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Psychometric Testing of the Walker's Feelings and Thoughts About Weight Scale in Taiwan

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PSYCHOMETRIC TESTING OF THE WALKER'S FEELINGS AND THOUGHTS ABOUT WEIGHT SCALE IN TAIWAN

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Abstract

Background: The majority of women do not return to their pre-pregnant weight after six weeks postpartum in Taiwan. Excessive postpartum weight retention or gain can lead to long-term obesity and increase a woman's risk of major health problems. Trends among Taiwanese women reveal an increasing prevalence of obesity. Limiting postpartum weight retention is important for preventing long-term obesity development. **Objectives:** The purpose of this study was to examine predictors of postpartum weight gain among Taiwanese women using the modified Thriving Model (Walker & Kim, 2002) as the guiding conceptual framework and to examine the psychometric properties of a Chinese Version of the Feelings and Thoughts About Weight (FATAW) scale. **Methods:** A cross-sectional descriptive design and a convenience sample of postpartum women three-to-nine month postpartum were recruited over a 6-month period (September 2005 through February 2006). **Setting:** Waiting room of the well baby clinic which routinely takes place six days a week at a large Maternity Center in the Taipei metropolitan area, northern Taiwan. Human subjects approval was obtained through the University of San Diego as well as Institutional Review Boards associated with the Maternity Center. **Data analysis:** Descriptive statistics, correlations and factor analysis were used. **Results:** Findings indicated that CFATAW was a valid and reliable scale to measure postpartum

women's feelings and thoughts about weight in Taiwan. The Cronbach's alpha reliability coefficient for the total scale was 0.89. Women with BMI equal or greater than 24.00 and weight retention in this study had a significantly higher relative risk of reporting higher level of weight-related distress in the early months after childbirth in Taiwan. **Conclusions:** The results of this study show that the measurement of weight-related feelings and thoughts in the Chinese version is content valid and the instrument is internally consistent and construct valid for use in Taiwan. **Implications for nursing:** The Chinese version of FATAW scale in this study contributed to understanding of feelings and thoughts about weight among postpartum women in Taiwan that affect factors related to postpartum weight retention. This study also provided initial validate and reliable instrument for further research on weight-related distress among Taiwanese postpartum women.

Dedication

This dissertation is dedicated in memory of my father, Chao-tsung Chang, a man of loving and hard working, who always stood behind to support me and was proud of me. I wish he could be here now.

I also would like to dedicate this work:

To my dear mother, Hsu Hsueh-hua Chang, who is the strongest woman I know for her unwavering support, encouragement, and financial assistance.

To my sister, Shu-mei Cheng and her family who at just the right times supported me.

To my brother, Cheng-gui Chang, who supported and encouraged me every step of the way to achieve my goal.

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CHAPTER 1

Introduction

Background and Significance of the Problem

The increasing prevalence of obesity has been a major public health problem in developed or less developed countries around the world (World Health Organization (WHO), 1997). Using the current WHO definition, the prevalence rate of overweight is 54% in Russia; 51% in the United Kingdom; 61% in United States; and 50% in Germany (WHO, 1997). Twenty-one point one percent of the Taiwanese adult population is now considered overweight based on the National Nutrition and Health Survey in Taiwan 1993-1996 (Pan et al., 1999). Recent evidence indicates that the prevalence of obesity is higher among women than men (Maushart, 1999; Qi & Wang, 2004) and increases in women of all races during their childbearing age (Y Linne, Barkeling, & Rossner, 2002; Solomon & Manson, 1997). Trends among Taiwanese women reveal an increasing prevalence of obesity (Department of Health, 1999). Pregnancy-related weight gain may also account for the development of obesity in at least a portion of the female population (Lovejoy, 1998). The majority of Taiwanese women do not return to their pre-pregnant weight after six weeks postpartum (Kou, 2004). Excessive postpartum weight retention or gain can lead to long-term overweight or obesity and increase a woman's risk of major health problems. A number of studies have documented the ethnic factor as one of the important predictors associated with obesity (Lederman, Alfasi, & Deckelbaum, 2002; Parker & Abrams, 1993; Qi & Wang, 2004; Walker & Kim, 2002). Research related to the obesity of ethnic and gender differences has been concentrated largely on Caucasian and African American women (J. Allan, Mayo, & Michel, 1993; Boardley, Sargent, Coker, Hussey, & Sharpe,

1995; Kumanyika, Morssinir, & Agurs, 1992; Lederman et al., 2002; L. O. Walker, Freeland-Graves, Milani, George et al., 2004).

