified quota sampling of hospitals and clinics by birth rate offered the researcher the opportunity to improve the representation of the final sample.

Instruments

Three instruments were used for the study: (1) the Hung Postpartum Stress Scale; (2) the Beck Depression Inventory – Second Edition; and, (3) a demographic questionnaire.

POSTPARTUM STRESS SCALE. The items of the original Hung Postpartum Stress Scale (Hung PSS) were initially generated from stressors identified by postpartum women from the researcher's clinical practice in Kaohsiung City and a 1985 literature review (e.g., research articles, journal articles, and textbooks from Taiwan). The generated items were then reviewed by a panel of four experts at Kaohsiung Medical College and National Taiwan University, including one

psychologist, one member of the nursing faculty who had expertise in stress and measurement, and two faculty members who had expertise in maternity nursing. The experts reviewed all the items for clarity and consistency regarding the concept of postpartum stress. Items that were identified as unclear or inconsistent with the concept were revised. In addition, two pilot studies with face-to-face interviews, each involving 20 postpartum women, were conducted by the researcher at the women's homes during their 6-week postpartum period in Kaohsiung City. Item clarity and relevance were assessed and several items were reworded (Hung et al., 1993).

The resulting 64-item Postpartum Stress Scale (PSS), using a sample of 326 postpartum women after childbirth to 42 days of postpartum by home visits from Kaoshiung City, was tested for internal consistency using odd items versus even items for split-half reliability, which was 0.91. In addition, a principal components factor analysis using varimax rotation based on a scree plot of eigenvalues yielded an initial four-factor solution (see appendix A). The factors were labeled Maternity Role, Lack of Social Support, Decision-making, and Body Image (Hung et al., 1993). The proportion of variance for each factor was 21.6%, 3.9%, 3.5%, and 2.3%, respectively. The four factors accounted for 31.1% of the variance (Hung et al., 1993). Thirteen items did not load on any of the four factors. The postpartum women were also asked to list additional stressors and to rate each one on four open-ended items, but no

additional items were found.

In 1998, the instrument was used in a longitudinal study on women's health status by home visits during the postpartum period with a few revisions (Hung & Chung, 2001). One item (item 14) from the original 64-item Postpartum Stress Scale was split into three items because it was a triple-barreled question. One item (item 39) was a double-barreled question and one question (item 39) repeated another item (item 50). Therefore, a revised 66-item PSS was used.

In the study, data were collected at the first, third, and fifth weeks of the postpartum period on 526 women. Their average age was 28 years (SD = 4.12). Most had obtained a senior high school or junior college diploma, and 58% of the women were employed during their pregnancies. The mean length of marriage was 39 months and 50% were primiparas. The number of sons or daughters ranged from 0 to 3 and from 0 to 4, respectively. The pregnancy was planned for 40% of the women. Fifty-five percent of the women had vaginal deliveries, and 60% of the women expressed no preference about infant gender. Most of the women (60%) fed their infants with a combination of formula and breast feeding. The women themselves were the key providers of infant care (71%). However, the key helpers during puerperium were the woman's own mother (40.3%), her mother-in-law (31.4%) and her husband (20.3%). Ninety-two percent of the infants lived with the mother after

puerperium (8% lived with grandparents or nannies) and the key person providing care either during the day (58%) or at night (85%) was the infant's mother.

A research assistant collected data in the hospital during the first postpartum week and at the place where the woman stayed for the third and the fifth postpartum weeks. Exploratory factor analyses of the Postpartum Stress Scale for each of the three points of data were conducted. Three factors associated with postpartum stress were identified: Maternity Role Attainment, Lack of Social Support, and Body Changes. The three factors combined accounted for 30.04%, 28.30%, and 30.29% respectively of the variance for each point in time (See appendix B).

Content validity.

Because the Postpartum Stress Scale was developed sixteen years ago in a different social context, a revision of the item content was required for this study. One item (item 5) was found to be a double-barreled question and was split. In addition, according to the results of the previous factor analyses, seven items were dropped because either they failed to acquire salient loadings or they had salient loadings but on multiple dimensions (see appendix B, Table 6).

A thorough review of current literature led to the addition of twelve new items that had not been previously identified. A total of seventy-two items were submitted to experts who had experience and recognized expertise with maternity nursing (see

appendix C). Sixteen were nurses with master's degrees and one was a nurse who held a doctorate degree. During content validity testing, the experts were asked to compare the items on each dimension of the Postpartum Stress Scale with the definition of that dimension and then rate each item as "very relevant and succinct," "relevant but needs minor alteration," "unable to assess relevance without item revision," or "not relevant." Popham's (1978) average congruency procedure was used to determine content validity. This procedure is a measure of the average percentage of agreement for all questionnaire items across all judges.

Content validity was established through several rounds of testing with 17 experts. In round one of the content validity procedure, the PSS items were submitted to the first five of the seventeen experts. The average congruency score was 92.78%. In addition to rewording seven items, eleven new items were added and three items were deleted on the basis of the round one results. In round two, the newly revised items were submitted to six more of the experts, none of whom had participated in round one. The average congruency score was 97.08%. On the basis of their responses, six items were added and six items were deleted, in addition to the rewording of eighteen items. The 80-item PSS was tested in round three using the remaining six experts who had not participated in either of the two previous rounds, with a resulting average congruency of 92.92%. Eight items were added, six of the items were

collapsed into three, and 28 items were reworded, resulting in the 85-item version of the PSS. In order to avoid item order bias, all items were dispersed.

Readability education level.

The 85-item version of the PSS was submitted to a panel of six teachers who had graduated from Chinese universities and also taught Chinese classes in a junior high school. They were asked to rate each of the 85 items for appropriateness for junior high-level readers along a continuum of 20%, 40%, 60%, 80%, and 100% comprehension. The average agreement for 80% comprehension or more was 95.1%, suggesting that the PSS was appropriate for use with postpartum women who have attained ninth-grade-level reading skills. This is only minimally relevant insofar as previous studies demonstrate that these samples were comprised of significant numbers of senior high or college educated women.

Thus, for this study a revised 85-item PSS that assessed women's stress during the puerperium was tested for its psychometric properties of construct validity, discriminant validity, and internal consistency (see appendix C). On a 5-point Likert scale rating from 1 (not at all) to 5 (always), women rated each item on how often stress was perceived during the postpartum period. The score for postpartum stress was derived by summing all ratings, resulting in potential scores between 85 and 425. Higher values indicated higher stress. Completion of the instrument took 15 to 20

minutes.

BECK DEPRESSION INVENTORY-II (BDI-II). Although postpartum depression was found in the literature to be related to stress, postpartum stress is a different construct than depression. For the purpose of examining the discriminant validity of the Hung Postpartum Stress Scale, the Beck Depression Inventory- Second Edition (BDI-II) was used in the study. Therefore, the study assessed the strength of the correlation between the Hung Postpartum Stress Scale and the Beck Depression Inventory-II (Streiner & Norman, 1995). The original version of the Beck Depression Inventory (BDI) was introduced by Beck, Ward, Mendelson, Mock, & Erbaugh (1961). The BDI was revised in 1971 (BDI-IA) and copyrighted in 1978 (Chen, 2000).

The amended Beck Depression Inventory is one of the most widely used instruments for measuring the severity of self-reported depression in adolescents and adults. Its reliability and validity have been established across a broad spectrum of clinical populations (Beck & Steer, 1984; Beck, Steer, & Garbin, 1988). In 1996, the BDI- IA was upgraded to the Beck Depression Inventory II to make its symptom content more consistent with the diagnostic criteria for major depressive disorders that were described in the fourth edition of the American Psychiatric Association's (1994) Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). The BDI-II has

recently been translated from English into Chinese with copyright (the Psychological Corporation, 2000).

The overall psychometric characteristics of the BDI-II and the BDI-IA are similar for psychiatric outpatients in general. Beck, Steer, Ball, and Ranieri (1996) found that the Cronbach coefficient alphas of the BDI-II and the BDI-IA were 0.91 and 0.89 respectively in 140 outpatients who were diagnosed with various DSM-IV psychiatric disorders. The BDI-II also possessed high internal consistency of 0.89 coefficient alpha with geriatric inpatients (Steer, Rissmiller, & Beck, 2000). In addition, the BDI-II was found to be composed of two positively correlated dimensions reflecting a noncognitive factor represented by somatic symptoms and a cognitive factor composed of psychological symptoms (Steer, Rissmiller, & Beck, 2000).

Using an iterated principal-factor analysis with Promax rotation, Beck and his associates (1996) identified two dimensions of self-reported depression for psychiatric outpatients in general. The first factor was a somatic-affective dimension which represented the somatic symptoms and the second factor was composed of psychological symptoms and represented a cognitive dimension. In Steer, Ball, Ranieri, & Beck's study (1999), two factors representing somatic-affective and cognitive dimensions were also found with the BDI-II responses of 210 adult

outpatients who were diagnosed with DSM-IV depressive disorders. This built upon the earlier work of the same authors (Steer, Ball, Ranieri, & Beck, 1997) and investigated the BDI-II's construct validity with respect to self-reported depression and anxiety as measured by the SCL-90-R. The authors reported that the BDI-II was more highly correlated with the SCL-90-R Depression subscale ($r = 0.89$) than it was with the SCL-90-R Anxiety subscale ($r = 0.71$) in 210 psychiatric outpatients.

The BDI-II is scored by summing the highest ratings for each of the 21 items. Each item is rated on a 4-point scale ranging from 0 to 3, and the total scores can range from 0 to 63. BDI-II total scores ranging from 0 to 13 represent "minimal" depression; total scores from 14 to 19 are "mild;" total scores from 20 to 28 are "moderate;" and total scores from 29 to 63 are "severe" (Appendix D).

DEMOGRAPHIC QUESTIONNAIRE. Demographic data was collected by questionnaire to provide the following information about the sample:

- age
- educational level
- current employment status
- length of marriage
- planning status of the pregnancy
- type of delivery

- childbirth experience
- age of the infant
- baby's birth weight
- sex of the baby
- preferred sex of the baby
- number of other children
- number of boys
- number of girls
- method of baby's feeding
- place for stay during the postpartum period
- household income

The full questionnaire is provided in Appendix E.

Procedure

Data were collected by trained research assistants who were registered nurses enrolled in an academic program leading to a bachelor's degree in nursing. As registered nurses, they were accustomed to clinical situations and therefore, neither naïve nor overwhelmed by the settings. Training was provided by the investigator and standardized scripts were developed for research assistants which included explaining the study's purpose, screening criteria for qualified study participants, procedures for

obtaining the study participants' addresses, telephone numbers, and setting up times for subsequent telephone interviews.

After approval from the Institutional Review Board at the University of Pennsylvania and at each participating institution (see Appendix F), the potential participants' medical charts were screened by the research assistants. If the selection criteria were met, the potential participant was visited by a research assistant during postpartum hospitalization. The study and consent forms were explained to her using the standardized scripts. Once a signed consent form was obtained, a demographic questionnaire was completed by each woman. A gift was given in return for her promise to complete the follow-up telephone interview by the research assistant. In addition, a packet consisting of the Hung Postpartum Stress Scale and the Beck Depression Inventory was given in a plastic folder to the subjects, and the women were encouraged to keep it and have it available at the time of the telephone interview. Each woman was randomly assigned to receive a telephone interview during one of 42 days of her postpartum period and was telephoned at the place where she stayed for her postpartum period by the research assistant. The interviewer read each question of the Hung Postpartum Stress Scale and the Beck depression inventory-II while the woman followed along with her copy.

Based on studies of survey methodology, notably Streiner and Norman (1995)

and Sudman and Bradburn (1982), telephone interviews were chosen as the method of collecting data. Some of the advantages of telephone interviewing include: (1) reduction in the number of omitted items; (2) construction of a broad and representative sample; and, (3) easier determination of language barriers or more specific problems in subject comprehension. Moreover, there were at least three areas in which the telephone was shown to be superior to face-to-face interviews. First, any bias which might be caused by the appearance of the interviewer is eliminated. A second advantage is that nationwide surveys could be conducted out of one office, which lower administrative costs and facilitate supervision of the interviewers to ensure uniformity of style. Third, there was some evidence that people might report more health-related events in a telephone interview than in a face-to-face one (Streiner & Norman, 1995; Sudman & Bradburn, 1982).

Data Analysis

Overiew.

Data were analyzed using exploratory common factor analysis using SAS (Statistical Analysis Systems Institute) version 6.12. After conducting item analysis by checking each item's standard deviation for variant and conditional alpha (> .70), the researcher applied Bartlett's test, parallel analysis, the scree test, and 5% variance rule as the criteria for retained factors (Fabrigar, MacCallum, Wegener, & Strahan, 1999).

Moreover, the procedure for common factor analysis involved progressively testing varimax, equamax, and promax to find the best fitting factor solution.

Parallel analysis.

Parallel analysis, one of the factor-number approaches, is based on a comparison of eigenvalues obtained from sample data to eigenvalues obtained from completely random data (Fabrigar et al.,1999). Suppose a set of measured variables observed in a given sample depends on k major common factors. Parallel analysis is based on the notion that the k largest sample eigenvalues of the reduced correlation matrix should be larger than the k largest expected values of eigenvalues obtained from repeated corresponding sets of random data. The eigenvalues that would be expected from random data are then compared with the eigenvalues actually produced by the data, and the model is specified with the same number of common factors as real eigenvalues that are greater than the eigenvalues expected from random data (Fabrigar et al., 1999).

Promax solution with power and hyperplane count.

Compared with the orthogonal rotation, the promax oblique rotation can create a better solution by increasing the differences between lower and higher loadings by minimizing the number of intermediate-size loadings. According to Gorsuch (1983), "to create a solution better than that given by the orthogonal rotation, the moderate

and low loadings need to be lower than in the orthogonal solution while the high loadings remain relatively high. Such an improved solution may be possible if the factors are allowed to be oblique" (p.190). To create an ideal oblique solution the orthogonal solution is used as a basis. Rotating to the varimax and promax is a recommended procedure (Gorsuch, 1983). Although promax can use any orthogonal rotation as a basis for the ideal solution, either varimax or quartimax has been the usual initial solution. Equamax is an orthogonal rotation. It combines quartimax and varimax criteria, and spreads variance more equally across factors (Gorsuch, 1983).

Mathematically, all factors' loadings become lower when they are raised to a higher power. The relative discrepancy between the large loadings and the moderate to small loadings can be increased further by raising the factor loading to a power greater than two. The higher the power (referred to as k in promax literature), the closer the moderate loadings come to zero (Gorsuch, 1983).

By varying the power, the degree of obliquity can be varied which, in turn, varies the simplicity of the structure. The proper power is that giving the simplest structure with the least correlation among factors. A good solution is generally achieved by raising the loadings to a power of four, but occasionally the power of two is used when it seems to result in a better simple structure (Gorsuch, 1983).

In fact, the number of factor-analytic dimensions often exceeds

three-dimensional space. A plane is a two-dimensional surface in three-dimensional space and a hyperplane is a (n-1)-dimensional plane in n-dimensional space. The number of items in the hyperplane is an objective criterion for rotation. If rotating a factor to a position with a certain degree from the initial position results in an increased hyperplane count, then that factor is rotated to that position. The resulting search is for that solution which gives the maximum hyperplane count.

The hyperplane count consists of the number of essentially zero loadings on a factor or set of factors. Maximum hyperplane percentages are a direct function of the number of factors extracted. Generally, the ideal maximum percentage in the hyperplane would occur when each variable loaded only one factor.

It should be noted that the percentage reached is a function of the characteristics of the study. One characteristic influencing the hyperplane count is the number of variables (items) relative to the number of factors. A high hyperplane count can be obtained by extracting many factors from few variables with low reliability and rotating to a highly oblique position. Thus, no level of hyperplane count can be set as defining "good simple structure" unless the characteristics of the study are known in detail (Gorsuch, 1983).

Discriminant validity.

In addition to the factor analysis, the correlation of $r < .5$ between the Hung

Postpartum Stress Scale and the Beck Depression Inventory-II was used as the criterion to evaluate discriminant validity. The internal consistency of the Hung Postpartum Stress Scale and its subscales was determined by Cronbach's alpha.

Time Table

The study took approximately nine months to complete with the following time table:

⌘ Month 1 (May 1, 2001 – May 31, 2001):

(1) IRB approval for each research institute

(2) Research assistant training

⌘ Months 2 – 7 (June 1, 2001 – November 30, 2001):

(1) Subject recruitment

(2) Data collection

(3) Data entry

⌘ Month 8 (December 1, 2001 – December 31, 2001):

(1) Data cleaning

(2) Data analysis

⌘ Month 9 (January 1, 2002 – January 31, 2002):

(1) Research reports

Human Subjects

Although participation in this study did take time, there were no direct risks to the participants. However, the instrument may have caused participants to reflect on the stress in their life. The participant's decision whether or not to participate did not interfere with the care given by the institution. If the subject decided to participate, she was free to withdraw her consent and to discontinue participation at any time. Any information that was obtained in connection with this study and that could be identified with the participant remained confidential. Data was locked in the researcher's office and only the researcher had access to it.

The risk/benefit ratio.

There were minimal risks associated with participation in this study. The risks of harm anticipated in the proposed research were not greater than those ordinarily encountered during the performance of written tests. The researcher did everything she could to minimize these risks. The indirect benefits of this study were the further development of the Hung Postpartum Stress Scale and identification of postpartum stressors early in childbearing.

Chapter IV

Results

Characteristics of the Subjects

A sample of 877 postpartum women were recruited with a 1.8% (n = 16) attrition rate resulting in a sample of 861 subjects. Attrition was due to such diverse reasons as subjects' lack of interest, inconvenience, and investigators' lack of access to correct forwarding telephone numbers and addresses. The total number of women initially approached for the study is not available due to the fact that such records were not kept. The average age of the participating postpartum women was 29 years (SD = 4.44) and most had obtained a senior high school or junior college diploma. Forty-nine percent (n = 423) of the women were employed full-time, 10.1% (n = 87) were part-time workers, and three women (.3%) were students who were employed either full-time or part-time. Most had a total monthly household income between 50,000-100,000 New Taiwan Dollars. All subjects were married, and the mean length of marriage was 40 months (SD = 35.56). Half (49.4%) were multiparas, with the number of children ranging from 1 to 5. The number of sons or daughters both ranged from 0 to 3. At the time of the study, only 27.3% of the women indicated that the pregnancy was planned and 59.9% of the postpartum women expressed no preference about infant gender. Forty-four percent of the women had vaginal deliveries and 91.1

% were satisfied with this childbirth experience. Most of the women (56.4%) fed their infants by a combination of formula and breast feeding. Fifty-two percent of the infants were boys and the infant's average birth weight was 3193 grams (SD = 380.23). The three main places of residence during the period of Tso-Yueh-Tzu were the home of the subject's parents (n = 221, 25.7%), her own home with her parents-in-law present (n = 205, 23.8%), and her own home without her parents and parents-in-law present (n = 199, 23.1%). The mean postpartum stress score was 142.4 (SD = 34.42, range = 191) and 24.7 % of the women met the criteria for mild to severe depression. In each week of the postpartum period, approximately seventeen percent of the women were interviewed by telephone (see Table 1). One-way ANOVA showed that there was not a significant difference among the mean scores of postpartum stress (F = 1.12, df =5, 855, p =.35), the maternal role attainment dimension (F = .78, df =5, 855, p =.56), the social support dimension (F = 1.04, df =5, 855, p =.39), and the physical appearance dimension (F = 1.05, df =5, 855, p =.39) within six weeks. However, the mean scores of the activity changes dimension (F = 5.71, df =5, 855, p =.000) and the body function dimension (F = 12.16, df =5, 855, p =.000) were significantly different across the six weeks. The Scheffe post-test indicated that women in the sixth week of the postpartum period had higher activity changes mean scores than in the first and second weeks. Similarly, women in the

fourth week had higher scores for activity changes than in the second postpartum week. Women in the first postpartum week had significant higher body function scores than in any other postpartum week. A t-test indicated that the mean scores of postpartum stress by either vaginal deliveries or Cesarean sections were not significantly different ($t = -1.35$, $df = 859$, $p = .18$). In addition, the type of delivery did not significantly affect whether the women were satisfied or unsatisfied with their childbirth experience ($\chi^2 = 2.75$, $df = 1$, $p = .1$).

Exploratory Factor Analysis

Item analysis of questions and responses to the Postpartum Stress Scale indicated that conditional alpha was greater than .70 for the entire set of items and no item was invariant for the sample (Table 2). Therefore, the correlation matrix for the 85 postpartum stressors was assessed using Bartlett's chi-square criteria, rejecting the likelihood of an identity matrix ($p < .0001$) and suggesting that as many as 18 dimensions might be extracted. The parallel test indicated 32 as the upper bound of the number of postpartum stress dimensions. In addition, the scree test, as well as the 5% variance rule, each showed that three or four dimensions were possible.

Therefore, according to the above criteria, 2- through 32- factor models were rotated to a simple structure using orthogonal varimax and equamax, and then using oblique promax criteria and a hyperplane count with a common factor analysis. Each

Table 1. Demographic Characteristics (N = 861)

Demographic characteristics	Mean ± SD	n	%
Age (years)	29.33±4.44	861	100.0
Education			
Junior high or below		56	6.5
Senior high		399	46.3
Junior college		265	30.8
Bachelor		114	13.2
Master or above		27	3.1
Current employment status			
Full-time		423	49.1
Part-time		87	10.1
Housewife		339	39.4
Student		8	0.9
Other		1	0.1
Both student and employed		3	0.3
Total household income per month			
Less than NT 50,000		315	36.6
NT 50,000 – NT 100,000		482	56.0
NT 100,001 – NT 150,000		43	5.0
Over NT 150,000		21	2.4
Length of marriage (months)	40.65±35.56	861	100.0
This pregnancy was			
Planned		235	27.3
Unplanned			
No contraceptive used		412	47.9
Used contraceptives		2 14	24.9
Type of delivery			
Vaginal delivery		379	44.0
Cesarean section		482	56.0
This childbirth experience			
Satisfied		784	91.1
Unsatisfied		77	8.9
Baby's body weight (grams)	3192.79±380.23	861	100.0

Table 1. (continued)

Demographic characteristics	n	%
Sex of this baby		
Boy	443	51.5
Girl	418	48.5
Preferred sex of this baby		
Boy	179	20.8
Girl	166	19.3
Didn't matter	516	59.9
Number of children (including this baby)		
1	435	50.5
2	336	39.0
3	83	9.6
4	6	0.7
5	1	0.1
Number of sons		
0	294	34.1
1	445	51.7
2	108	12.5
3	14	1.6
Number of daughters		
0	313	36.4
1	424	49.2
2	112	13.0
3	12	1.4
Method of this baby's feeding		
Breast feeding	272	31.6
Formula feeding	103	12.0
Mixed	486	56.4

Table 1. (continued)

Demographic characteristics	Mean ± SD	n	%
Place for Tso-Yueh-Tzu			
Own home (without parents and parents-in-law)		199	23.1
Own home (with parents-in-law)		205	23.8
Own home (with parents)		76	8.8
Parents-in-law's home		58	6.7
Parents' home		221	25.7
Tso-Yueh-Tzu center		63	7.3
Two places		32	3.7
Other		7	0.8
Postpartum day (days)	21.42±11.80	861	100.0
0 – 7		145	16.8
8 – 14		144	16.7
15 – 21		145	16.8
22 – 28		144	16.7
29 – 35		139	16.1
36 – 42		144	16.7
Postpartum stress (scores)	142.41±34.42	861	100.0
First week	146.41±36.20	145	16.8
Second week	139.60±32.45	144	16.7
Third week	141.72±35.13	145	16.8
Fourth week	146.02±34.98	144	16.7
Fifth week	140.35±32.29	139	16.1
Sixth week	140.28±35.11	144	16.7
Depression			
0 – 13 (minimal depression)		648	75.3
14 – 19 (mild depression)		125	14.5
20 – 28 (moderate depression)		68	7.9
29 – 63 (severe depression)		20	2.3

Table 2. Mean, Standard Deviation, and Rank of Postpartum Stressors (N = 861)

Stresors	M	SD	Rank
1. not being able to control my body weight	2.81	1.30	8
2. my intake of food	2.25	1.15	22
3. interrupted sleep	2.94	1.22	3
4. not knowing the appropriate time for resuming intercourse	1.59	0.78	51
5. the degree of leisure	2.40	1.18	16
6. the wound	2.20	1.14	25
7. the limitation of living space	1.87	1.16	40
8. unacceptance of the baby by my family	1.14	0.49	67
9. my baby's appearance	1.38	0.75	61
10. choosing formula brands	1.57	0.97	53
11. sudden stops in my baby's breathing	2.26	1.14	21
12. the baby's jaundice	1.86	1.10	41
13. the results of newborn screening tests	2.22	1.18	24
14. diapering	1.44	0.78	59
15. limited resources for counseling during the postpartum period	1.83	0.98	42
16. differing opinions of family members on baby care	2.11	1.15	28
17. recovering my original body figure	2.95	1.37	2
18. the unpredictability of the baby's schedule	2.91	1.14	5
19. painful nipples due to breast feeding	1.93	1.08	37
20. the normality of lochia	2.07	1.08	30
21. finding a nanny	1.43	0.92	60
22. the baby's sex being the opposite of what my family expected it to be	1.30	0.74	65

Table 2. Mean, Standard Deviation, and Rank of Postpartum Stressors (N = 861)

Stresors	M	SD	Rank
23. the baby's body weight	1.68	0.98	48
24. my incontinence	1.34	0.70	62
25. the baby getting sick suddenly	2.90	1.09	6
26. discomfort due to breast enlargement	2.12	1.15	27
27. less concern from my husband	2.16	1.13	26
28. the baby's spitting up	2.44	1.10	13
29. choosing a contraceptive method	1.64	0.98	50
30. bothersome taboos during the postpartum period	1.96	1.07	35
31. missing the baby's cues	2.56	1.13	12
32. intimate relationship with my husband	1.69	0.88	47
33. lack of help with household chores	2.02	1.12	32
34. inadequate emotional support from my family	1.58	0.86	52
35. the baby's sex being the opposite of what I expected it to be	1.31	0.79	64
36. abnormality in the baby's elimination	2.05	1.05	31
37. wet clothes due to breast leakage	1.89	1.11	39
38. the lack of my husband's participation in baby care	2.07	1.11	30
39. cord-stem care	1.64	0.97	50
40. the flabby flesh of my belly	3.02	1.22	1
41. my life is constrained	2.65	1.22	10
42. the baby's rash	2.08	1.08	29
43. the baby choking during feeding	2.42	1.11	15
44. the baby's appearance differing from my family's expectation	1.25	0.60	66
45. not having desirable food	1.68	0.91	48

Table 2. Mean, Standard Deviation, and Rank of Postpartum Stressors (N = 861)

Stresors	M	SD	Rank
46. discomfort during sexual intercourse	1.56	0.88	54
47. lacking time to care for my other children	1.87	1.19	40
48. family financial burden	2.43	1.22	14
49. choosing an appropriate name for the baby	1.48	0.91	56
50. bathing the baby	1.87	1.10	40
51. leaving the baby to be cared for by the other person	1.97	1.22	34
52. emotional tension	2.02	1.08	32
53. the baby's crying	2.65	1.12	10
54. the shape of the baby's head due to the sleeping position	2.70	1.14	9
55. the baby will not adapt to the shift from breast feeding to formula	1.71	1.02	46
56. others contradicting my decisions about baby care	1.89	1.10	39
57. my sexual intercourse due to the stretching of the vagina	1.58	0.89	52
58. the baby's intake of milk	2.30	1.15	19
59. not sleeping enough	2.82	1.18	7
60. dressing the baby for extreme weather conditions	2.39	1.11	17
61. the baby's nose will get plugged up when sleeping	2.58	1.18	11
62. lack of information regarding infant's growth and development	2.36	1.11	18
63. sibling rivalry	1.83	1.18	42
64. poor recovery of the uterus	2.29	1.15	20
65. feeding my baby	1.92	1.05	38
66. dressing my baby	1.66	0.86	49
67. decreasing social activity	2.26	1.17	21

Table 2. Mean, Standard Deviation, and Rank of Postpartum Stressors (N = 861)

Stresors	M	SD	Rank
68. fatigue	2.56	1.20	12
69. I feel like crying	1.83	1.06	42
70. constipation	1.82	1.07	43
71. poor marital relationship	1.45	0.82	58
72. lack of information regarding self-care	1.78	0.95	45
73. unfading striae gravidarum	2.43	1.33	14
74. insufficient breast milk	2.12	1.27	27
75. rough skin	1.87	1.06	40
76. looking after my family and keeping up with my job	2.23	1.31	23
77. giving up my job	1.47	1.00	57
78. hemorrhoids	1.52	0.97	55
79. lack of help with baby care	1.95	1.11	36
80. my family not agreeing with my way of baby feeding	1.31	0.74	64
81. diarrhea	1.32	0.70	63
82. feeling sore in my body	2.92	1.20	4
83. not knowing the appropriate time for exercise	1.80	1.03	44
84. the baby's immunization	2.08	1.12	29
85. the deformation of my breast	1.99	1.14	33

model was evaluated for its ability to produce dimensions that (1) retain five or more items with loadings > .30 considered to be salient; (2) yield reasonable internal consistency (> .70) for salient items; and, (3) make psychological sense in terms of parsimonious coverage and compatibility with dimensions obtained in other empirical work (McDermott, 1993). In addition, any item with salient loading on multiple dimensions failed to load on a factor. An arbitrary 3- and then 4-orthogonal dimensional models were chosen, respectively, to evaluate for each one's ability to produce dimensions. However, they did not meet the third criteria stated above (see Table 3 and Table 5). Moreover, Table 7 displays variance accounted for by the first ten factors.

Consequently, the retained 5-orthogonal dimensional model was rotated to an equamax simple structure and met all stated criteria. Because equamax rotation combines varimax and quartimax criteria, it spreads variance as evenly as possible across the dimensions (Gorsuch, 1983). The solution was then submitted to promax analyses, beginning with k = 2. When k = 4, the hyperplane count was highest at 49.88%. All items loading greater than 0.30 were assigned to respective dimensions. Thus, 70 of the original items were retained. The remaining 15 items included eight items that failed to acquire salient loading and seven items that had salient loadings on multiple dimensions. In addition, the item-total correlation was computed within

Table 3. Three-dimensional Model (N=861)

Postpartum stressors	Rotated pattern loading Promax [a]	Item-total
	Concerns about Maternal Role Attainment	
65. feeding my baby	.63	.62
39. cord-stem care	.57	.47
14. diapering	.56	.50
50. bathing the baby	.56	.53
36. abnormality in the baby's elimination	.56	.51
13. the results of newborn screening tests	.56	.49
66. dressing my baby	.55	.58
25. the baby getting sick suddenly	.54	.58
62. lack of information regarding infant's growth and development	.53	.58
84. the baby's immunization	.53	.50
43. the baby choking during feeding	.52	.56
12. the baby's jaundice	.52	.42
60. dressing the baby for extreme weather conditions	.50	.61
58. the baby's intake of milk	.50	.57
55. the baby will not adapt to the shift from breast feeding to formula	.50	.46
15. limited resources for counseling during the postpartum period	.48	.53
6. the wound	.47	.43
20. the normality of lochia	.47	.45
10. choosing formula brands	.46	.39
28. the baby's spitting up	.44	.53
49. choosing an appropriate name for the baby	.43	.38
42. the baby's rash	.43	.49

Table 3. (continued)

Postpartum stressors	Rotated pattern loading: Promax [a]	Item-total
23. the baby's body weight	.42	.41
11. sudden stops in my baby's breathing	.42	.47
74. insufficient breast milk	.35	..36
9. my baby's appearance	.35	.41
56. others contradicting my decisions about baby care	.35	.48
72. lack of information regarding self-care	.33	.53
16. differing opinions of family members on baby care	.33	.48
26. discomfort due to breast enlargement	.32	.32
30. bothersome taboos during the postpartum period	.30	.48
Negative Body Changes		
68. fatigue	.82	..67
59. not sleeping enough	.76	.63
67. decreasing social activity	.72	.62
41. my life is constrained	.72	.65
3. interrupted sleep	.68	.56
5. the degree of leisure	.59	.54
53. the baby's crying	.59	.59
18. the unpredictability of the baby's schedule	.49	.57
52. emotional tension	.43	.46
40. the flabby flesh of my belly	.32	.44
54. the shape of the baby's head due to the sleeping position	.32	.44
Lack of Social Support		
47. lacking time to care for my other children	.59	.36
63. sibling rivalry	.53	.34

Table 3. (continued)

Postpartum stressors	Rotated pattern loading Promax [a]	Item-total
34. inadequate emotional support from my family	.53	.63
48. family financial burden	.48	.49
71. poor marital relationship	.47	.54
27. less concern from my husband.	.46	.55
33. lack of help with household chores	.46	.51
32. intimate relationship with my husband	.45	.58
38. the lack of my husband's participation in baby care.	.45	.53
79. lack of help with baby care	.41	.51
57. my sexual intercourse due to the stretching of the vagina	.40	.44
35. the baby's sex being the opposite of what I expected it to be	.40	.35
85. the deformation of my breast	.39	.45
22. the baby's sex being the opposite of what my family expected it to be	.37	.36
46. discomfort during sexual intercourse	.34	.42
75. rough skin	.32	.44
8. unacceptance of the baby by my family.	.32	.34
7. the limitation of living space	.31	.36
44. the baby's appearance differing from my family's expectation	.30	.36

[a]Entries are derived from promaxian oblique rotation at k = 4 with the equamax structure matrix serving as the initial orthogonal solution.

Table 4. Failed Items for Three-dimensional Model

The following 24 items failed to acquire salient loading (n = 20) or were salient loadings on multiple dimensions (n = 4).

1. not being able to control my body weight

2. my intake of food

4. not knowing the appropriate time for resuming intercourse

17. recovering my original body figure

19. painful nipples due to breast feeding

21. finding a nanny

24. my incontinence

29. choosing a contraceptive method

31. missing the baby's cues

37. wet clothes due to breast leakage

45. not having desirable food

51. leaving the baby to be cared for by the other person

61. the baby's nose will get plugged up when sleeping

64. poor recovery of the uterus

69. I feel like crying

70. constipation

73. unfading striae gravidarum

76. looking after my family and keeping up with my job

77. giving up my job

78. hemorrhoids

80. my family not agreeing with my way of baby feeding

81. diarrhea

82. feeling sore in my body

83. not knowing the appropriate time for exercise

Table 5. Four-dimensional Model (N=861)

Postpartum stress	Rotated pattern loading Promax [a]
	Factor 1
61. the baby's nose will get plugged up when sleeping	.66
53. the baby's crying	.64
31. missing the baby's cues	.61
60. dressing the baby for extreme weather conditions	.59
66. dressing my baby	.57
25. the baby getting sick suddenly	.57
11. sudden stops in my baby's breathing	.56
62. lack of information regarding infant's growth and development.	.56
43. the baby choking during feeding	.55
50. bathing the baby	.54
14. diapering	.53
18. the unpredictability of the baby's schedule	.51
28. the baby's spitting up	.50
56. others contradicting my decisions about baby care	.46
84. the baby's immunization	.45
58. the baby's intake of milk	.43
52. emotional tension	.42
54. the shape of the baby's head due to the sleeping position	.40
15. limited resources for counseling during the postpartum period	.40
16. differing opinions of family members on baby care	.38
42. the baby's rash	.38
23. the baby's body weight	.31

Table 5. (continued)

Postpartum stress	Rotated pattern loading Promax [a]
	Factor 2
34. inadequate emotional support from my family	.71
27. less concern from my husband.	.66
38. the lack of my husband's participation in baby care.	.61
79. lack of help with baby care	.60
71. poor marital relationship	.60
33. lack of help with household chores	.58
32. intimate relationship with my husband	.52
69. I feel like crying	.51
48. family financial burden	.48
76. looking after my family and keeping up with my job	.44
22. the baby's sex being the opposite of what my family expected it to be	.37
35. the baby's sex being the opposite of what I expected it to be	.37
8. unacceptance of the baby by my family.	.36
45. not having desirable food	.35
44. the baby's appearance differing from my family's expectation	.33
80. my family not agreeing with my way of baby feeding	.32
77. giving up my job	.32
46. discomfort during sexual intercourse	.31
29. choosing a contraceptive method	.31
57. my sexual intercourse due to the stretching of the vagina	.31
67. decreasing social activity	.30
72. lack of information regarding self-care	.30

Table 5. (continued)

Postpartum stress	Rotated pattern loading Promax [a]
41. my life is constrained	.30
21. finding a nanny	.30
	Factor 3
17. recovering my original body figure	.87
1. not being able to control my body weight	.85
40. the flabby flesh of my belly	.66
73. unfading striae gravidarum	.49
2. my intake of food	.46
4. not knowing the appropriate time for resuming intercourse	.36
85. the deformation of my breast	.35
75. rough skin	.33
5. the degree of leisure	.33
	Factor 4
6. the wound	.43
64. poor recovery of the uterus	.42
39. cord-stem care	.41
12. the baby's jaundice	.41
13. the results of newborn screening tests	.40
20. the normality of lochia	.36
49. choosing an appropriate name for the baby	.35
55. the baby will not adapt to the shift from breast feeding to formula	.34
70. constipation	.31
9. my baby's appearance	.30

[a]Entries are derived from promaxian oblique rotation at k = 4 with the equamax structure matrix serving as the initial orthogonal solution.