In contrast, the overweight problem in Taiwan has not been a serious issue. However, with the rapid expansion and advance in both economics and technologies in the past few decades, Taiwan has become an affluent country. Taiwanese eating habits have resulted in a diet high in fat, protein, and vitamins A and C, but low in carbohydrate, fiber, vitamin E, and calcium (Pan et al., 1999), therefore, the rate of obesity is on a rising trend. Although the prevalence rate of obesity in Taiwan is only half of America's and other developed countries, many Taiwanese scholars have noticed the increase in the obesity problems that are occurring in Taiwan, however, research has focused predominantly on children and adolescents (M. Chen et al., 2001; M. Chen & Liao, 2002; Chu, Rimm, Wang, Liou, & Shieh, 1998; P. Lin & Wang, 1997). Yet, obesity influences all ages and all social groups. In Taiwan, our understandings of women's obesity problems are limited.

Decreasing the prevalence rate of cancer is the priority for women's health policies in Taiwan because the leading cause of death for Taiwanese women is cancer (Department of Health, 2001). Nevertheless, numerous studies reveal that obesity is significantly associated with prevalence of cancer (Blackburn, Copeland, Khaodhiar, & Buchkley, 2003; Connolly et al., 2002; Giovannucci, 2003; Moyad, 2001; Wenten, Gilliland, Baumgartner, & Samet, 2002). In addition, most Taiwanese women practice the traditional ritual of "Tso-Yueh-Tzu" (this is Chinese cultural tradition of postpartum care). They focus more on the eating habits and exercise less during the postpartum period. Therefore, Taiwanese women have a higher risk of developing obesity during their childbearing age.

Prevention of obesity is a worldwide public health priority (WHO, 1997). The prevention of obesity is important because it will reduce the risks and costs of associated illnesses. Moreover, the Department of Health (DOH) in Taiwan considers health promotion to be an important policy (DOH, 1999). Therefore, early identification of high-risk women during early postpartum becomes important for the women after pregnancy in preventing the consequences of long-term obesity. Limiting postpartum weight retention is important for preventing long-term obesity development. Many factors such as pre-pregnant weight, pregnant weight gain, age, parity, race, health-related lifestyle behaviors, lactation, body image, and psychosocial factors have been investigated for contributing to postpartum weight retention. Evidence exists that weight-related distress affects the factors associated with postpartum weight retention in women. However, little research has been done on this topic. Walker (1998a) has developed a reliable and validated instrument, the Feelings and Thoughts About Weight (FATAW) scale, to measure weight-related distress, yet it has been only predominately used in Caucasian populations. It is important to better understand the women's weight-related distress for identification of factors related to postpartum retention and weight management. Studies of postpartum weight retention in Taiwan are lacking, making investigation of postpartum weight change in a sample of Taiwanese women essential. In addition, an instrument for measuring weight-related distress among postpartum women is not currently available in Taiwan. Therefore, the purpose of this study is to empirically test a Chinese version of the Walker's Weight-related Distress Scale in Taiwan.

Conceptual Framework

The conceptual framework for this study is based on Walker and Grobe's (1999) construct of thriving and evidence in the literature (L. O. Walker, Freeland-Graves, Milani, George et al., 2004; L. O. Walker, Freeland-Graves, Milani, Hanss-Nuss et al., 2004). The construct of thriving, derived from Orem's self-care deficit theory, provides a comprehensive understanding of factors associated with postpartum weight change. The relationships among the variables, which influence postpartum weight, might be conceptualized within this framework as shown below