Table 6. Failed Items for Four-dimensional Model

The following 20 items failed to acquire salient loading (n = 13) or were salient loadings on multiple dimensions (n = 7).

3. interrupted sleep

7. the limitation of living space

10. choosing formula brands

19. painful nipples due to breast feeding

24. my incontinence

26. discomfort due to breast enlargement

30. bothersome taboos during the postpartum period

36. abnormality in the baby's elimination

37. wet clothes due to breast leakage

47. lacking time to care for my other children

51. leaving the baby to be cared for by the other person

59. not sleeping enough

63. sibling rivalry

65. feeding my baby

68. fatigue

74. insufficient breast milk

78. hemorrhoids

81. diarrhea

82. feeling sore in my body

83. not knowing the appropriate time for exercise

Table 7. The Variances Accounted for by the First Ten Factors

	Variance (%)										
Factors	1	2	3	4	5	6	7	8	9	10	Total
1	21.1										21.1
2	13.8 +	11.3									25.1
3	21.1 +	4.0 +	2.6								27.7
4	12.0 +	7.8 +	6.2 +	4.1							30.1
5	10.4 +	7.1 +	5.2 +	5.2 +	4.0						31.9
6	10.1 +	6.1 +	5.2 +	4.9 +	4.1 +	3.3					33.7
7	9.9 +	5.8 +	5.4 +	5.0 +	4.1 +	2.9 +	2.1				35.2
8	10.0 +	5.7 +	4.9 +	3.9 +	3.6 +	3.3 +	3.0 +	2.2			36.6
9	9.9 +	5.4 +	3.8 +	3.7 +	3.6 +	3.4 +	2.9 +	2.6 +	2.3		37.6
10	10.0 +	5.2 +	3.9 +	3.8 +	3.5 +	3.4 +	3.0 +	2.4 +	2.4 +	1.2	38.8

dimensions and all 70 items were between 0.2 to 0.8.

Table 8 displays the abbreviated version of postpartum stress composing each of the five dimensions, exploratory structure loadings, and item-total correlations in the full sample. Five dimensions of postpartum stress were labeled as: (1) concerns about maternal role attainment, including 21 items related to competency in physical care-taking tasks and acceptance of role obligations; (2) concerns about activity changes, involving 7 items related to changes in women's activity levels after childbirth; (3) concerns about lack of social support, including 18 items related to emotional, informational, instrumental, and appraisal support; (4) concerns about physical appearance, involving 8 items related to changes in women's physical appearance; and, (5) concerns about body function, including 16 items related to changes in physiological function. Overall, 31.9% of item variance was accounted for by the solution. The least amount of item variance was accounted for by the Body Function dimension (4.0%), with the greatest variance accounted for by the Maternal Role Attainment dimension (10.4%).The variance of activity changes, lack of social support, and physical appearance dimension accounted for 7.1%, 5.2%, and 5.2%, respectively.

Generality and Internal Consistency

As a means to ensure that the dimensions and the scale of postpartum stress were

Table 8. Exploratory Five Factor Structures (N=861)

Postpartum stress	Rotated pattern loading Promax [a]	Item-total
	Concerns about Maternal Role Attainment	
61. the baby's nose will get plugged up when sleeping	.59	.62
50. bathing the baby	.58	.54
62. lack of information regarding infant's growth and development	.57	.61
14. diapering	.57	.50
66. dressing my baby	.57	.58
25. the baby getting sick suddenly	.54	.62
43. the baby choking during feeding	.54	.59
60. dressing the baby for extreme weather conditions	.53	.64
31. missing the baby's cues	.51	.58
36. abnormality in the baby's elimination	.49	.52
11. sudden stops in my baby's breathing	.48	.50
84. the baby's immunization	.48	.52
28. the baby's spitting up	.46	.55
58. the baby's intake of milk	.41	.55
23. the baby's body weight	.41	.41
42. the baby's rash	.40	.49
15. limited resources for counseling during the postpartum period	.39	.51
16. differing opinions of family members on baby care	.39	.46
10. choosing formula brands	.36	.36
39. cord-stem care	.34	.42
54. the shape of the baby's head due to the sleeping position	.32	.47

Table 8. (continued)

Postpartum stressors	Rotated pattern loading Promax [a]	Item-total
	Concerns about Activity Changes	
68. fatigue	.81	.69
59. not sleeping enough	.78	.63
3. interrupted sleep	.68	.56
67. decreasing social activity	.61	.64
41. my life is constrained	.56	.64
5. the degree of leisure	.48	.55
52. emotional tension	.37	.43
	Concerns about Lack of Social Support	
34. inadequate emotional support from my family	.69	.64
27. less concern from my husband	.54	.57
71. poor marital relationship	.54	.54
22. the baby's sex being the opposite of what my family expected it to be	.53	.36
35. the baby's sex being the opposite of what I expected it to be	.51	.33
32. intimate relationship with my husband	.51	.56
76. looking after my family and keeping up with my job	.51	.47
38. the lack of my husband's participation in baby care	.50	.53
79. lack of help with baby care	.50	.56
48. family financial burden	.47	.44
44. the baby's appearance differing from my family's expectation	.47	.41
33. lack of help with household chores	.45	.49
77. giving up my job	.41	.35

Table 8. (continued)

Postpartum stressors	Rotated pattern loading Promax [a]	Item-total
9. my baby's appearance	.40	.42
69. I feel like crying	.37	.52
51. leaving the baby to be cared for by the other person	.35	.35
8. lack of acceptance of the baby by my family	.35	.34
80. my family not agreeing with my way of baby feeding	.35	.39
Concerns about Physical Appearance		
17. recovering my original body figure	.85	.67
1. not being able to control my body weight	.82	.62
40. the flabby flesh of my belly	.61	.61
73. unfading striae gravidarum	.45	.49
2. my intake of food	.43	.49
4. not knowing the appropriate time for resuming intercourse	.32	.42
75. rough skin	.32	.48
85. the deformation of my breast	.31	.49
Concerns about Body Function		
19. painful nipples due to breast feeding	.64	.44
26. discomfort due to breast enlargement	.61	.46
20. the normality of lochia	.52	.47
70. constipation	.48	.41
64. poor recovery of the uterus	.46	.54
12. the baby's jaundice	.44	.40
78. hemorrhoids	.43	.37
6. the wound	.41	.45

Table 8. (continued)

Postpartum stressors	Rotated pattern loading Promax [a]	Item-total
46. discomfort during sexual intercourse	.38	.43
55. the baby will not adapt to the shift from breast feeding to formula	.35	.43
37. wet clothes due to breast leakage	.35	.31
49. choosing an appropriate name for the baby	.34	.37
82. feeling sore in my body	.34	.42
24. my incontinence	.33	.34
57. my sexual intercourse due to the stretching of the vagina	.32	.43
74. insufficient breast milk	.31	.36

[a]Entries are derived from promaxian oblique rotation at k = 4 with the equamax structure matrix serving as the initial orthogonal solution.

Table 9. Failed Items for Five-dimensional Model

The following 15 items failed to acquire salient loading (n = 8, with the marks of *) or were salient loadings on multiple dimensions (n = 7).

7. the limitation of living space *

13. the results of newborn screening tests

18. the unpredictability of the baby's schedule

21. finding a nanny *

29. choosing a contraceptive method *

30. bothersome taboos during the postpartum period *

45. not having desirable food *

47. lacking time to care for my other children

53. the baby's crying

56. others contradicting my decisions about baby care

63. sibling rivalry

65. feeding my baby

72. lack of information regarding self-care *

81. diarrhea *

83. not knowing the appropriate time for exercise *

replicable and generalizable to important subgroups within the population, the exploratory common-factor analysis for the five dimensions and the scale were repeated for pertinent sub-samples. Generalizability was examined by repeating the analyses for independent sub-samples divided according to the education level, employment status, planning status of the pregnancy, and number of children. The derived solution for each analysis was compared with that for the full sample using Wrigley-Neuhaus coefficients of congruence based on all obtained loadings (see Table 10). The Wrigley-Neuhaus coefficient of congruence is a measuring index of proportional similarity between two vectors of factors or component loadings (Guadagnoli & Velicer, 1991). Therefore, the coefficients assessed the extent to which the solution established for the general postpartum population could adequately represent solutions unique to important subgroups of that population (McDermott, 1993). The results indicated high to moderately high coefficients of congruence (> .80) (Guadagnoli & Velicer, 1991); thus, a high to moderately high generalizability for the postpartum stress structure was found. Overall, the five dimensions of the postpartum stress scale indicated reasonably high to moderately high generalization across the women with either senior high and below or junior college and above education levels, either full-time employment or not, either planned or unplanned pregnancy, and with the number of children either only one or two and above.

Table 10. Coefficients of Congruence for Replication of the Postpartum Stress Scale across the Levels of Education, Employment Status, Planning Status of the Pregnancy, and Number of Children Subsamples

	Generality [a]							
	Education Level		Employment Status		Planning Status		No. of Children	
Factor	Junior high or below (N = 455)	Junior college or above (N = 406)	full-time (N = 423)	others (N = 438)	planned (N = 235)	unplanned (N = 626)	one (N = 435)	≥ two (N = 426)
Maternal role attainment	.94	.97	.97	.96	.95	.98	.89	.89
	(.09)	(.10)	(.14)	(.05)	(.11)	(.10)	(.13)	(.10)
Activity changes	.96	.96	.94	.97	.94	.88	.95	.94
	(.07)	(.07)	(.06)	(.07)	(.05)	(.10)	(.07)	(.12)
Social support	.89	.96	.94	.93	.92	.95	.97	.91
	(.13)	(.04)	(.11)	(.10)	(.08)	(.11)	(.07)	(.10)
Physical appearance	.90	.96	.95	.90	.93	.92	.94	.92
	(.10)	(.07)	(.07)	(.09)	(.07)	(.07)	(.06)	(.03)
Body function	.86	.93	.91	.84	.90	.95	.87	.91
	(.09)	(.08)	(.05)	(.12)	(.11)	(.08)	(.09)	(.11)
Average all dimensions	.91	.96	.94	.92	.93	.94	.92	.91
	(.10)	(.07)	(.09)	(.09)	(.09)	(.09)	(.09)	(.09)

[a]Entries are Wrigley-Neuhaus coefficients. Nonparenthetical values indicate similarity of the respective dimensions extracted from the full sample to the counterpart dimension extracted for a given subsample. Parenthetical values indicate average similarity of the specified dimension to all other (noncounterpart) dimensions extracted from the subsample.

Reliability is also critical to the generalizability of the measures (McDermott, 1993). Table 11 presents coefficients' alpha ranging from .90 for the Maternal Role Attainment dimension to .81 for the Body Function dimension of the scale across the full sample, and ranging from .91 for the Maternal Role Attainment dimension to .79 for the Body Function dimension for various sub-samples. In addition, the Cronbach's alpha for the total Hung Postpartum Stress Scale was .95. All values are moderately high to high and commensurate with the variation in item-total correlations reported in Table 8.

Discriminant Validity

Discriminant validity was assessed by correlating the revised Hung Postpartum Stress scale with the Beck Depression Inventory. The correlation between the Hung Postpartum Stress Scale and the Beck Depression Inventory was .46 (see figure 3), thereby supporting discriminant validity.

Table 11. Coefficients of Internal Consistency for Replication of the Postpartum Stress Scale across the Levels of Education, Employment Status, Planning Status of the Pregnancy, and Number of Children Subsamples

	Internal consistency								
	Educational Level		Employment Status		Planning Status		No. of Children		Total
Factor	Junior high or below (N = 455)	Junior college or above (N = 406)	full-time (N = 423)	others (N = 438)	planned (N = 235)	unplanned (N = 626)	one (N = 435)	≥ two (N = 426)	(N = 861)
Maternal role attainment	.90	.91	.91	.90	.89	.91	.89	.90	.90
Activity changes	.84	.84	.84	.84	.84	.84	.84	.84	.84
Social support	.85	.87	.87	.85	.85	.86	.86	.85	.86
Physical appearance	.82	.82	.81	.83	.82	.82	.82	.81	.82
Body function	.81	.81	.82	.81	.79	.82	.82	.81	.81

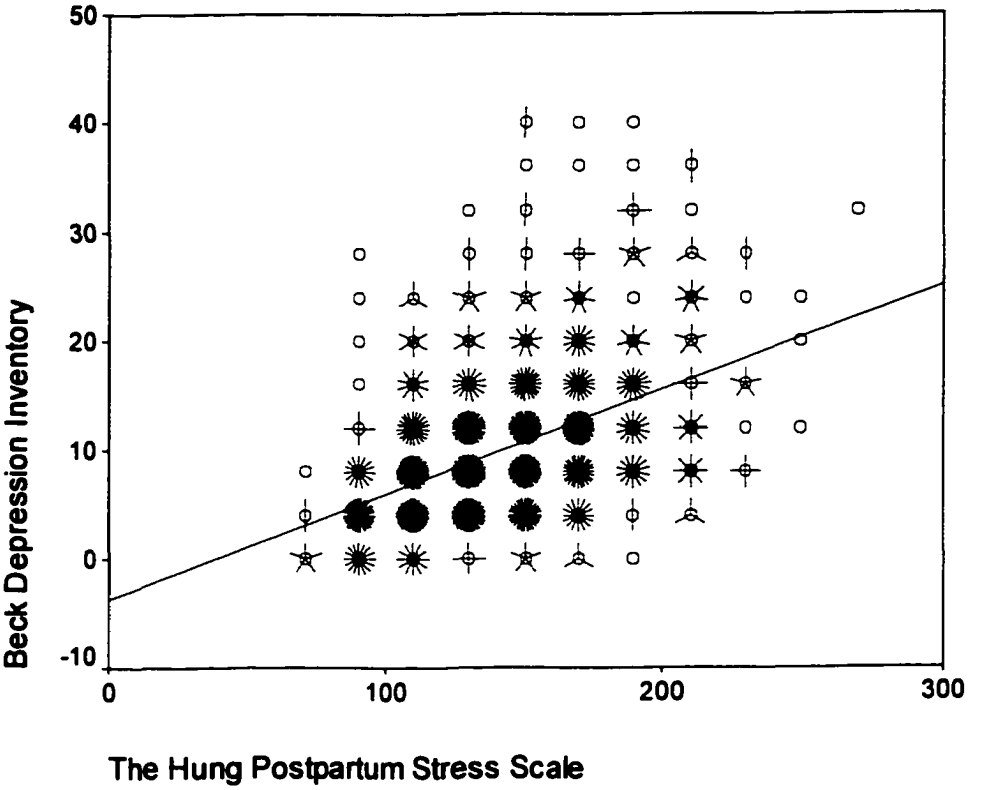

Figure3. The Relationship between the Hung Postpartum Stress Scale and the Beck Depression Inventory

Chapter V

Discussion and Conclusion

The postpartum period has been conceptualized by a variety of cultures as a time of vulnerability to stress for women. It is characterized by dramatic changes and requires mandatory adjustments that involve many difficulties and concerns, possibly leading to new demands, or structural constraints and, therefore, stress. Postpartum stress may also adversely affect maternal health during the postpartum period.

Despite its potential effects on the health status of postpartum women, postpartum stress has received only limited scholarly attention. The ability to identify postpartum stressors early in the course of childbearing could facilitate the development of approaches to relieve postpartum stress and perhaps prevent more severe postpartum health problems. The Postpartum Stress Scale was developed 16 years ago by Hung (1993) in a different social context to measure stress in the early postpartum period, but revalidation was needed due to rapid changes in Taiwanese social systems, such as the eradication of martial law and cultural shifts . The purpose of this study was to test the construct validity, examine discriminant validity, and determine the internal consistency of the newly-revised Postpartum Stress Scale.

As written in chapter four, the revised 85-item Postpartum Stress Scale, based on content validity in 2001, was examined for its construct validity. Fifteen of the 85

items were dropped as a result of the exploratory factor analysis. Among them, eight items did not meet the required loading criterion of ≥ .30, and seven items met the loading criterion, but with ambiguous loadings. After factor analysis in 2002, the correlation between the resulting 70-item Hung Postpartum Stress Scale (Hung PSS) and the Beck Depression Inventory was .46, supporting discriminant validity.

Wrigley-Neuhaus coefficients ranged from .98 to .84 across the women with either senior high and below or junior college and above education levels, either full-time employment or not, either planned or unplanned pregnancy, and with the number of children either only one or two and above. The coefficient alphas ranged from .90 for the Maternal Role Attainment dimension to .81 for the Body Function dimension of the scale across the full sample, and ranged from .91 for the Maternal Role Attainment dimension to .79 for the Body Function dimension for various sub-samples. The Cronbach's alpha across all five dimensions of the Hung Postpartum Stress Scale was .95.

Discussion

Validity of the Hung postpartum stress scale.

Empirically, all of the analyses presented in this study support the score interpretations. Both the Concerns about Maternal Role Attainment and Concerns about Lack of Social Support dimensions of postpartum stress were supported in this

study. However, after factor analysis with consideration of parsimonious coverage, the third proposed dimension, originally named Negative Body Changes was reconceptualized into three dimensions labeled Concerns about Activity Changes, Concerns about Physical Appearance, and Concerns about Body Function. Taiwanese society has changed dramatically over the 16 years, since the researcher began studying stress during the postpartum period. In the past, women were subordinate in the Taiwanese society and they did not pay attention to themselves. Their existences were just for their husbands, children, and families. In the present study, women are more aware of their own bodies than ever. Therefore, the data necessitated that three factors related to a postpartum woman's body emerge. These factors – body function, physical appearance, and activity changes -- replaced the early body changes factor.

Of the 70-item Hung PSS, 21 items loaded on the Concerns about Maternal Role Attainment dimension; 7 items were on the Concerns about Activity Changes dimension; 18 loaded on the Concerns about Social Support dimension; 8 items were on the Concerns about Physical Appearance dimension; and 16 items loaded on the Concerns about Body Function dimension. The items " I worry that the baby's nose will get plugged up when sleeping," "I worry about fatigue," "I worry about inadequate emotional support from my family," "I worry about recovering my original body figure," and, " I worry about painful nipples due to breast feeding" were the

highest loadings, respectively, on each of the five dimensions: Concerns about Maternal Role Attainment, Concerns about Activity Changes, Concerns about Lack of Social Support, Concerns about Physical Appearance, and Concerns about Body Function.

These postpartum stressors loaded on each dimension of postpartum stress coincide with the literature described in Chapter II. Mothering capability involves the mother's sensitivity to the infant's behavioral cues and the mother's ability to respond appropriately (Crockenberg, 1981; Leitch, 1999). Two components were identified for a mother's role-- emotional factors and physical care-taking (Ludington-Hoe, 1977). Emotional factors include protectiveness, concern for the infant's safety, well-being, elimination, sleeping, body weight, skin, spitting up, health, and development, feelings of warmth, and devotion. Physical care-taking tasks include such activities as bathing, feeding, diapering, dressing, clothing, cord care, and burping. All of these items revolving around the child were identified as the Concerns about Maternal Role Attainment dimension of postpartum stress in this study.

If a woman is unable to care for and meet the needs of her newborn infant, challenges to her self-confidence may evoke stress (Hall et al., 1996). Numerous studies have identified infant care as a major concern of postpartum mothers and the mothers sought help most frequently for needs and concerns related to the baby (Gruis,

1977; Moran et al., 1997). Moran et al. (1997) conducted a study and found that most postpartum women wanted more information about baby care topics. These concerns about baby care are similar to the findings of the present study, which found them to be one component of postpartum stress.

Fatigue, which loaded on the Concerns about Activity Changes dimension, was frequently identified in the literature as being the most common women's stressor during the postpartum period (McVeigh, 1997; Ruchala & Halstead, 1994; Russell, 1974; Smith, 1989). Fatigue could decrease mothers' performance in their daily activities and affect their lives profoundly. Parturition is an intense physical experience. In addition to the dramatic physiologic changes following delivery, infant care involves around-the-clock attention, and prevents adequate maternal rest and sleep (Ruchala & Halstead, 1994). Fatigue, therefore, results and makes women vulnerable to postpartum stress. It has often been a common complaint among postpartum women (McVeigh, 1997; Ruchala & Halstead, 1994; Russell, 1974; Smith, 1989). Russell's study (1974) indicated that complaints of fatigue, physical tiredness, and distress over the changes in their bodies were foremost stressors for postpartum women. The current study supports that fatigue and restricted physical activity are components of postpartum stress.

In this study, recovering the original body figure is an important concern of

postpartum women. Fitness is a major focus of today's society, and most women are disappointed with their postpartum bodies (Mercer, 1981b; Walker, 1997, 1998; Walker & Freeland-Graves, 1998). The study indicated that the items involving return to pre-pregnancy physical shape, weight gain, flabby flesh of the belly, unfading striae gravidarum, intake of food, resuming sexual intercourse, rough skin, and deformation of the breasts were all concerns of the postpartum women and were labeled as the Concerns about Physical Appearance dimension. These items are consistent with the literature stating that the return of the body to pre-pregnant shape and the related areas of diet are some of the main concerns of women after delivery (Fichardt et al., 1994; Gruis, 1977; Harrison & Hicks, 1983; Hiser, 1987). Likewise, Strang and Sullivan's (1985) study indicated that women felt more negatively about their postpartum bodies than about their pre-pregnant bodies. Perhaps this concern for appearance explains in part the additional factors found in this study.

The postpartum period involves many changes in physiological function and it can also be a time of physical discomfort. The postpartum women worried about painful nipples due to breast feeding, discomfort due to breast enlargement, the normality of lochia, constipation, hemorrhoids, and the wound (episiotomy/c-section). These stressors coincide with the literature that women may experience pain and discomfort due to breast engorgement, nipple soreness, and episiotomy (Fichardt et al.,

1994; Gruis, 1977; Harrison & Hicks, 1983; Hiser, 1987; Fishbein & Burggraf, 1998). Some items, such as "feeling sore in my body" and "poor recovery of the uterus" proved to be of significant concern to the postpartum Taiwanese women in this study, and have not been discussed significantly in Western literature. These items were labeled as Concerns about Body Function dimension. It is also logical that given changes in Taiwanese society, there was an additional factor related to body function.

Social support has been found to be important to postpartum women in terms of helping with adaptation to a new role, in helping them to be more responsive to their babies, and in facilitating their intimate relationships (Baker & Taylor, 1997; Maguire, 1991; Reece, 1993; Smith, 1989; Tulman & Fawcett, 1991). A woman's husband, family, and friends can provide the major sources of feedback on how she is fulfilling the role of mother. Because of the importance of interdependence and support of family members in Taiwanese culture, family ties play an especially dominant role in Taiwanese social interaction. In Taiwan, the family is the basic unit of society, is a force to keep people together, and offers every member of the family unlimited warmth and power. Therefore, the family is the predominant source of support for most postpartum women. It provides instrumental and emotional support in daily life, as well as assistance during the postpartum period or in times of need. Consequently, a lack of social support from the family may induce stress as is documented in this

study. This is similar to Reece's (1993) study, which found that social support from family and spouse was associated with lower stress. Likewise, Hung and her associates' (1993) study also documented that the supporting role of family is significantly associated with a low occurrence of postpartum stress.

Sixty-seven of the 70 Hung PSS items are consistent with the interpretation of the five dimensions. The remaining three items from the Concerns about Body Function dimension—"I worry about the baby's jaundice," "I worry that the baby will not adapt to the shift from breast feeding to formula," and "I worry about choosing an appropriate name for the baby"-- can be interpreted implicitly as a Concern about Body Function ("I worry about choosing an appropriate name for the baby"), due to the probable effects of physical exhaustion on postpartum women, or as a result of emotional symbiosis between the mother and her infant ("I worry about the baby's jaundice," and "I worry that the baby will not adapt to the shift from breast feeding to formula"). According to Rubin (1977), continued fetal movements and anatomic changes in the mother's body during pregnancy resulted in an emotional symbiosis. Only after delivery could polarization of the mother and infant occur. However, separation of the infant from the mother's body continued until about six weeks after delivery. The infant was seen as an extension from the mother, as a part of herself—still incorporated and not separate. Rubin believed that polarization of the

maternal-fetal dyad was inhibited until involution was complete (1977).

Social values and social consequences cannot be ignored in consideration of validity (Messick, 1980). Eastern sociocultural systems differ in many ways from Western ones, and these differences influence many aspects of the postpartum period. The factor analysis yielded a 70-item instrument consisting of five factors. Six items are all related to Taiwanese-specific sociocultural systems. These are: "I worry about the degree of leisure," "I worry that my life is constrained," "I worry about decreasing social activity," " I worry about feeling sore in my body," "I worry about choosing an appropriate name for the baby," and "I worry about the shape of the baby's head due to the sleeping position."

The traditional Chinese ritual of Tso-Yueh-Tzu has been imbedded firmly in Taiwanese culture. Conceptually, all Taiwanese women still follow the indigenous beliefs and practices. Based on the logic of traditional Chinese medicine with its theories of somatic balance of yin and yang, there are specific rules that must be adhered to during Tso-Yueh-Tzu. They are (from the most emphasized to the least): do not bathe; do not wash one's hair; do not go outside; do not eat any cold food; eat chicken; do not come in contact with wind; do not walk, squat, move around, or sit in a straight-back chair; do not go to another person's home; do not get sick; do not read or cry; do not have sexual intercourse; do not eat at the table with the rest of the

family; and do not burn incense (Leu, 1994; Pillsbury, 1978, 1982). However, technological advances, industrialization, and modernization have occurred in contemporary Taiwanese society. The women may have encountered uncertain feelings and may question certain practices of the Chinese ritual of Tso-Yueh-Tzu during the month-long postpartum period. If postpartum women's own mothers or mothers-in-law insist on adhering to some specific rules which are contrary to the women's beliefs, postpartum stress, therefore, is induced. Exemplifying this, three items—decreasing social activity, my life is constrained, and the degree of leisure—loaded on the Concerns about Activity Changes dimension and are related to a woman's activity restrictions, since to this day, rest and seclusion are still emphasized during the postpartum period. Moreover, that the item "feeling sore in my body" loaded on the Body Function dimension is another consequence of the restricted physical activities associated with the ritual of Tso-Yueh-Tzu during the month-long postpartum period.

In Taiwan, people believe that a person's name and face are critical for one's fate. Choosing a meaningful and good name for a newborn baby is a great gift from the parents but consumes much time and energy. Furthermore, changing one's name is allowed only once in his/her life under certain restricted situations and the procedure is very complicated. Birth registration is a new policy in Taiwan, and, although a

newborn baby's name should be registered in a few days after birth, it is customary to wait until after a child is born to begin the naming process. It is believed that for one's fortune, when giving a child a name one should consider the date and the time of his/her birth as criteria. Thus, giving an appropriate name for the newborn baby is one of a woman's postpartum stressors.

Likewise, a person's face is also critical to his/her fortune. The contour of one's face is affected by the shape of one's head and the shape of one's head can be affected by one's sleeping position in one's infancy. In Taiwan, postpartum women usually pay a lot of attention to fix their infants' sleeping positions in order to keep their infants' heads in a correct shape. Therefore, this is another item related to Taiwanese-specific cultural postpartum stress.

However, fifteen items found either in literature or with content validity testing from experts did not load on any dimension of postpartum stress. Eight items including "the limitation of living space," "finding a nanny," "choosing a contraceptive method," "bothersome taboos during the postpartum period," "not having desirable food," "lack of information regarding self-care," "diarrhea," and "not knowing the appropriate time for exercise" failed to acquire salient loading. Seven items—"the results of newborn screening tests," "the unpredictability of the baby's schedule," "lacking time to care for my other children," "the baby's crying," "others

contradicting my decisions about baby care," " sibling rivalry," and "feeding my baby"—were salient loadings but on multiple dimensions. The Hung PSS is an instrument that has been conceptualized, created, and tested with low-risk Taiwanese postpartum women during the 42 days of the postpartum period. Thus, these 15 items were not sensitive and competent postpartum stressors for the low-risk Taiwanese women during the 42-day postpartum period.

In addition, Appendix G reveals the development history of the Hung Postpartum Stress Scale. It includes the year, the number of items, the sample size, the methods of administration, and the administration duration. In comparison with factor structures in both the 1998 and 2002 studies, it indicates that most factor items located in a relatively stable dimension, although the administration duration in 1998 was at a fixed point of time rather than over a 42-day period (Appendix H).

Furthermore, the discriminant validity of the Hung PSS was also indicated with the correlation of $r < .5$ between the Hung PSS and the Beck Depression Inventory-II. This study documents that postpartum stress and depression are two different concepts with only moderate correlation. Women with more postpartum stress may be more depressed than women with less postpartum stress. Thus, the Hung PSS score is correlated with the score of the BDI-II. In the future, discriminant and convergent validity should be examined simultaneously. The correlation between the Hung PSS

and a similar construct, such as general stress, will be compared with the correlation between the Hung PSS and a dissimilar construct, such as intelligence. The correlation for convergent validity should be higher than the correlation for discriminant validity.

Reliability.

The generalizability of the Hung PSS was shown with high to moderately high coefficients of congruence among postpartum women across education level, employment status, planning status of the pregnancy, and number of children. The internal consistency reliabilities for the total Hung PSS and its five dimensions across the full sample and within pertinent sub-samples also showed that the Hung PSS is a reliable tool for measuring low-risk women's postpartum stress.

Demographic/perinatal characteristics.

The original versions of the Beck Depression Inventory (BDI) and the BDI-IA have been used for Taiwanese postpartum women. Although the BDI-II has recently been translated from English into Chinese with copyright, the overall psychometric characteristics of the BDI-II and the BDI-IA are similar based on Beck and his associates' study.

The estimated prevalence of postpartum women in this sample with mild, moderate, or severe depression was 14.5%, 7.9%, and 2.3% respectively, with a total

of 24.7%. Compared with other community surveys of nonpostpartum women in southern Taiwan, the prevalence rate for women with psychiatric morbidity was 27% to 39% in three samples with women ages 15 and above (Cheng, 1988) and 52.0% (sample mean age = 51.4 ±11.6) in the study of Chong and Wilkinson (1989). Therefore, it does not appear that postpartum women in this study had greater psychiatric morbidity than in other general community samples. According to Cheng's study (1989), a stronger effect of chronic psychosocial stressors accounted for the higher prevalence of minor psychiatric morbidity in Yaiwanese women.

In addition, according to Affonso, De, Horowitz, and Mayberry's study (2000), the Edinburgh Postnatal Depression Scale and Beck Depression Inventory were used to assess postpartum depressive symptomatology (PPDS) among an international sample of 892 women. The results indicated that European and Australian women had the lowest levels of PPDS; women in the United States of America fell at the midpoint; and women from Asia and South America had the highest depressive symptom scores. Through the present study focuses on stressors specifically experienced by Taiwanese women during the postpartum period, it would be of interest to also look more closely at depression during the postpartum period and in general. Taiwanese women's depression was characterized with somatic symptoms (Cheng, 1988). It would be useful to consider symptomatology in relationship to the BDI-II. Future study should

work on culturally competent tools.

Moreover, the Cesarean section rate in this study, 56%, is very high. In Taiwan, Cesarean sections have risen from 10% in 1970 to 50% in 1994 because of safety concerns, women's previous Cesarean sections, the opportunity to choose a date and time for a child's delivery, high medical reimbursement, or to avoid stretching the vagina which could affect sexual intercourse (http://www.vghtpe.gov.tw/doc_ vgh/obgy03.htm). However, Cesarean sections did not affect women's postpartum stress level, and it did not affect women's satisfaction with their childbirth experience either. Accordingly, Cesarean sections were not deemed as a risk factor among Taiwanese postpartum women.

As shown in the study, the present evaluation of the construct validity of the Hung Postpartum Stress Scale has generally produced encouraging results. The study indicated that the dimensions of the new version of the Hung PSS are grounded in psychometrically homogeneous and meaningful dimensions, since it has been normed on a large and representative sample to reflect an accurate and fair picture of postpartum stress.

Nursing implications.

The support for the validity and reliability of this measure has important implications for clinical work as well as research. The final 70-item Hung PSS can be

used for baseline and evaluative data for interventions and their outcomes. Postpartum women experiencing specific postpartum stressors may be identified and offered supportive nursing interventions that provide stressor-specific coping resources. Specifically, tailored nursing intervention designed to address the items on the scale that postpartum women indicate to be the most stressful can be tested. Improvement in detecting postpartum stressors may lead to reducing postpartum stress and to preventing more severe postpartum health problems.

Thus, assessing postpartum stress, identifying postpartum stressors, creating primary prevention strategies, and offering nursing interventions are all imperative for efficient, effective, and complete postpartum nursing care. Future research, including testing the effectiveness of specific nursing interventions in response to specific postpartum stressors, would add significantly to our knowledge and to the role of the nursing profession in women's health.

Future study.

It will be necessary to test the generalizability of the Hung Postpartum Stress Scale to postpartum women of other cultural groups both within Asia and of other nationalities. The Hung PSS has been developed using a homogeneous sample of low-risk postpartum women under Taiwanese-specific sociocultural systems, with factor analysis accounting for a variance of 31.3% in 1993, 30.0%, 28.3%, and 30.3%

in 1998, and 31.9% in the present study. The mean postpartum stress score was 142.4 out of a possible score of 350. This relatively low score in this study reflects that the postpartum women perceived these postpartum stressors as being 'seldom' (33 items) or 'sometimes' (36 items) stressful. Further testing with women who are more likely to be experiencing stress will help to clarity whether some of the items not scored as being particularly stressful would be selected as stressors by a different sample or if a shorter and more parsimonious version of the tool can be developed eliminating items not contributes to postpartum stress in this study. There was not a significant difference among the mean scores of postpartum stress, the maternal role attainment dimension, the social support dimension, and the physical appearance dimension across the six weeks of the postpartum period. However, the mean scores of the activity changes dimension and the body function dimension were significantly different within the six weeks. Furthermore, women in the sixth week of the postpartum period had higher activity changes mean scores than in the first and second weeks. Similarly, women in the fourth week had higher scores for activity changes than in the second postpartum week. Women in the first postpartum week had significant higher body function scores than in any other postpartum week. Therefore, it is also possible that in future studies of stress in low risk populations, higher scores might be obtained during more stressful periods (e.g. fist postpartum week).

In this study, there was a homogeneous sample of low- risk and low postpartum stressed women, who had a single, healthy, and full-term baby without complications; had no major postnatal complications or underlying medical problems; were married. These variables could contribute to a lower variance of this study. Future research should also include those high-risk women who: (a) have twins or multiple babies; (b) have ill babies or babies with complications during the perinatal period; (c) have major postnatal complications or underlying medical problems themselves; or, (d) are single mothers.

Conclusion

Empirically, the new 70-item version of the Hung PSS presented to be a valid and reliable instrument for assessing a woman's perception of postpartum stress. The sample was a relatively diverse population of low-risk Taiwanese postpartum women, and was based on a large sample with a 10-to-1 subject-to-item ratio. A series of analyses supported the validity and reliability of the revised Hung Postpartum Stress Scale. Additional research is recommended with confirmatory factor analysis to determine the stability of the factor structure identified in the present study.