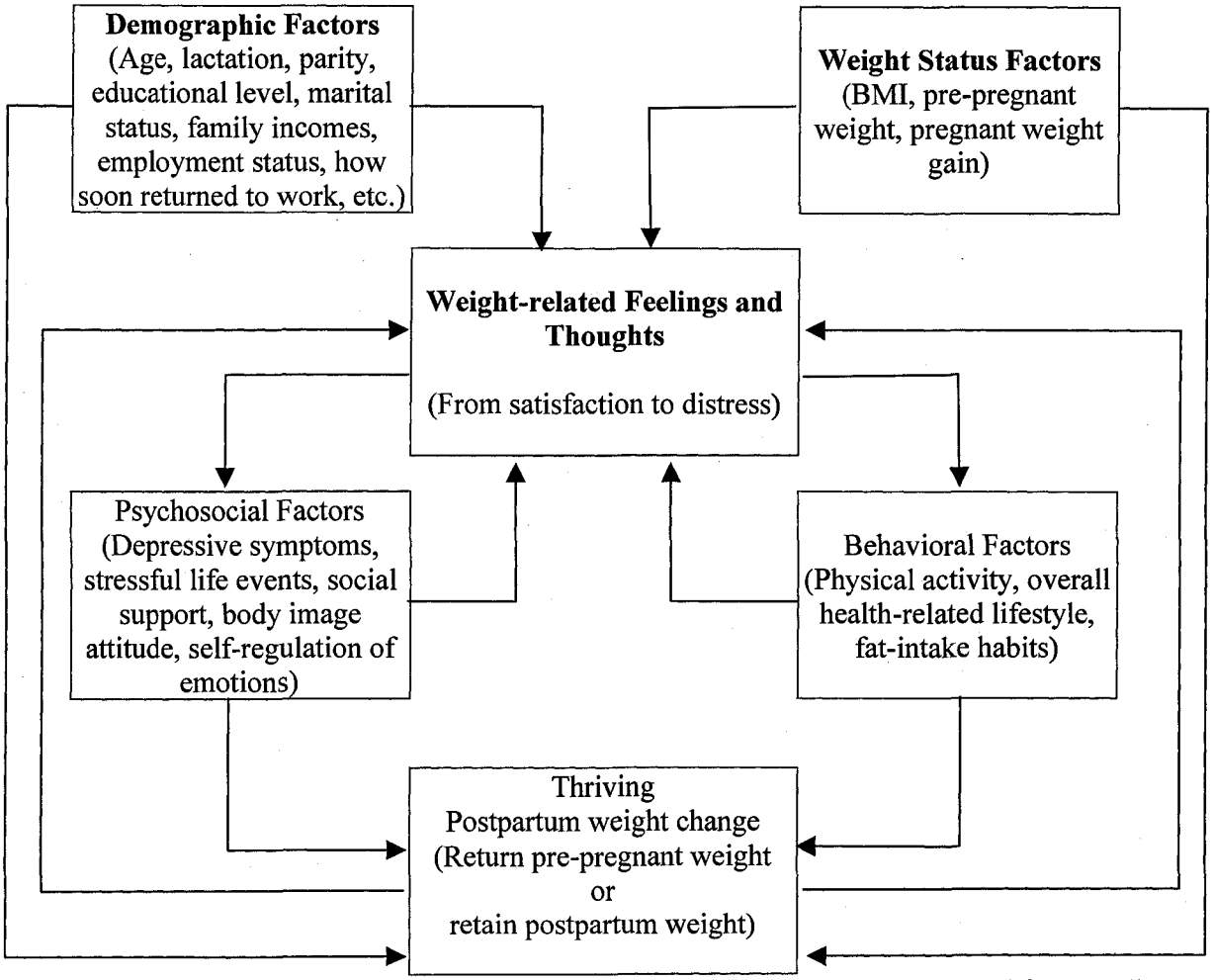


Figure 1. Conceptual framework for weight-related feelings and thoughts adapted from Walker and Grobe's the Construct of Thriving (1999)

The concept of thriving has been proposed as a construct with life span relevance to human nutrition (Greene, Smiciklas-Wright, Scholl, & Karp, 1988). Thriving has been described in terms of failure-to-thrive, that is, as the absence of, or severely diminished levels of, thriving in young children and elders (Braun, Wykle, & Cowling, 1988; Bullard, Glaser, Heagarty, & Pivchik, 1967; Heffner & Kelley, 1994; Newbern & Krowchuk, 1994). Investigators in childhood development described failure-to-thrive as the presence of negative attributes, such as growth delay, developmental delay, feeding difficulties, and alterations in parent-child relationships (Bullard et al., 1967; Glaser, Heagarty, Bullard, & Pivchik, 1968). In older people, failure-to-thrive also was defined in terms of negative manifestations, such as poor nutrition status and weight loss, depressed affect, and diminished functioning in the cognitive and physical areas (Braun et al., 1988). Research on thriving has more recently been extended to other parts of the lifespan, particularly the childbearing years (Kirkland & Fein, 2003; Walker & Kim, 2002; L. O. Walker & Grobe, 1999). "In addition to failure-to-thrive, there may be intermediate states of thriving in which nutritional and psychosocial status may be marginal, as well as states of full thriving with corresponding high levels of psychosocial and nutritional well-being"(L. O. Walker & Grobe, 1999, p.152). According to Walker and Grobe (1999), thriving is defined in terms of the relationships among nutrition, weight, and psychosocial functioning across the life span, with positive and negative consequences for health.