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Appendix A

The Study on Correlates of Stress Perceived by Women During Puerperium (1993)

(1) Table 1. Demographic Data
(2) Table 2. Mean, Standard Deviation, and Rank of Postpartum Stressors
(3) Table 3. Factor Loading of Postpartum Stress Scale Items

Table 1. Demographic Characteristics (N = 326)

Demographic characteristics		n	%
Age (years)			
Mean (SD)	26.77 (3.65)		
Education			
Junior high or less		81	24.8
Senior high or Junior college		213	65.3
University or above		32	9.8
Employment status			
Employed during pregnancy		163	50.0
Not employed during pregnancy		162	49.8
Missing data		1	0.3
Parity Primipara		151	46.3
Multipara		175	53.7
Length of marriage (months)			
Mean (SD)	39.00 (30.53)		
Number of children			
1		151	46.3
2		129	39.6
3		41	12.6
4		4	1.2
5		1	0.3
Number of sons			
0		100	30.7
1		177	54.3
2		44	13.5
3		5	1.5
Number of daughters			
0		122	37.4
1		151	46.3
2		41	12.6
3 or above		12	3.7

Table 1. Demographic Characteristics (N = 326)

Demographic characteristics	n	%
This pregnancy was		
Planned	148	45.4
Unplanned		
No contraceptive used	95	29.1
Used contraceptives	83	25.5
Type of delivery		
Vaginal	263	80.7
Cesarean section	62	19.0
Missing data	1	0.3
Method of this baby's feeding		
Breast feeding	29	8.9
Formula feeding	186	57.1
Mixed	111	34.0
Postpartum day		
0- 5	9	2.8
6-10	37	11.3
11-15	57	17.5
16-20	44	13.5
21-25	43	13.2
26-30	38	11.7
31-35	39	12.0
36-40	37	11.3
41-42	22	6.7
Key persons for baby care during Tso-Yueh-Tzu (multiple choices possible)		
Myself	176	54.0
Mother	66	20.2
Mother-in-law	56	17.2
Husband	23	7.1
Nanny	9	2.8
Others	12	3.7

Table 1. Demographic Characteristics (N = 326)

Demographic characteristics	n	%
Key helpers during Tso-Yueh-Tzu (multiple choices possible)		
Mother-in-law	129	39.6
Mother	97	29.8
Husband	66	20.2
Nanny	9	2.8
Public health nurse	0	0
Others	27	8.3

Table 2. Mean, Standard Deviation, and Rank of Postpartum Stressors(N = 326)

Stressor	M	SD	Rank
At present, I am bothered by:			
1. Not being able to control my body weight	1.96	1.01	11
1. Taking too much food	1.59	.87	29
2. Getting up frequently during the night	2.07	1.02	6
3. Not knowing the appropriate time for resuming intercourse	1.63	.86	26
4. Degree of leisure and social activity	1.96	1.03	11
5. Neglecting my husband's care	1.67	.95	23
7. The limitation of living space	1.43	.85	35
8. My husband's acceptance of the baby	1.25	.61	44
9. My baby's appearance differing from my expectation	1.43	.80	35
10.Choosing formula brands	1.69	.95	21
11. Sudden stops in my baby's breathing	2.01	1.05	10
12. Worrying about my baby's regurgitation	2.03	1.10	9
13. Worrying about raising the baby	2.06	1.14	7
14. Being unfamiliar with the techniques of diapering, feeding, and dressing my baby	1.70	.99	20
15. Lack of privacy during breast-feeding	1.68	1.02	22
16. Differing opinions of family members on baby care	1.70	.97	20
17. Recovering my original body figure	2.01	1.08	10
18. Not enough breast milk for the baby	1.45	.87	34
19. Pregnancy from resumed intercourse	1.75	1.02	18
20. Giving up my job	1.26	.73	43
21. Finding a nanny	1.50	.95	32

Table 2. Mean, Standard Deviation, and Rank of Postpartum Stressors (N = 326)

Stressor	M	SD	Rank
22. Unacceptance of the baby by my husband's family	1.25	.66	44
23. The baby's body weight differing from my expectation	1.80	1.03	16
24. Deciding between breast and bottle feeding	1.54	.86	31
25. Worrying about the baby being sick	2.12	1.06	4
26. Discomfort due to breast enlargement	1.69	.96	21
27. Less concern from my husband	1.77	.91	17
28. Worrying about the baby's vomiting	2.17	1.04	3
29. Choosing a contraceptive method	1.91	1.09	12
30. Bothersome taboos during the postpartum period	1.85	.95	14
31. Spotty and rough skin	1.61	.87	28
32. Decreased frequency of sexual activity	1.28	.60	42
33. Lack of help with household chores	1.65	.86	24
34. Inadequate emotional support from my family	1.41	.77	37
35. The baby's sex differing from my expectation	1.36	.80	40
36. Abnormality in the baby's elimination	1.62	.83	27
37. Wet clothes due to breast leakage	1.71	.94	19
38. The lack of my husband's participation in baby care	1.56	.82	30
39. Being unfamiliar with the skills of bathing the baby and necessary for proper cord-stem care	1.61	.92	28
40. Flabby flesh of my belly	2.32	1.08	2
41. Feeling like my life is confined	1.91	.98	12

Table 2. Mean, Standard Deviation, and Rank of Postpartum Stressors (N = 326)

Stressor	M	SD	Rank
42. The baby's color differing from my expectation	1.20	.55	45
43. Worrying about the baby choking during feeding	2.01	.93	10
44. My husband not coming home immediately after work	1.41	.81	37
45. Not taking enough food	1.38	.80	38
46. Feeling uncomfortable during sexual intercourse	1.37	.67	39
47. Lacking time to care for my other children	1.64	.91	25
48. Increased family expenses	2.04	.98	8
49. Choosing an appropriate name for the baby	1.42	.76	36
50. Worrying about the baby slipping underwater during bathing	.81	.96	15
51. Leaving the baby to be cared by the other person	1.64	1.06	25
52. My husband not agreeing with breast feeding	1.04	.28	46
53. Baby's crying	2.11	1.04	5
54. The shape of the baby's head due to the sleeping position	1.91	.99	12
55. Worrying that the baby is not adaptive to the shift from breast feeding to formula	1.38	.77	38
56. Others contradicting my decisions about baby care	1.49	.83	33
57. My sexual life due to the stretching of the vagina	1.45	.71	34
58. The baby not taking enough milk	1.62	.86	27
59. Not sleeping enough	2.33	1.14	1
60. Dressing the baby for weather conditions	1.90	.96	13

Table 2. Mean, Standard Deviation, and Rank of Postpartum Stressors (N = 326)

Stressor	M	SD	Rank
61. Worrying that the baby's nose will get plugged up when sleeping in a prone position	1.71	.91	19
62. The wound not healing	1.61	.80	28
63. Painful hemorrhoids	1.32	.69	41
64. Poor contractions of the uterus	1.80	.89	16

Table 3. Factor Loading of Postpartum Stress Scale Items (N=326)

Factor 1. The Maternal Role	Factor Loading
12. Worrying about my baby's regurgitation	.76
28. Worrying about the baby's vomiting	.71
50. Worrying about the baby slipping underwater during bathing	.65
43. Worrying about the baby choking during feeding	.63
25. Worrying about the baby being sick	.63
60. Dressing the baby for weather conditions	.61
14, 65, 66. Being unfamiliar with the techniques of diapering, feeding, and dressing my baby	.57
53. Baby's crying	.56
13. Worrying about raising the baby	.54
11. Sudden stops in my baby's breathing	.53
61. Worrying that the baby's nose will get plugged up when sleeping In a prone position	.51
39, 50. Being unfamiliar with the skills of bathing the baby and necessary for proper cord-stem care	.46
54. The shape of the baby's head due to the sleeping position	.42
58. The baby not taking enough milk	.42
29. Choosing a contraceptive method	.41
62. The wound not healing	.38
36. Abnormality in the baby's elimination	.37
15. Lack of privacy during breast-feeding	.35
46. Feeling uncomfortable during sexual intercourse	.33
45. Not taking enough food	.30

Table 3. Factor Loading of Postpartum Stress Scale Items (N=326)

Factor 2. The Lack of Social Support	Factor Loading
34. Inadequate emotional support from my family	.66
8. My husband's acceptance of the baby	.62
22. Lack of acceptance of the baby by my husband's family	.57
27. Less concern from my husband	.55
16. Differing opinions of family members on baby care	.53
35. The baby's sex differing from my expectation	.48
56. Others contradicting my decisions about baby care	.44
44. My husband not coming home immediately after work	.39
6. Neglecting my husband's care	.39
32. Decreased frequency of sexual activity	.38
7. The limitation of living space	.38
48. Increased family expenses	.36
38. The lack of my husband's participation in baby care	.34
5, 67. Degree of leisure and social activity	.34
33. Lack of help with household chores	.32
Factor 3. The Decision-Making	
51. Leaving the baby to be cared by the other person	.52
20. Giving up my job	.47
21. Finding a nanny	.47
49. Choosing an appropriate name for the baby	.42
10. Choosing formula brands	.41
24. Deciding between breast and bottle feeding	.40

Table 3. Factor Loading of Postpartum Stress Scale Items (N=326)

	Factor Loading
30. Bothersome taboos during the postpartum period	.33
59. Not sleeping enough	.33
Factor 4. The Body Image	
1. Not being able to control my body weight	.83
17. Recovering my original body figure	.79
40. Flabby flesh of my belly	.62
2. Taking too much food	.52
41. Feeling like my life is confined	.38
19. Pregnancy from resumed intercourse	.34
64. Poor contractions of the uterus	.32
31. Spotty and rough skin	.31

The following items did not load based on item loading less than .30

3. Getting up frequently during the night
4. Not knowing the appropriate time for resuming intercourse
9. My baby's appearance differing from my expectation
18. Not enough breast milk for the baby
23. The baby's body weight differing from my expectation
26. Discomfort due to breast enlargement and tenderness
37. Wet clothes due to breast leakage
42. The baby's color differing from my expectation
47. Lacking time to care for my other children
52. My husband not agreeing with breast feeding

55. Worrying that the baby is not adaptive to the shift from breast feeding to formula

57. My sexual life due to the stretching of the vagina.

63. Painful hemorrhoids

Appendix B

The Study on Women's Health Status During Postpartum Period (completed in 1998)

(1) Table 1. Demographic Data
(2) Table 2. Ranking of Postpartum Women's Stress with A Mean of 2.0 or Above at Three Points in Time
(3) Table 3. Factor Loading of Postpartum Stress Scale Based on the 1st Week Data
(4) Table 4. Factor Loading of Postpartum Stress Scale Based on the 3rd Week Data
(5) Table 5. Factor Loading of Postpartum Stress Scale Based on the 5th Week Data
(6) Table 6. Factor Loders among the Three Points of Time

Table 1. Demographic Characteristics (N = 526)

Demographic characteristics		n	%
Age (years)			
Mean (SD)	28.33(4.12)		
Education			
Primary		3	0.6
Junior high		39	7.4
Senior high		278	52.9
Junior college		137	26.0
University		61	11.6
Graduate or above		8	1.5
Employment status			
Employed during pregnancy		305	58.0
Not employed during pregnancy		221	42.0
Length of marriage (months)			
Mean (SD)	39.09 (32.55)		
Para			
1		261	49.6
2		201	38.2
3		60	11.4
4		4	0.8
Number of sons			
0		161	30.6
1		289	54.9
2		71	13.5
3		5	1.0
Number of daughters			
0		203	38.6
1		243	46.2
2		70	13.3
3		9	1.7
4		1	0.2

Table 1. Demographic Characteristics (N = 526)

Demographic characteristics	n	%
This pregnancy was		
Planned	212	40.3
Unplanned	137	26.0
Neither of the above	176	33.5
Missing	1	0.2
Type of delivery		
Vaginal	289	54.9
Cesarean section	237	45.1
Sex of the baby		
Boy	293	55.7
Girl	233	44.3
Feelings about the sex of the baby		
Desired	171	32.5
Didn't matter	313	59.5
Undesired	38	7.2
Missing	4	0.8
Method of this baby's feeding		
Breast feeding	76	14.4
Formula feeding	134	25.5
Mixed	314	59.7
Not decided	2	0.4
Key persons for baby care during Tso-Yueh-Tzu (multiple choices possible)		
Myself	373	70.9
Husband	8	1.5
Mother	60	11.4
Mother-in-law	43	8.2
Nanny	5	1.0
Others	37	7.0

Table 1. Demographic Characteristics (N = 526)

Demographic characteristics	n	%
Key helpers during Tso-Yueh-Tzu (multiple choices possible)		
Husband	107	20.3
Mother	212	40.3
Mother-in-law	165	31.4
Nanny	6	1.1
Public health nurse	0	0
Others	36	6.8
Living with the baby after puerperium		
Yes	485	92.2
. No	41	7.8
Key person providing baby day care after puerperium (multiple choices possible)		
Myself	307	58.4
Husband	3	0.6
Mother	55	10.5
Mother-in-law	90	17.1
Nanny	60	11.4
Others	11	2.1
Key person providing baby night care after puerperium (multiple choices possible)		
Myself	448	85.2
Husband	10	1.9
Mother	24	4.6
Mother-in-law	20	3.8
Nanny	16	3.0
Others	8	1.5

Table 2. Ranking of Postpartum Women's Stress with A Mean of 2.0 or Above at Three Points in Time (N = 526)

Items	Time 1 1 week	Time 2 3 week	Time 3 5 week
1. Not being able to control my body weight	8	10	7
2. Taking too much food	19		
3. Getting up frequently during the night	7	1	1
4. Degree of leisure and social activity	15	11	
5. Neglecting my husband's care		17	19
6. Sudden stops in my baby's breathing		19	
7. Worrying about my baby's regurgitation	9	5	
8. Worry about raising the child	3	9	8
9. Recovering my original body figure	6	6	5
10. Pregnancy from resumed intercourse	11	18	14
11. Worrying about the baby being sick	2	4	4
12. Less concern from husband	16	17	
13. Worrying about the baby's vomitting		7	10
14. Bothersome taboos during the postpartum period		14	
15. Lack of help with household chores			20
16. Flabby flesh of my belly	1	3	3
17. Worrying about the baby choking during feeding		14	15
18. Increased family expenses	4	8	6
19. Baby's crying		11	12
20. The shape of the baby's head due to the sleeping position		13	16
21. Not sleeping enough		2	2
22. Dressing the baby for weather conditions		12	13
23. The wound not healing	10		
24. Poor contractions of the uterus	5	13	18

Table 3. Exploratory Factor Structures for Postpartum Stress at 1 Week (N = 505)

Postpartum stressors	Rotated loading Promax[a]	Item-total
	Maternal Role Attainment	
66. Being unfamiliar with technique of dressing my baby	.77	.48
65. Being unfamiliar with techniques of feeding my baby	.76	.54
43. Worrying about the baby choking during feeding	.75	.51
14. Being unfamiliar with technique of diapering	.73	.36
28. Worrying about the baby's vomiting	.71	.60
50. Worrying about the baby slipping underwater during bathing	.67	.54
12. Worrying about my baby's regurgitation	.66	.53
25. Worrying about the baby being sick	.58	.58
60. Dressing the baby for weather conditions	.57	.58
61. Worrying that the baby's nose will get plugged up when sleeping in a prone position	.52	.56
53. Baby's crying	.49	.55
13. Worrying about raising the baby	.48	.62
11. Sudden stops in my baby's breathing	.45	.45
54. The shape of the baby's head due to the sleeping position	.44	.53
55. Worrying that the baby is not adaptive to the shift from breast feeding to formula	.43	.48
58. The baby not taking enough milk	.42	.54
36. Abnormality in the baby's elimination	.42	.50
64. Poor contractions of the uterus	.40	.58
39. Being unfamiliar with the skills necessary for proper cord-stem care	.40	.40
30. Bothersome taboos during the postpartum period	.36	.58
56. Others contradicting my decisions about baby care	.36	.52

Table 3. (continued)

Postpartum stressors	Rotated loading Promax[a]	Item-total
	Lack of Social Support	
34. Inadequate emotional support from my family	.64	.52
22. Unacceptance of the baby by my husband's family	.57	.26
44. My husband not coming home immediately after work	.57	.44
8. My husband's acceptance of the baby	.53	.33
47. Lacking time to care for my other children	.51	.33
33. Lack of help with household chores	.48	.44
27. Less concern from husband	.47	.56
48. Increased family expenses	.46	.54
41. Feeling like my life is confined	.45	.58
45. Not taking enough food	.42	.49
51. Leaving the baby to be cared by the other person	.42	.37
35. The baby's sex differing from my expectation	.41	.28
49. Choosing an appropriate name for the baby	.39	.44
46. Feeling uncomfortable during sexual intercourse	.38	.50
21. Finding a nanny	.38	.29
38. The lack of my husband's participation in baby care	.37	.51
57. My sexual life due to the stretching of the vagina	.37	.55
6. Neglecting my husband's care	.36	.48
32. Decreased frequency of sexual activity	.36	.49
9. My baby's appearance differing from my expectation	.35	.34
16. Differing opinions of family members on baby care	.33	.45

Table 3. (continued)

Postpartum stressors	Rotated loading Promax[a]	Item-total
	Body Changes	
1. Not being able to control my body weight	.84	.35
2. Taking too much food	.77	.29
17. Recovering my original body figure	.74	.45
40. Flabby flesh of my belly	.55	.58
3. Getting up frequently during the night	.45	.39
5. Degree of leisure and social activity	.44	.48
37. Wet clothes due to breast leakage	.40	.42
26. Discomfort due to breast engorgement	.36	.40
19. Pregnancy from resumed intercourse	.32	.43
4. Not knowing the appropriate time for resuming intercourse	.31	.47
29. Choosing a contraceptive method	.31	.41
7. The limitation of living space	.30	.32

[a]Entries are derived from promaxian oblique rotation at k = 3 with the equamax structure maxtrix serving as the initial orthogonal solution.