Thriving is achieved when the person, the human environment, and the nonhuman environment are all mutually engaged and supportive. Walker and Grobe (1999) used the concept of thriving to examine maternal responses to the increased self-care demands during the postpartum period. They integrate these multiple dimensions of well-being in a preliminary model of "thriving" during the postpartum period. They described maternal "thriving" as the

extension of Orem's Self-Care because if women have knowledge about taking care of themselves then they have the ability to personally use this knowledge. They reported that if a woman was "thriving" she would enhance her well-being. They identified through an analysis of an extant postpartal data set that four central components were relevant to "thriving" in the postpartum period: psychosocial distress, lifestyle patterns, weight status, and body image status.

In the proposed study, "thriving" is defined as the ability of a postpartum woman to return to her prepregnant weight six-to-nine months after childbirth. The four dimensions of thriving are psychosocial factors, behavioral factors, weight status factors, and demographic factors. Based on Walker and Grobe's work (1999), the psychosocial factors were defined by depressive symptoms, stressful life events, social support, body image attitude, and emotional self-regulation. The behavioral factors reflected physical activity, overall health-related lifestyle, and fat intake habits (L. O. Walker, Freeland-Graves, Milani, George et al., 2004). The weight status factors were defined by prepregnant weight, pregnant weight gain (using prepregnant weight as the baseline), and BMI (based on prepregnant weight categories). Finally, other demographic factors evidenced from literature such as age (Ball, Brown, & Crawford, 2002), parity (Brown, Kaye, & Folsom, 1992; Wolfe, Sobal, Olson, & Frongillo Jr, 1997), race (L. O. Walker, Freeland-Graves, Milani, George et al., 2004; L. O. Walker, Freeland-Graves, Milani, Hanss-Nuss et al., 2004), lactation (L. O. Walker & Freeland-Graves, 1998), educational level, marital status, employment status, family incomes, and how soon the women returned to work are included in this conceptual framework for contributing to postpartum weight change (L. O. Walker, 1996).

Postpartum women's feelings and thoughts about weight play an important role in this model (L. O. Walker, 1998a). Walker (1998a) indicated that postpartum women's feelings and

thoughts about weight would impact on a variety of factors related to postpartum weight change. Behavioral factors, weight status factors, psychosocial factors, and demographic factors may be associated with women's feelings and thoughts about weight (Walker, 1997; L. O. Walker, 1998a, 1999; L. O. Walker, Freeland-Graves, Milani, George et al., 2004; L. O. Walker, Freeland-Graves, Milani, Hanss-Nuss et al., 2004). The investigators found that women's feelings about weight were associated with weight status factors, behavioral factors, and psychosocial factors. The findings revealed that as women's feelings about their weight progressed from satisfaction to distress, there was an accompanying increase in body image dissatisfaction and a decrease in the overall health-related lifestyle. In other words, feelings about weight in women's ability to make psychosocial and behavioral changes, it may lead to postpartum weight retention and affect the well-being of postpartum women.

To provide appropriate information to women regarding postpartum weight management, nursing professionals should better understand the factors influencing weight change among postpartum women. The factors are potential correlates of weight-related distress during the postpartum period. Therefore, women's feelings and thoughts about weight play an important role in postpartum weight management. Before the construct of thriving can be further investigated concerning its ability to predict the factors associated with postpartum weight change, exploring weight-related distress during the postpartum period is needed. However, little attention has been given to the weight-related distress of women during the postpartum period. Although Walker's (1998a) Feelings and Thoughts About Weight scale (FATAW) has been used to measure weight-related distress among Caucasian, Africa American, and Hispanics, it has not been used with Taiwanese women. An instrument for measuring weight-related distress among postpartum women is not currently available in Taiwan. There exists an urgent need for

psychometrically sound measure of postpartum women's feelings and thoughts about weight to explore weight-related distress for Taiwanese women.

Purpose of the Study

The purpose of this study is to examine predictors of postpartum weight gain among Taiwanese women and to empirically test the Walker's Weight-related Distress Scale with Taiwanese women. Specific aims are to: (1) translate Walker's FATAW scale into Chinese, (2) modify the FATAW scale for use to conduct a survey among postpartum women in Taiwan, (3) evaluate the ability of Walker's FATAW scale to assess weight-related distress for Taiwanese women after their childbirth, (4) establish the psychometric properties of the scale among Taiwanese Women, (5) uncover any cultural differences between original and Chinese versions of FATAW scale, and (6) identify the relationships among weight-related distress, weight and selected demographic variables.