Table 4. Exploratory Factor Structures for Postpartum Stress at 3 weeks (N = 512)

Postpartum stressors	Rotated loading Promax[a]	Item-total
	Maternal Role Attainment	
28. Worrying about the baby's vomiting	.84	.49
12. Worrying about my baby's regurgitation	.81	.46
43. Worrying about the baby choking during feeding	.75	.52
53. Baby's crying	.68	.57
11. Sudden stops in my baby's breathing	.67	.49
66. Being unfamiliar with technique of dressing my baby	.63	.55
25. Worrying about the baby being sick	.61	.55
60. Dressing the baby for weather conditions	.60	.63
50. Worrying about the baby slipping underwater during bathing	.51	.53
65. Being unfamiliar with techniques of feeding my baby	.50	.62
54. The shape of the baby's head due to the sleeping position	.50	.53
14. Being unfamiliar with technique of diapering	.50	.48
13. Worrying about raising the baby	.47	.60
61. Worrying that the baby's nose will get plugged up when sleeping in a prone position	.45	.49
58. The baby not taking enough milk	.36	.41
	Body Changes	
2. Taking too much food	.66	.20
40. Flabby flesh of my belly	.64	.52
5. Degree of leisure and social activity	.57	.43
4. Not knowing the appropriate time for resuming intercourse	.47	.46
3. Getting up frequently during the night	.45	.39
59. Not sleeping enough	.38	.51
32. Decreased frequency of sexual activity	.38	.42
57. My sexual life due to the stretching of the vagina	.38	.45
41. Feeling like my life is confined	.37	.56
6. Neglecting my husband's care	.36	.40
19. Pregnancy from resumed intercourse	.32	.46
29. Choosing a contraceptive method	.30	.44

Table 4. (continued)

Postpartum stressors	Rotated loading Promax[a]	Item-total
	Lack of Social Support	
22. Unacceptance of the baby by my husband's family	.59	.28
34. Inadequate emotional support from my family	.55	.53
8. My husband's acceptance of the baby	.55	.32
45. Not taking enough food	.50	.42
44. My husband not coming home immediately after work	.48	.47
10. Choosing formula brands	.44	.33
51. Leaving the baby to be cared by the other person	.42	.37
35. The baby's sex differing from my expectation	.39	.27
55. Worrying that the baby is not adaptive to the shift from breast feeding to formula	.37	.33
33. Lack of help with household chores	.37	.47
49. Choosing an appropriate name for the baby	.36	.35
48. Increased family expenses	.35	.48
21. Finding a nanny	.34	.32
46. Feeling uncomfortable during sexual intercourse	.32	.36
9. My baby's appearance differing from my expectation	.30	.26

[a]Entries are derived from promaxian oblique rotation at k = 4 with the equamax structure maxtrix serving as the initial orthogonal solution.

Table 5. Exploratory Factor Structures for Postpartum Stress at 5 Weeks (N = 518)

Postpartum stressors	Rotated loading Promax[a]	Item-total
	Maternal Role Attainment	
28. Worrying about the baby's vomiting	.82	.56
12. Worrying about my baby's regurgitation	.81	.53
43. Worrying about the baby choking during feeding	.75	.59
11. Sudden stops in my baby's breathing	.71	.50
25. Worrying about the baby being sick	.64	.59
60. Dressing the baby for weather conditions	.62	.63
53. Baby's crying	.58	.59
50. Worrying about the baby slipping underwater during bathing	.55	.54
66. Being unfamiliar with technique of dressing my baby	.51	.52
14. Being unfamiliar with technique of diapering	49	.47
54. The shape of the baby's head due to the sleeping position	.45	.57
61. Worrying that the baby's nose will get plugged up when sleeping in a prone position	.38	.45
36. Abnormality in the baby's elimination	.36	.47
58. The baby not taking enough milk	.34	.46
64. Poor contractions of the uterus	.33	.56
	Body Changes	
2. Taking too much food	.72	.33
40. Flabby flesh of my belly	.67	.52
4. Not knowing the appropriate time for resuming intercourse	.53	.41
57. My sexual life due to the stretching of the vagina	.49	.42
5. Degree of leisure and social activity	.48	.48
3. Getting up frequently during the night	.44	.48
19. Pregnancy from resumed intercourse	.44	.45
6. Neglecting my husband's care	.42	.45
48. Increased family expenses	.37	.51
29. Choosing a contraceptive method	.35	.46
46. Feeling uncomfortable during sexual intercourse	.33	.42

Table 5. (continued)

Postpartum stressors	Rotated loading Promax[a]	Item-total
	Lack of Social Support	
22. Unacceptance of the baby by my husband's family	.59	.37
34. Inadequate emotional support from my family	.57	.56
8. My husband's acceptance of the baby	.55	.34
9. My baby's appearance differing from my expectation	.46	.38
45. Not taking enough food	.45	.43
44. My husband not coming home immediately after work	.43	.46
33. Lack of help with household chores	.40	.50
15. Lack of privacy during breast-feeding	.32	.38
10. Choosing formula brands	.32	.35
35. The baby's sex differing from my expectation	.32	.25
23. The baby's body weight differing from my expectation	.32	.35
42. The baby's color differing from my expectation	.31	.38

[a]Entries are derived from promaxian oblique rotation at k = 3 with the equamax structure maxtrix serving as the initial orthogonal solution.

Table 6. Factor Loaders Among Three Points of Time

1 = Maternal Role Attainment
2 = Body Changes
3 = Lack of Social Support

	1st week	3rd week	5th week
1. At present, I am bothered by not being able to control my body weight	2		
2. At present, I am bothered by taking too much food	2	2	2
3. At present, I am bothered by getting up frequently during the night	2	2	2
4. At present, I am bothered by not knowing the appropriate time for resuming intercourse	2	2	2
5. At present, I am bothered by degree of leisure and social activity	2	2	2
6. At present, I am bothered by neglecting my husband's care	3	2	2
7. At present, I am bothered by the limitation of living space	2		
8. At present, I am bothered by my husband's acceptance of the baby	3	3	3
9. At present, I am bothered by my baby's appearance differing from my expectation	3	3	3
10. At present, I am bothered by choosing formula brands		3	3
11. At present, I am bothered by sudden stops in my baby's breathing	1	1	1
12. At present, I am bothered by worrying about my baby's regurgitation	1	1	1
13. At present, I am bothered by worrying about raising the baby	1	1	
14. At present, I am bothered by being unfamiliar with the technique of diapering	1	1	1

15. At present, I am bothered by lack of privacy during breast-feeding..... 3

16. At present, I am bothered by differing opinions of family members on baby care..... 3

17. At present, I am bothered by recovering my original body figure..... 2

18. At present, I am bothered by not enough breast milk for the baby.....

19. At present, I am bothered by pregnancy from resumed intercourse 2 2 2

20. At present, I am bothered by giving up my job .....

21. At present, I am bothered by finding a nanny..... 3 3

22. At present, I am bothered by unacceptance of the baby by my husband's family..... 3 3 3

23. At present, I am bothered by the baby's body weight differing from my expectation ... 3

24. At present, I am bothered by deciding between breast and bottle feeding.....

25. At present, I am bothered by worrying about the baby being sick..... 1 1 1

26. At present, I am bothered by discomfort due to breast enlargement 2

27. At present, I am bothered by less concern from my husband..... 3

28. At present, I am bothered by worrying about the baby's vomiting..... 1 1 1

29. At present, I am bothered by choosing a contraceptive method..... 2 2 2

30. At present, I am bothered by bothersome taboos during the postpartum period..... 1

31. At present, I am bothered by spotty and rough skin.....

32. At present, I am bothered by decreased frequency of sexual activity..... 3 2

33. At present, I am bothered by lack of help with household chores..... 3 3 3

34. At present, I am bothered by inadequate emotional support from my family..... 3 3 3

35. At present, I am bothered by the baby's sex differing from my expectation..... 3 3 3

36. At present, I am bothered by abnormality in the baby's elimination..... 1 1

37. At present, I am bothered by wet clothes due to breast leakage..... 2

38. At present, I am bothered by the lack of my husband's participation in baby care..... 3

39. At present, I am bothered by being unfamiliar with the skills necessary for

proper cord-stem care..... 1

40. At present, I am bothered by flabby flesh of my belly..... 2 2 2

41. At present, I am bothered by feeling like my life is confined..... 3 2

42. At present, I am bothered by the baby's color differing from my expectation..... 3

43. At present, I am bothered by worrying about the baby choking during feeding..... 1 1 1

44. At present, I am bothered by my husband not coming home immediately after work.... 3 3 3

45. At present, I am bothered by not taking enough food..... 3 3 3

46. At present, I am bothered by feeling uncomfortable during sexual intercourse..... 3 3 2

47. At present, I am bothered by lacking time to care for my other children..... 3

48. At present, I am bothered by increased family expenses..... 3 3 2

49. At present, I am bothered by choosing an appropriate name for the baby..... 3 3

50. At present, I am bothered by worrying about the baby slipping underwater during bathing.. 1 1 1

51. At present, I am bothered by leaving the baby to be cared by the other person..... 3 3

52. At present, I am bothered by my husband not agreeing with breast feeding.....

53. At present, I am bothered by baby's crying..... 1 1 1

54. At present, I am bothered by the shape of the baby's head due to the sleeping position 1 1 1

55. At present, I am bothered by worrying that the baby is not adaptive to the shift from breast feeding to formula..... 1 3

56. At present, I am bothered by others contradicting my decisions about baby care..... 1

57. At present, I am bothered by my sexual life due to the stretching of the vagina..... 3 2 2

58. At present, I am bothered by the baby not taking enough milk..... 1 1 1

59. At present, I am bothered by not sleeping enough..... 2

60. At present, I am bothered by dressing the baby for weather conditions 1 1 1

61. At present, I am bothered by worrying that the baby's nose will get plugged up when sleeping in a prone position..... 1 1 1

62. At present, I am bothered by the wound not healing.....

63. At present, I am bothered by painful hemorrhoids.....

64. At present, I am bothered by poor contractions of the uterus..... 1 1

65. At present, I am bothered by being unfamiliar with techniques of feeding my baby..... 1 1

66. At present, I am bothered by being unfamiliar with techniques of dressing my baby... 1 1 1

The following items have failed to acquire an item loading of at least .30 or items had loadings ≥ .30 on multiple dimensions for the three points of time.

18. not enough breast milk for the baby
20. giving up my job
24. deciding between breast and bottle feeding.
31. spotty and rough skin
52. my husband not agreeing with breast feeding
62. the wound not healing
63. painful hemorrhoids

Appendix C

The Hung Postpartum Stress Scale (Hung PSS)

(1) Preliminary Item Content Before Content Validity Testing (72 items)

(2) Letter to Experts

(3) Final Item Content After Content Validity Testing

(4) 85-item Version of the PSS (English & Chinese Versions)

(1)

⌘ Bold items: new items (13 items) ⟶ total items
⌘ Crossed items: dropped items (7 items) (72 items)

Maternal Role Attainment is related to acceptance of obligation of the role and competency in baby physical care-taking tasks.

43. At present, I am bothered by worrying about the baby choking during feeding
28. At present, I am bothered by worrying about the baby's vomiting.
50. At present, I am bothered by worrying about the baby slipping underwater during bathing
12. At present, I am bothered by worrying about my baby's regurgitation
25. At present, I am bothered by worrying about the baby being sick
61. At present, I am bothered by worrying that the baby's nose will get plugged up when sleeping in a prone position
11. At present, I am bothered by sudden stops in my baby's breathing
58. At present, I am bothered by the baby not taking enough milk
36. At present, I am bothered by abnormality in the baby's elimination
66. At present, I am bothered by being unfamiliar with techniques of dressing my baby
65. At present, I am bothered by being unfamiliar with techniques of feeding my baby
14. At present, I am bothered by being unfamiliar with the technique of diapering
60. At present, I am bothered by dressing the baby for weather conditions
53. At present, I am bothered by baby's crying
13. At present, I am bothered by worrying about raising the baby
39. At present, I am bothered by being unfamiliar with the skills necessary for proper cord-stem care
54. At present, I am bothered by the shape of the baby's head due to the sleeping position
55. At present, I am bothered by worrying that the baby is not adaptive to the shift from breast feeding to formula

23. At present, I am bothered by the baby's body weight differing from my expectation

42. At present, I am bothered by the baby's color differing from my expectation

(18). At present, I am bothered by unpredictability of schedule

(31). At present, I am bothered by communicating with the baby

(62). At present, I am bothered by lack of information regarding infant's growth and development

56. At present, I am bothered by others contradicting my decisions about baby care

(63). At present, I am bothered by sibling rivalry in my children

Body Changes are related to changes in body sensation, body structure, and body function after childbirth.

1. At present, I am bothered by not being able to control my body weight

2. At present, I am bothered by taking too much food

17. At present, I am bothered by recovering my original body figure

40. At present, I am bothered by flabby flesh of my belly

(24). At present, I am bothered by incontinence

(20). At present, I am bothered by feelings of isolation

(52). At present, I am bothered by emotional tension

68. At present, I am bothered by fatigue

69. At present, I am bothered by feeling like crying

3. At present, I am bothered by getting up frequently during the night

5. At present, I am bothered by degree of leisure

4. At present, I am bothered by not knowing the appropriate time for resuming intercourse

29. At present, I am bothered by choosing a contraceptive method

37. At present, I am bothered by wet clothes due to breast leakage

26. At present, I am bothered by discomfort due to breast enlargement

19. At present, I am bothered by pregnancy from resumed intercourse

64. At present, I am bothered by poor contractions of the uterus

30. At present, I am bothered by bothersome taboos during the postpartum period

(18) ~~At present, I am bothered~~ by not enough breast milk for the baby

15. At present, I am bothered by lack of privacy during breast-feeding

(31) ~~At present, I am~~ bothered by spotty and rough skin

(62) ~~At present, I am~~ bothered by the wound not healing

(63) ~~At present, I am~~ bothered by painful hemorrhoids

70. At present, I am bothered by constipation

Social Support includes emotional, informational, instrumental, and appraisal support.

71. At present, I am bothered by a poor marital relationship

34. At present, I am bothered by inadequate emotional support from my family

22. At present, I am bothered by unacceptance of the baby by my husband's family

44. At present, I am bothered by my husband not coming home immediately after work

27. At present, I am bothered by less concern from my husband

48. At present, I am bothered by increased family expenses

21. At present, I am bothered by finding a nanny

38. At present, I am bothered by the lack of my husband's participation in baby care

6. At present, I am bothered by neglecting my husband's care

10. At present, I am bothered by choosing formula brands

(24) ~~At present, I am bothered by~~ deciding between breast and bottle feeding.

59. At present, I am bothered by not sleeping enough

67. At present, I am bothered by decreased social activity

72. At present, I am bothered by lack of information regarding self-care

8. At present, I am bothered by my husband's acceptance of the baby

47. At present, I am bothered by lacking time to care for my other children

33. At present, I am bothered by lack of help with household chores

41. At present, I am bothered by feeling like my life is confined

45. At present, I am bothered by not taking enough food

51. At present, I am bothered by leaving the baby to be cared by the other person

35. At present, I am bothered by the baby's sex differing from my expectation

49. At present, I am bothered by choosing an appropriate name for the baby

46. At present, I am bothered by feeling uncomfortable during sexual intercourse

57. At present, I am bothered by my sexual life due to the stretching of the vagina

32. At present, I am bothered by decreased frequency of sexual activity

9. At present, I am bothered by my baby's appearance differing from my expectation

16. At present, I am bothered by differing opinions of family members on baby care

7. At present, I am bothered by the limitation of living space

(20) ~~At present, I am~~ bothered by giving up my job

(52) ~~At present, I am bothered by my husband~~ not agreeing with breast feeding

(2)

Dear :

I am a doctoral student in women's health at the School of Nursing, University of Pennsylvania in Philadelphia, the United States. I am investigating Postpartum Stress Scale. The items of the following questionnaire come from the literature, personal clinical experience, and interviews with postpartum women. However, in order to produce the most valid and meaningful items, I would like to request the aid of experts in this filed.

Enclosed is a preliminary effort to construct a scale that measures three different dimensions of postpartum stress: (1) maternal role attainment (2) body changes (3) social support. Please indicate which items are relevant for the measurement of postpartum stress, answer according to your perceptions, and feel free to write in comments.

Please accept the enclosed 1000 New Taiwan Dollars and sign the receipt. Thank you for your participation. I am available by phone for any comments or questions you may have [redacted]

Sincerely,

Chich-Hsiu Hung

(3)

⌘ Bold items: new items (21 items) ⟶ total items
⌘ Deleted items: (8 items) (85 items)

The following items are designed to represent one dimensions of postpartum stress, Maternal Role Attainment, which is related to competency in baby physical care-taking tasks and acceptance of obligations of the role.

Please rate each item according to the following four scales:
1 = not relevant
2 = unable to assess relevance without item revision
3 = relevant but needs minor alteration
4 = very relevant and succinct

43. At present, I worry about the baby choking during feeding..... 1 2 3 4

28. At present, I worry about the baby's spitting up..... 1 2 3 4

50. At present, I worry about bathing the baby 1 2 3 4

12. **At present, I worry about the baby's jaundice**..... 1 2 3 4

25. At present, I worry about the baby getting sick suddenly.....1 2 3 4

61. At present, I worry that the baby's nose will get plugged up when sleeping 1 2 3 4

11. At present, I worry about sudden stops in my baby's breathing..... 1 2 3 4

58. At present, I worry about the baby's intake of milk.....1 2 3 4

36. At present, I worry about abnormality in the baby's elimination....1 2 3 4

66. At present, I worry about dressing my baby.....1 2 3 4

65. At present, I worry about feeding my baby..... 1 2 3 4

14. At present, I worry about diapering.....1 2 3 4

60. At present, I worry about dressing the baby for extreme weather conditions..... 1 2 3 4

53. At present, I worry about the baby's crying.....1 2 3 4

13. At present, I worry about the results of newborn screening tests..1 2 3 4

39. At present, I worry about cord-stem care..... 1 2 3 4

54. At present, I worry about the shape of the baby's head due to the sleeping position..... 1 2 3 4

55. At present, I worry that the baby will not adapt to the shift from breast feeding to formula..... 1 2 3 4

23. At present, I worry about the baby's body weight 1 2 3 4

42. At present, I worry about the baby's rash 1 2 3 4

18. At present, I worry about the unpredictability of the baby's schedule 1 2 3 4

31. At present, I worry about missing the baby's cues..... 1 2 3 4

56. At present, I worry about others contradicting my decisions about baby care..... ....1 2 3 4

63. At present, I worry about sibling rivalry.....1 2 3 4

9. At present, I worry about my baby's appearance 1 2 3 4

47. At present, I worry about lacking time to care for my other children..... ..1 2 3 4

51. At present, I worry about leaving the baby to be cared for by the other person 1 2 3 4

35. At present, I worry about the baby's sex being the opposite of what I expected it to be..... 1 2 3 4

84. At present, I worry about the baby's immunization..... 1 2 3 4

What other items would you suggest for this dimension?

(1) _____

(2) _____

(3) _____

The following items are designed to represent one dimensions of postpartum stress, Body Changes, which are related to changes in body sensation, body structure, and body function after childbirth.

Please rate each item according to the following four scales:
1 = not relevant
2 = unable to assess relevance without item revision
3 = relevant but needs minor alteration
4 = very relevant and succinct

1. At present, I worry about not being able to control my body weight.....1 2 3 4
2. At present, I worry about my intake of food..... 1 2 3 4
17. At present, I worry about recovering my original body figure..... 1 2 3 4
40. At present, I worry about the flabby flesh of my belly.....1 2 3 4
24. At present, I worry about my incontinence..... 1 2 3 4
20. **At present, I worry about the normality of lochia**.....1 2 3 4
52. At present, I worry about emotional tension..... 1 2 3 4
68. At present, I worry about fatigue..... 1 2 3 4
69. At present, I worry that I feel like crying.....1 2 3 4
3. At present, I worry about interrupted sleep.....1 2 3 4
37. At present, I worry about wet clothes due to breast leakage.....1 2 3 4
26. At present, I worry about discomfort due to breast enlargement 1 2 3 4
19. **At present, I worry about painful nipples due to breast feeding**..1 2 3 4
64. At present, I worry about poor recovery of the uterus..... ..1 2 3 4
30. At present, I worry about bothersome taboos during the postpartum period.....1 2 3 4
70. At present, I worry about constipation..... .1 2 3 4
6. **At present, I worry about the wound**.....1 2 3 4

73. **At present, I worry about unfading striae gravidarum**.....1 2 3 4

74. **At present, I worry about insufficient breast milk**.....1 2 3 4

75. **At present, I worry about rough skin**.....1 2 3 4

78. **At present, I worry about hemorrhoids**..... 1 2 3 4

59. At present, I worry about not sleeping enough..... 1 2 3 4

46. At present, I worry about discomfort during sexual intercourse..... 1 2 3 4

57. At present, I worry about sexual intercourse due to the stretching of the vagina.....1 2 3 4

81. **At present, I worry about diarrhea**.....1 2 3 4

82. **At present, I worry about feeling sore in my body**..... 1 2 3 4

85. **At present, I worry about the deformation of my breast**.....1 2 3 4

What other items would you suggest for this dimension?

(1) _____

(2) _____

(3) _____

The following items are designed to represent one dimensions of postpartum stress, Social Support, which includes emotional, informational, instrumental, and appraisal support.

Please rate each item according to the following four scales:
1 = not relevant
2 = unable to assess relevance without item revision
3 = relevant but needs minor alteration
4 = very relevant and succinct

71. At present, I worry about poor marital relationship.....1 2 3 4

34. At present, I worry about inadequate emotional support from my family..... 1 2 3 4

8. At present, I worry about unacceptance of the baby by my family....1 2 3 4

27. At present, I worry about less concern from my husband.....1 2 3 4

48. At present, I worry about family financial burden.....1 2 3 4

21. At present, I worry about finding a nanny.....1 2 3 4

38. At present, I worry about the lack of my husband's participation in baby care.....1 2 3 4

10. At present, I worry about choosing formula brands.....1 2 3 4

72. At present, I worry about lack of information regarding self-care.....1 2 3 4

22. At present, I worry about the baby's sex being the opposite of what my family expected it to be.....1 2 3 4

33. At present, I worry about lack of help with household chores.....1 2 3 4

41. At present, I worry that my life is constrained.....1 2 3 4

45. At present, I worry about not having desirable food.....1 2 3 4

49. At present, I worry about choosing an appropriate name for the baby..... 1 2 3 4

32. At present, I worry about intimate relationship with my husband 1 2 3 4

16. At present, I worry about differing opinions of family members on baby care..... 1 2 3 4

7. At present, I worry about the limitation of living space 1 2 3 4

62. At present, I worry about lack of information regarding infant's growth and development.....1 2 3 4

79. **At present, I worry about lack of help with baby care** 1 2 3 4

80. **At present, I worry about my family not agreeing with my way of baby feeding**.....1 2 3 4

15. **At present, I worry about limited resources for counseling during the postpartum period**..... 1 2 3 4

77. **At present, I worry about giving up my job**..... 1 2 3 4

44. **At present, I worry about the baby's appearance differing from my family's expectation** 1 2 3 4

4. At present, I worry about not knowing the appropriate time for resuming intercourse 1 2 3 4

29. At present, I worry about choosing a contraceptive method.....1 2 3 4

76. **At present, I worry about looking after my family and keeping up with my job**.....1 2 3 4

83. **At present, I worry about not knowing the appropriate time for exercise**.....1 2 3 4

5. At present, I worry about the degree of leisure.....1 2 3 4

67. At present, I worry about decreasing social activity..... 1 2 3 4

What other items would you suggest for this dimension?

(1) _____

(2) _____

(3) _____

Please rate the dimensions proposed above according to the following four scales:

1 = not relevant

2 = unable to assess relevance without item revision

3 = relevant but needs minor alteration

4 = very relevant and succinct

Maternal Role Attainment is related to competency in baby physical care-taking tasks and acceptance of obligations of the role.....1 2 3 4

Body Changes are related to changes in body sensation, body structure, and body function after childbirth.....1 2 3 4

Social Support includes emotional, informational, instrumental, and appraisal support.....1 2 3 4

What other dimensions of postpartum stress would you suggest?

(1) _____

(2) _____

(3) _____

What other items would you suggest that are not covered by the proposed dimensions?

(1) _____

(2) _____

(3) _____

(4)

85-item version of the PSS

Code Number ☐

Postpartum Stress Scale: The following items are common worries that postpartum women encounter. Based on the 5 ratings below, please choose **one** which describes how often you have these worries at the present time.

1 = not at all

2 = seldom

3 = sometimes

4 = frequently

5 = always

1. At present, I worry about not being able to control my body weight..... Not at all Seldom Sometimes Frequently Always
2. At present, I worry about my intake of food..... Not at all Seldom Sometimes Frequently Always
3. At present, I worry about interrupted sleep..... Not at all Seldom Sometimes Frequently Always
4. At present, I worry about not knowing the appropriate time for resuming intercourse..... Not at all Seldom Sometimes Frequently Always
5. At present, I worry about the degree of leisure... Not at all Seldom Sometimes Frequently Always
6. At present, I worry about the wound..... Not at all Seldom Sometimes Frequently Always
7. At present, I worry about the limitation of living space..... Not at all Seldom Sometimes Frequently Always
8. At present, I worry about unacceptance of the baby by my family..... Not at all Seldom Sometimes Frequently Always
9. At present, I worry about my baby's appearance. Not at all Seldom Sometimes Frequently Always
10. At present, I worry about choosing

formula brands..... Not at all Seldom Sometimes Frequently Always

11. At present, I worry about sudden stops in my baby's breathing..... Not at all Seldom Sometimes Frequently Always

12. At present, I worry about the baby's jaundice... Not at all Seldom Sometimes Frequently Always

13. At present, I worry about the results of newborn screening tests..... Not at all Seldom Sometimes Frequently Always

14. At present, I worry about diapering..... Not at all Seldom Sometimes Frequently Always

15. At present, I worry about limited resources for counseling during the postpartum period... Not at all Seldom Sometimes Frequently Always

16. At present, I worry about differing opinions of family members on baby care..... Not at all Seldom Sometimes Frequently Always

17. At present, I worry about recovering my original body figure..... Not at all Seldom Sometimes Frequently Always

18. At present, I worry about the unpredictability of the baby's schedule..... Not at all Seldom Sometimes Frequently Always

19. At present, I worry about painful nipples due to breast feeding..... Not at all Seldom Sometimes Frequently Always

20. At present, I worry about the normality of lochia..... Not at all Seldom Sometimes Frequently Always

21. At present, I worry about finding a nanny..... Not at all Seldom Sometimes Frequently Always

22. At present, I worry about the baby's sex being the opposite of what my family expected it to be.. Not at all Seldom Sometimes Frequently Always

23. At present, I worry about the baby's body weight. Not at all Seldom Sometimes Frequently Always

24. At present, I worry about my incontinence..... Not at all Seldom Sometimes Frequently Always

25. At present, I worry about the baby getting sick suddenly..... Not at all Seldom Sometimes Frequently Always

26. At present, I worry about discomfort due to breast enlargement..... Not at all Seldom Sometimes Frequently Always

27. At present, I worry about less concern from my husband..... Not at all Seldom Sometimes Frequently Always

28. At present, I worry about the baby's spitting up. Not at all Seldom Sometimes Frequently Always

29. At present, I worry about choosing a contraceptive method. ..... Not at all Seldom Sometimes Frequently Always

30. At present, I worry about bothersome taboos during the postpartum period..... Not at all Seldom Sometimes Frequently Always

31. At present, I worry about missing the baby's cues..... Not at all Seldom Sometimes Frequently Always

32. At present, I worry about intimate relationship with my husband..... Not at all Seldom Sometimes Frequently Always

33. At present, I worry about lack of help with household chores..... Not at all Seldom Sometimes Frequently Always

34. At present, I worry about inadequate emotional support from my family..... Not at all Seldom Sometimes Frequently Always

35. At present, I worry about the baby's sex being the opposite of what I expected it to be..... Not at all Seldom Sometimes Frequently Always

36. At present, I worry about abnormality in the baby's elimination..... Not at all Seldom Sometimes Frequently Always

37. At present, I worry about wet clothes due to breast leakage..... Not at all Seldom Sometimes Frequently Always

38. At present, I worry about the lack of my husband's participation in baby care..... Not at all Seldom Sometimes Frequently Always

39. At present, I worry about cord-stem care..... Not at all Seldom Sometimes Frequently Always

40. At present, I worry about the flabby flesh of my belly..... Not at all Seldom Sometimes Frequently Always

41. At present, I worry that my life is constrained.. Not at all Seldom Sometimes Frequently Always

42. At present, I worry about the baby's rash..... Not at all Seldom Sometimes Frequently Always.

43. At present, I worry about the baby choking during feeding..... Not at all Seldom Sometimes Frequently Always

44. At present, I worry about the baby's appearance differing from my family's expectation..... Not at all Seldom Sometimes Frequently Always

45. At present, I worry about not having desirable food..... Not at all Seldom Sometimes Frequently Always

46. At present, I worry about discomfort during sexual intercourse..... Not at all Seldom Sometimes Frequently Always

47. At present, I worry about lacking time to care for my other children..... Not at all Seldom Sometimes Frequently Always

48. At present, I worry about family financial burden..... Not at all Seldom Sometimes Frequently Always

49. At present, I worry about choosing an appropriate name for the baby..... Not at all Seldom Sometimes Frequently Always

50. At present, I worry about bathing the baby..... Not at all Seldom Sometimes Frequently Always

51. At present, I worry about leaving the baby to be cared for by the other person..... Not at all Seldom Sometimes Frequently Always

52. At present, I worry about emotional tension.... Not at all Seldom Sometimes Frequently Always

53. At present, I worry about the baby's crying..... Not at all Seldom Sometimes Frequently Always

54. At present, I worry about the shape of the baby's head due to the sleeping position..... Not at all Seldom Sometimes Frequently Always

55. At present, I worry that the baby will not adapt

to the shift from breast feeding to formula ..... Not at all Seldom Sometimes Frequently Always

56. At present, I worry about others contradicting
my decisions about baby care..... Not at all Seldom Sometimes Frequently Always

57. At present, I worry about my sexual intercourse
due to the stretching of the vagina..... Not at all Seldom Sometimes Frequently Always

58. At present, I worry about the baby's intake
of milk..... Not at all Seldom Sometimes Frequently Always

59. At present, I worry about not sleeping enough.. Not at all Seldom Sometimes Frequently Always

60. At present, I worry about dressing the baby
for extreme weather conditions..... Not at all Seldom Sometimes Frequently Always

61. At present, I worry that the baby's nose
will get plugged up when sleeping..... Not at all Seldom Sometimes Frequently Always

62. At present, I worry about lack of information
regarding infant's growth and development.... Not at all Seldom Sometimes Frequently Always

63. At present, I worry about sibling rivalry..... Not at all Seldom Sometimes Frequently Always

64. At present, I worry about poor recovery
of the uterus..... Not at all Seldom Sometimes Frequently Always

65. At present, I worry about feeding my baby..... Not at all Seldom Sometimes Frequently Always

66. At present, I worry about dressing my baby.... Not at all Seldom Sometimes Frequently Always

67. At present, I worry about decreasing
social activity ..... Not at all Seldom Sometimes Frequently Always

68. At present, I worry about fatigue..... Not at all Seldom Sometimes Frequently Always

69. At present, I worry that I feel like crying..... Not at all Seldom Sometimes Frequently Always

70. At present, I worry about constipation ..... Not at all Seldom Sometimes Frequently Always

71. At present, I worry about poor marital
relationship ..... Not at all Seldom Sometimes Frequently Always

72. At present, I worry about lack of information regarding self-care..... Not at all Seldom Sometimes Frequently Always

73. At present, I worry about unfading striae gravidarum..... Not at all Seldom Sometimes Frequently Always

74. At present, I worry about insufficient breast milk..... Not at all Seldom Sometimes Frequently Always

75. At present, I worry about rough skin..... Not at all Seldom Sometimes Frequently Always

76. At present, I worry about looking after my family and keeping up with my job..... Not at all Seldom Sometimes Frequently Always

77. At present, I worry about giving up my job..... Not at all Seldom Sometimes Frequently Always

78. At present, I worry about hemorrhoids ..... Not at all Seldom Sometimes Frequently Always

79. At present, I worry about lack of help with baby care..... Not at all Seldom Sometimes Frequently Always

80. At present, I worry about my family not agreeing with my way of baby feeding..... Not at all Seldom Sometimes Frequently Always

81. At present, I worry about diarrhea..... Not at all Seldom Sometimes Frequently Always

82. At present, I worry about feeling sore in my body... Not at all Seldom Sometimes Frequently Always

83. At present, I worry about not knowing the appropriate time for exercise..... Not at all Seldom Sometimes Frequently Always

84. At present, I worry about the baby's immunization. Not at all Seldom Sometimes Frequently Always

85. At present. I worry about the deformation of my breast..... Not at all Seldom Sometimes Frequently Always

一、下列是一般產後婦女常碰到的問題，請你就下面每一題的五種狀況中說出一個與你目前狀況最符合的來。

指示： 沒有: 完全沒有這個現象
很少: 出現的次數極少
有時: 偶而出現此現象
時常: 出現的次數很頻繁
總是: 每次一定出現

1. 我目前擔心「體重控制不理想」..... 沒有 很少 有時 時常 總是
2. 我目前擔心「自己飲食的攝取量」..... 沒有 很少 有時 時常 總是
3. 我目前擔心「夜裡睡眠中斷」..... 沒有 很少 有時 時常 總是
4. 我目前擔心「不知何時可以開始性生活」..... 沒有 很少 有時 時常 總是
5. 我目前擔心「休閒活動減少」..... 沒有 很少 有時 時常 總是
6. 我目前擔心「傷口的問題」..... 沒有 很少 有時 時常 總是
7. 我目前擔心「住屋的空間不夠大」..... 沒有 很少 有時 時常 總是
8. 我目前擔心「家人不能接受新生兒」..... 沒有 很少 有時 時常 總是
9. 我目前擔心「嬰兒的長相」..... 沒有 很少 有時 時常 總是
10. 我目前擔心「不知道選擇那種廠牌奶粉」..... 沒有 很少 有時 時常 總是
11. 我目前擔心「嬰兒突然停止呼吸」..... 沒有 很少 有時 時常 總是
12. 我目前擔心「嬰兒黃疸」..... 沒有 很少 有時 時常 總是
13. 我目前擔心「新生兒篩檢的結果」..... 沒有 很少 有時 時常 總是
14. 我目前擔心「幫嬰兒換尿布做不好」..... 沒有 很少 有時 時常 總是
15. 我目前擔心「月子期間相關知識的諮詢資源有限」.. 沒有 很少 有時 時常 總是
16. 我目前擔心「家人對照顧嬰兒的看法不一致」..... 沒有 很少 有時 時常 總是
17. 我目前擔心「身材沒有恢復」..... 沒有 很少 有時 時常 總是
18. 我目前擔心「嬰兒的生活作息無法預期」..... 沒有 很少 有時 時常 總是

19. 我目前擔心「餵母奶造成乳頭的疼痛」..... 沒有 很少 有時 時常 總是
20. 我目前擔心「惡露是否正常」..... 沒有 很少 有時 時常 總是
21. 我目前擔心「尋找保母不容易」..... 沒有 很少 有時 時常 總是
22. 我目前擔心「嬰兒的性別不符合家人的期望」.... 沒有 很少 有時 時常 總是
23. 我目前擔心「嬰兒的體重大小」..... 沒有 很少 有時 時常 總是
24. 我目前擔心「滲尿 (尿失禁) 的問題」..... 沒有 很少 有時 時常 總是
25. 我目前擔心「嬰兒突然生病」..... 沒有 很少 有時 時常 總是
26. 我目前擔心「奶脹不舒服」..... 沒有 很少 有時 時常 總是
27. 我目前擔心「先生關懷陪伴的時間不夠多」..... 沒有 很少 有時 時常 總是
28. 我目前擔心「嬰兒吐奶」..... 沒有 很少 有時 時常 總是
29. 我目前擔心「不知道選擇那種避孕方法」..... 沒有 很少 有時 時常 總是
30. 我目前擔心「坐月子的禁忌事項」..... 沒有 很少 有時 時常 總是
31. 我目前擔心「無法瞭解嬰兒所表現的行爲意義」... 沒有 很少 有時 時常 總是
32. 我目前擔心「與先生的親密關係」..... 沒有 很少 有時 時常 總是
33. 我目前擔心「家中事務缺少人手幫忙」..... 沒有 很少 有時 時常 總是
34. 我目前擔心「得不到家人足夠的心理支持」..... 沒有 很少 有時 時常 總是
35. 我目前擔心「嬰兒的性別沒有符合自己的期望」.... 沒有 很少 有時 時常 總是
36. 我目前擔心「嬰兒排便不正常」..... 沒有 很少 有時 時常 總是
37. 我目前擔心「乳汁常弄濕衣服」..... 沒有 很少 有時 時常 總是
38. 我目前擔心「先生參與照顧嬰兒的時間不夠多」... 沒有 很少 有時 時常 總是
39. 我目前擔心「臍帶護理做不好」..... 沒有 很少 有時 時常 總是
40. 我目前擔心「腹部肌肉鬆弛」..... 沒有 很少 有時 時常 總是
41. 我目前擔心「生活不自由」..... 沒有 很少 有時 時常 總是
42. 我目前擔心「嬰兒皮膚上的斑疹」..... 沒有 很少 有時 時常 總是
43. 我目前擔心「餵奶時嬰兒嗆到」..... 沒有 很少 有時 時常 總是
44. 我目前擔心「嬰兒的長相不符合家人的期望」..... 沒有 很少 有時 時常 總是