Assumptions

Based on the assumptions of Walker and Grobe, the construct of thriving and the information obtained from the literature review, assumptions are proposed for this conceptual framework as follows. In this study it is assumed that postpartum weight change could become a long-term obesity development problem with multiple factors. It is affected by the dimensions of the construct of thriving. Thriving is a complex phenomenon, which is dynamic. Four dimensions of the construct of thriving include behavioral factors, psychosocial factors, weight status factors, and demographic factors. Weight status and demographic factors may influence women's feelings and thoughts about weight to make behavioral and psychosocial changes. Women with weight-related distress may interfere with health-related lifestyle and lead to long-term weight retention.

Definitions of Terms

The following are definitions that are used to operationalize the variables in this study.

Weight-related distress

Weight-related distress is defined as high personal dissatisfaction with current weight that results in negative effects on emotional well-being and on activities of daily living (L. O. Walker, 1998b).

Salience of weight

Salience of weight is defined as the importance a person gives to weight in her overall self-evaluation (L. O. Walker, 1998b).

Postpartum weight

Postpartum weight will be calculated as postpartum weight minus prepregnant weight. According to Chinese Taipei Association for the study of obesity, postpartum weight retention is defined as: comparing with prepregnant weight, body weight $\geqq 10\%$ or 4.55 kg at six-month postpartum. Participants will be grouped into the following categories of postpartum weight change: postpartum weight no retention (return to their prepregnant weight) and postpartum weight retention/gain. Postpartum weight will be measured to 0.1 kg at each contact on a highly accurate portable electronic scale. Women will be weighed without shoes or heavy external clothing, such as belts or coats.

Behavioral Factors

Behavioral factors are considered a domain of self-care activities that are performed by individuals for the sake of well-being. The behavioral factors, based on the definition of Walker et al., reflect physical activity, overall health-related lifestyle, and fat intake habits (L. O. Walker, Freeland-Graves, Milani, George et al., 2004; L. O. Walker & Grobe, 1999). The physical

activity and overall health-related lifestyle positively influence postpartum weight. The more physical activity and overall health-related lifestyle, the greater the ability of postpartum women return to their prepregnancy body weight (the more postpartum weight lose). The fat intake habits negatively influence postpartum weight. It means that the more fat intake, the less ability of postpartum women return their body weight to prepregnant weight.

Psychosocial Factors

The psychosocial factors refer to depressive symptoms, stressful life events, social support, body image attitude, and self-regulation of emotions. The social support and self-regulation negatively influence the postpartum weight.

Weight Status Factors

Body Mass Index (BMI). BMI is computed as weight (kg)/height $(m)^2$. Height will be measured at the recruited time using a stadiometer.

Prepregnant weight. Prepregnant weight-for-height will be indexed by BMI.

Pregnant weight gain. Pregnant weight will be computed from weight at the end of pregnancy minus prepregnant weight.

All weight measures will be based on self-reported data combined with their perinatal records of the maternity center if there are available. It will reduce bias from self-reported data.

Demographic Factors

The demographic factors include age, parity, lactation, educational level, marital status, employment status, family incomes, and how soon the postpartum women return to work.

Parity. Parity will be assessed by the number of live births and stillbirths of each woman.

Research Questions

The target concept to be measured by the Walker's Feelings And Thoughts About Weight (FATAW) Scale is the construct of thriving. The following research questions will be consistent with the purpose of the study.

1. Is the Chinese version of the Walker's Feelings And Thoughts About Weight (FATAW) scale equivalent to the English version of FATAW scale?
2. Is the content of the Chinese version of FATAW scale valid?
3. Are the total scale and subscales internally consistent in the Chinese version of FATAW in the Taiwanese postpartum women?
4. Is the construct of weight related distress as measured by the Chinese version of the Walker's Feelings And Thoughts About Weight (FATAW) scale valid?
5. Is weight-related distress associated with differences in weight status variables and selected demographic variables?

Summary

In this chapter, I have discussed the conceptual approach to the study, the research problem and purpose of the study, and my assumptions as the researcher.