45. 我目前擔心「沒有攝取到自己想要吃的食物」.... 沒有 很少 有時 時常 總是

46. 我目前擔心「性交時感覺疼痛不適」..... 沒有 很少 有時 時常 總是

47. 我目前擔心「對其他較大孩子缺乏照顧」..... 沒有 很少 有時 時常 總是

48. 我目前擔心「家庭的經濟負擔」..... 沒有 很少 有時 時常 總是

49. 我目前擔心「無法決定嬰兒的名字」..... 沒有 很少 有時 時常 總是

50. 我目前擔心「幫嬰兒洗澡做不好」」..... 沒有 很少 有時 時常 總是

51. 我目前擔心「必須將嬰兒交給他人照顧」..... 沒有 很少 有時 時常 總是

52. 我目前擔心「情緒緊張」..... 沒有 很少 有時 時常 總是

53. 我目前擔心「嬰兒哭鬧不休」..... 沒有 很少 有時 時常 總是

54. 我目前擔心「嬰兒的睡姿會影響頭形」..... 沒有 很少 有時 時常 總是

55. 我目前擔心「嬰兒由母奶轉換牛奶不適應」..... 沒有 很少 有時 時常 總是

56. 我目前擔心「對嬰兒的照顧方式無法完全由自己作主」..... 沒有 很少 有時 時常 總是

57. 我目前擔心「陰道鬆弛影響性生活情趣」..... 沒有 很少 有時 時常 總是

58. 我目前擔心「嬰兒奶量的攝取」..... 沒有 很少 有時 時常 總是

59. 我目前擔心「睡眠不足」..... 沒有 很少 有時 時常 總是

60. 我目前擔心「嬰兒的衣物穿得過多或太少」..... 沒有 很少 有時 時常 總是

61. 我目前擔心「嬰兒睡覺時把鼻子堵住」..... 沒有 很少 有時 時常 總是

62. 我目前擔心「缺乏嬰兒生長發育的知識」..... 沒有 很少 有時 時常 總是

63. 我目前擔心「較大孩子嫉妒新生嬰兒」..... 沒有 很少 有時 時常 總是

64. 我目前擔心「子宮恢復不好」..... 沒有 很少 有時 時常 總是

65. 我目前擔心「餵奶做不好」..... 沒有 很少 有時 時常 總是

66. 我目前擔心「幫嬰兒穿衣服做不好」..... 沒有 很少 有時 時常 總是

67. 我目前擔心「社交活動減少」..... 沒有 很少 有時 時常 總是

68. 我目前擔心「疲倦感」..... 沒有 很少 有時 時常 總是

69. 我目前擔心「很想哭泣的感覺」..... 沒有 很少 有時 時常 總是

70. 我目前擔心「便秘問題」..... 沒有 很少 有時 時常 總是

71. 我目前擔心「與先生的婚姻關係」..... 沒有 很少 有時 時常 總是

72. 我目前擔心「缺乏產後自我照顧的知識」..... 沒有 很少 有時 時常 總是

73. 我目前擔心「妊娠紋未消退」..... 沒有 很少 有時 時常 總是

74. 我目前擔心「乳汁分泌不足」..... 沒有 很少 有時 時常 總是

75. 我目前擔心「皮膚粗糙」..... 沒有 很少 有時 時常 總是

76. 我目前擔心「家庭與工作的兼顧」..... 沒有 很少 有時 時常 總是

77. 我目前擔心「辭掉工作」..... 沒有 很少 有時 時常 總是

78. 我目前擔心「痔瘡問題」..... 沒有 很少 有時 時常 總是

79. 我目前擔心「缺乏人手協助照顧嬰兒」..... 沒有 很少 有時 時常 總是

80. 我目前擔心「家人不支持哺餵嬰兒的方式」..... 沒有 很少 有時 時常 總是

81. 我目前擔心「腹瀉」..... 沒有 很少 有時 時常 總是

82. 我目前擔心「腰酸背痛」..... 沒有 很少 有時 時常 總是

83. 我目前擔心「不知何時可以開始產後運動」..... 沒有 很少 有時 時常 總是

84. 我目前擔心「嬰兒的預防針注射」..... 沒有 很少 有時 時常 總是

85. 我目前擔心「乳房變形」..... 沒有 很少 有時 時常 總是

非常謝謝! 我們繼續第二項

Appendix D

Beck Depression Inventory-II

姓名：_____ 婚姻狀況：_____ 年齡：_____ 性別：_____
職業：_____ 教育程度：_____

作答說明：

這份問卷共有 21 組的句子，每一組都有幾個選項。請你仔細閱讀每一組的句子後，從中選出**一個**最能夠表達你**最近兩個星期來（包括今天）**所感受的句子，並將此選項左邊的數字圈起來。

如果你覺得同一組中有好幾個句子都同樣符合你最近的感受，則請圈選在這一組中，數字最高的那一個句子。請注意任何一組，包括第 16 組（睡眠習慣的改變），或第 18 組（食慾改變），都只能圈選一個句子。

1.悲傷
0 我並不覺得悲傷。
1 我大部分的時間都覺得悲傷。
2 我時時刻刻都覺得悲傷。
3 我悲傷或不快樂已到我不能忍受的程度。

2.悲觀
0 我對於自己的將來並不氣餒。
1 和以往比起來，我現在對於自己的將來覺得較沮喪。
2 我並不期望自己將來會有任何作為。
3 我覺得自己的將來是沒有希望的，而且只會愈來愈糟。

3.失敗經驗
0 我並不覺得自己是一個失敗者。
1 我遭受的失敗次數多於應有的次數。
2 回顧過去，我所能看到的就是許多的失敗。
3 身為一個人，我覺得自己完全失敗。

4.失去樂趣
0 對於我喜愛的事物，我和往常一樣獲得樂趣。
1 我並不如往常那般享受我喜愛的事物。
2 對於以往我喜愛的事物，我幾乎不再獲得樂趣。
3 對於以往我喜愛的事物，我已無法獲得任何樂趣。

5.罪惡感／內咎
0 我並不特別覺得有罪惡感（內咎）。
1 對於許多我所做或該做而沒有做到的事，我覺得有罪惡感（內咎）。
2 大部分的時間，我都覺得很有罪惡感（內咎）。
3 我時時刻刻都覺得有罪惡感（內咎）。

6.受懲罰感
0 我不覺得自己正在受懲罰。
1 我覺得自己可能會受懲罰。
2 我預期自己定會受懲罰。
3 我覺得自己正在受懲罰。

7.討厭自己
0 我對自己的感覺仍舊和以往一樣。
1 我對自己失去了信心。
2 我對自己感到失望。
3 我討厭我自己。

8.自我批評／自責
0 我並不比平時多於批評或責怪自己。
1 我比以前更會批評自己。
2 我對自己所有的錯誤都責怪自己。
3 我對於所發生的每件壞事都會責怪自己。

9.自殺念頭
0 我並無任何自殺念頭。
1 我有自殺的念頭，但我不會真的去做。
2 我想去自殺。
3 如果有機會，我會真的自殺。

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10.哭泣

0 我並沒有比平時哭得多。
1 我比以前較常哭泣。
2 每一件小事都會使我哭泣。
3 我很想哭泣，但哭不出來。

11.心煩意亂

0 和平常相比，我並不感到特別坐立不安或痛苦。
1 我覺得比平常更坐立不安或痛苦。
2 我是那樣坐立不安或心煩意亂，使我很難安定下來。
3 我是那麼坐立不安或心煩意亂，使我必須不斷地走動或做些事。

12.失去興趣

0 我並沒有對其他人或活動失去興趣。
1 我對其他人或事物的興趣比以前少了一點。
2 我失去了大部分對其他人或事物的興趣。
3 我對任何事情都提不起興趣來。

13.優柔寡斷／猶豫不決

0 我和往常一樣容易做決定。
1 我比平常更難做決定。
2 和以往相比，我在做決定時有極大的困難。
3 我完全無法做任何決定。

14.無價值感

0 我並不覺得自己是沒有價值的。
1 我如今不再認為自己那麼有價值。
2 我覺得自己比別人更沒有價值。
3 我覺得自己一點價值也沒有。

15.失去精力

0 我具有和往常一樣的精力。
1 我的精力比以前減少了。
2 我沒有足夠的精力去做很多事情。
3 我沒有足夠的精力去做任何事情。

16.睡眠習慣的改變

0 我的睡眠習慣和以前一樣，沒有任何改變。
1a 我比平常睡得多一些。
1b 我比平常睡得少一些。
2a 我比平常睡得更多。
2b 我比平常睡得更少。
3a 我差不多整天都在睡。
3b 我比以前早 1~2 小時醒來，而且一醒來就很難再入睡。

17.煩躁易怒

0 我不會比平常煩躁易怒。
1 我比平常較煩躁易怒。
2 我比平常更加煩躁易怒。
3 我時時刻刻都煩躁易怒。

18.食慾改變

0 我的食慾和以前一樣，並沒有任何改變。
1a 我的食慾比平常差一點。
1b 我的食慾比平常好一點。
2a 我的食慾比以前差很多。
2b 我的食慾比平常好很多。
3a 我完全沒有食慾。
3b 我時時刻刻都渴望食物。

19.難以專注

0 我和往常一樣能夠專注。
1 我比平常較無法專注。
2 我很難長時間專注在任何事情上。
3 我發現我不能夠專注在任何事情上。

20.疲倦或疲累

0 我和平常一樣，不覺得更疲倦或疲累。
1 我比平常容易疲倦或疲累。
2 我太疲倦或疲累，以致於許多以前常做的事都無法做。
3 我非常疲倦或疲累，以致於大部分以前常做的事都無法再做。

21.失去對性方面的興趣

0 我對性的興趣在最近並不覺得有任何改變。
1 我對性不再那麼感興趣。
2 我現在對性的興趣少了很多。
3 我已完全喪失對性的興趣。

____ 第二頁分數小計

____ 第一頁分數小計

____ 總　分

Appendix E

Demographic Questionnaire

Code Number [ ]

Please answer the following questions by filling in the box or circling one of the choices provided.

1. Today's date [ ] Day/ Mo/ Yr

2. Date of your birth [ ] Day/ Mo/ Yr

3. Education level (circle one)
   - Junior high or below 1
   - Senior high 2
   - Junior college 3
   - Bachelor 4
   - Master or above 5

4. Current employment status (circle one)
   - Full-time 1
   - Part-time 2
   - Housewife 3
   - Student 4
   - Other [ ] Specify 5

5. Date of marriage [ ] Day/ Mo/ Yr

6. This pregnancy was (circle one)
   - Planned 1
   - Unplanned
   - No contraceptive used 2
   - Used contraceptives 3

7. Type of delivery (circle one)
   - Vaginal delivery 1
   - Cesarean section 2

8. Childbirth experience
   - Satisfied 1
   - Unsatisfied 2

9. Date of the baby's birth [ ] Day/ Mo/ Yr

10. Baby's birth weight ☐ gram

11. Sex of this baby (circle one)
Boy 1
Girl 2

12. Preferred sex of this baby (circle one)
Boy 1
Girl 2
Didn't matter 3

13. Number of children (including this baby) ☐

14. Number of boys ☐

15. Number of girls ☐

16. Method of this baby's feeding (circle one)
Breast feeding 1
Formula feeding 2
Mixed 3

17. Where will you stay for Tso-Yueh-Tzu? (circle one)
Own home (without parents and parents-in-law) 1
Own home (with parents-in-law) 2
Own home (with parents) 3
Parents-in-law's home 4
Parents' home 5
Tso-Yueh-Tzu center 6
Other ☐ 7
Specify

18. Total household income per month
Less than NT 50,000 1
NT 50,000 – NT 100,000 2
NT 100,001 – NT 150,000 3
Over NT 150,000 4

Thank you for your cooperation!

Appendix F

Consent Form

Chich-Hsiu Hung, MSN, RN
Doctoral Student
University of Pennsylvania
School of Nursing, Philadelphia, PA, USA
Telephone: [redacted]

CONSENT FORM FOR POSTPARTUM WOMEN
"Postpartum Women's Stress"

Invitation to Participate: You are being asked to participate in this research study because you have delivered a healthy baby.

Purpose: The purpose of the study is to examine postpartum stress in Taiwanese women.

Procedures: You are being asked to participate in this study in the following ways: (1) To permit research assistants to review your medical chart; (2) To allow research assistants to visit you during your postpartum hospitalization and to give you a demographic questionnaire to fill out; and (3) To allow research assistants to interview you by telephone after your delivery concerning your postpartum experiences (telephone interview can be completed in 30 minutes).

Risks: There are minimal risks associated with participation in this study. We will do everything we can to maintain the minimal risks. This information will be used for research purposes only.

Benefits: There are no direct benefits to you by participating in this study. However, we hope this study will help nurses to better understand the experiences of women after childbirth.

Costs: No additional costs are associated with your participation in the study.

Alternatives: No specific alternatives to participation in this study exist, other than non-participation.

"Postpartum Women's Stress"

Compensation: You will be compensated with a gift (music box) for participation in this study.

Confidentiality: All information collected in this study will be kept strictly confidential, except as may be required by law. Any publication resulting from the research will not personally identify you.

Withdrawal: Participation in this study is completely voluntary and you may withdraw at any time without any interference with your care.

Participant Rights: If you wish for further information regarding your rights as a research subject you may contact the Director of Regulatory Affairs at the University of Pennsylvania by telephone [redacted]

If you have questions, you may call the following persons and have your questions answered to your satisfaction: Chich-Hsiu Hung or Jia-Ru Lin, [redacted] ext. [redacted]

Conclusion: I have read and understand the consent form. I agree to participate in this study described above by signing below. Please return one copy of the consent form to the researcher.

Signature of Participant	**Date**
Signature of Witness	**Date**
Signature of Researcher	**Date**

Appendix G

The Development History of the Hung Postpartum Stress Scale (Hung PSS)

Year	Number of items	Sample size	Methods of administration	Administration duration
1993				
	factor analysis 64 ⟶ 51	326	home visits	6-week of the postpartum period
1998	* item 14 was a triple-barreled * item 39 was a double-barreled * item 50 repeated item 39			
	factor analysis 66 ⟶ 59	526	home visits	1st, 3rd, and 5th week of postpartum period
2001	content validity * item 5 was a double-barreled * seven items were dropped because either they failed to acquire salient loadings or they were salient loadings but were on multiple dimensions after factor analysis * 12 new items added from current literature ⇓ 72 items were submitted to experts: round one: 11 new items were added 3 items were deleted round two: 6 items were added 6 items were deleted round three: 8 items were added 6 items were collapsed into 3			
2002	factor analysis 85 ⟶ 61	861	telephone questionnaires	six-week of the postpartum period

Appendix H

In Comparison with Factor Structure in both the 1998 and 2002 studies

1 = Concerns about Maternal Role Attainment
2 = Negative Body Changes (in 1988) or Activity Changes (in 2002)
3 = Lack of Social Support
4 = Body Structure
5 = Body Function

	1998			2002
	1st week	3rd week	5th week	
1. not being able to control my body weight	2			4
2. my intake of food	2	2	2	4
3. interrupted sleep	2	2	2	2
4. not knowing the appropriate time for resuming intercourse	2	2	2	4
5. the degree of leisure	2	2	2	2
6. the wound				5
7. the limitation of living space	2			
8. unacceptance of the baby by my family	3	3	3	3
9. my baby's appearance	3	3	3	3
10. choosing formula brands		3	3	1
11. sudden stops in my baby's breathing	1	1	1	1
12. the baby's jaundice				5
13. the results of newborn screening tests				
14. diapering	1	1	1	1
15. limited resources for counseling during the postpartum period				1
16. differing opinions of family members on baby care	3			1
17. recovering my original body figure	2			4
18. the unpredictability of the baby's schedule				
19. painful nipples due to breast feeding				5

20. the normality of lochia				5
21. finding a nanny	3	3		
22. the baby's sex being the opposite of what my family expected it to be				3
23. the baby's body weight			3	1
24. my incontinence				5
25. the baby getting sick suddenly	1	1	1	1
26. discomfort due to breast enlargement	2			5
27. less concern from my husband	3			3
28. the baby's spitting up	1	1	1	1
29. choosing a contraceptive method	2	2	2	
30. bothersome taboos during the postpartum period	1			
31. missing the baby's cues				1
32. intimate relationship with my husband				3
33. lack of help with household chores	3	3	3	3
34. inadequate emotional support from my family	3	3	3	3
35. the baby's sex being the opposite of what I expected it to be	3	3	3	3
36. abnormality in the baby's elimination	1		1	1
37. wet clothes due to breast leakage	2			5
38. the lack of my husband's participation in baby care	3			3
39. cord-stem care	1			1
40. the flabby flesh of my belly	2	2	2	4
41. my life is constrained	3	2		2
42. the baby's rash				1
43. the baby choking during feeding	1	1	1	1

44. the baby's appearance differing from my family's expectation				3
45. not having desirable food	3	3	3	
46. discomfort during sexual intercourse	3	3	2	5
47. lacking time to care for my other children	3			
48. family financial burden	3	3	2	3
49. choosing an appropriate name for the baby	3	3		5
50. bathing the baby	1	1	1	1
51. leaving the baby to be cared for by the other person	3	3		3
52. emotional tension				2
53. the baby's crying	1	1	1	
54. the shape of the baby's head due to the sleeping position	1	1	1	1
55. the baby will not adapt to the shift from breast feeding to formula	1	3		5
56. others contradicting my decisions about baby care	1			
57. my sexual intercourse due to the stretching of the vagina	3	2	2	5
58. the baby's intake of milk	1	1	1	1
59. not sleeping enough		2		2
60. dressing the baby for extreme weather conditions	1	1	1	1
61. the baby's nose will get plugged up when sleeping	1	1	1	1
62. lack of information regarding infant's growth and development				1
63. sibling rivalry				
64. poor recovery of the uterus	1		1	5

65. feeding my baby	1	1		
66. dressing my baby	1	1	1	1
67. decreasing social activity	2	2	2	2
68. fatigue				2
69. I feel like crying				3
70. constipation				5
71. poor marital relationship				3
72. lack of information regarding self-care				
73. unfading striae gravidarum				4
74. insufficient breast milk				5
75. rough skin				4
76. looking after my family and keeping up with my job				3
77. giving up my job				3
78. hemorrhoids				5
79. lack of help with baby care				3
80. my family not agreeing with my way of baby feeding				3
81. diarrhea				
82. feeling sore in my body				5
83. not knowing the appropriate time for exercise				
84. the baby's immunization				1
85. the deformation of my breast				4