CHAPTER 2

Review of the Literature

To provide a broad context for an understanding of the impact of postpartum weight change and factors associated with postpartum weight change, this chapter proceeds with a review of selected literature that is relevant to the current study. This review of the literature will cover the following topics: (1) definitions of terms related to postpartum weight change, (2) the prevalence of obesity in Taiwan, (3) postpartum weight change, (4) impacts of pregnancy-related weight gain, and (5) factors associated with postpartum weight change based on Walker and Grobe's the construct of thriving and literature.

Definitions of Terms Related to Postpartum Weight Change

Overweight and Obesity

Obesity and overweight are two terms that are often used interchangeably(Institute of Medicine, 1995). Generally speaking, obesity is an imbalance between intake of food and expenditure of energy. The excess taken in is stored in fat deposits, resulting in an increase in body weight (Cassell & Gleaves, 2000). The most commonly used method to access obesity and overweight is body mass index (BMI); a calculation based on height and weight, and it is not gender (The World Health Organization, WHO). BMI does not directly measure percent of body fat, but it is a more accurate indicator of overweight and obesity than relying on weight alone. A BMI of 25 to 29.9 indicates a person is overweight. A person with a BMI of 30 or higher is considered obese.

Pregnancy-related Obesity

The concept of pregnancy-related obesity, or obesity resulting from childbearing, was first introduced in 1940 (Sheldon, 1949). Afterward, numerous studies showed that increasing

parity was associated with increased body weight (Heliovaara & Aromaa, 1981; Ohlin & Rossner, 1990; D. F. Williamson et al., 1994), and the connection between pregnancy and obesity has been well documented .

The average weight retained due to pregnancy beyond the effects of aging per se is relatively small, ranging from 0.5 kg to 3 kg (Gore, 2003; Ohlin & Rossner, 1990; Wolfe et al., 1997). Nevertheless, it appears that a subgroup of anywhere from 10% to 20% of women gain significant amounts of excess body weight (> 15 kg) as a result of pregnancy, and this effect may increase with sequential pregnancies(D. F. Williamson et al., 1994). For example, Rossner (1992) a obese women attending a weight loss clinic, 73% reported a weight retention of >10 kg 1 year postpartum. Thus, weight gain related to pregnancy may account for the development of obesity in at least a portion of the female population. Steinfeld and Cohen (1993) reported that the incidence of obesity during pregnancy is between 6% and 10%, also a 17% incidence was reported by Cogswell et al. (1995). A recent study examined weight gain during pregnancy and weight changes postpartum in first-time mother delivering at or near term. Findings indicated that after women's first pregnancy, a total of 36% were overweight or obese 6 months postpartum (Lederman et al., 2002). Although, there have been several decades of investigation into pregnancy-related obesity, few studies have addressed any specified data on the population of Taiwanese women.

Etiology of Obesity

A large number of factors influence the development of obesity, but in the final analysis these conditions represent the accumulation of body fat due to excess of energy intake over energy expenditure. What causes this imbalance between intake and expenditure of energy is

unclear. Evidence suggests that obesity often has more than one cause. For example, genetic and environmental factors may have an effect in causing people to be obese.

Genetic factors. Obesity has long been thought to be a behavioral disorder that resulted from simply eating too much and exercising too little, however, recent studies have suggested that body weight is under substantial genetic control, accounting for approximately one third of the variation in BMI (Bouchard, 1997). Obesity tends to run in families, with growing evidence pointing to heredity as a strong determining factor of obesity (Stunkard, Foch, & Hrubec, 1986). In many studies of adults who were adopted as children, researchers found that the subjects' adult weights were closer to their biological parents' weights than their adoptive parents'(Stunkard, Sorensen, & Hanis, 1986). The environment provided by the adoptive family apparently had less influence on the development of obesity than the person's genetic makeup. Genetic influences appear to contribute to differences among individuals in resting metabolic rate as well as body fat distribution. The most exciting development in the genetics of obesity was the discovery of the ob gene and its protein product. As Wisse and associates (1999) explain Leptin is secreted by adipose tissue and acts on central neural networks that regulate indigestive behavior and energy balance.

Despite obesity having strong genetic determinants, the genetic composition of the population doesn't change rapidly. Therefore, the large increase in the prevalence of obesity that has been seen over the past two decades may reflect major changes in non-genetic factors (J. Hill & Trowbridge, 1998). The relative contribution of each of these factors has been studied extensively, and although genes play an important role in the regulation of body weight, the World Health Organization Consultation on Obesity (WHO, 1997) concluded that behavioral and

environmental factors (ie, sedentary lifestyles combined with excess energy intake) are primarily responsible for the dramatic increase in obesity during the past 2 decades.

Environmental factors. Although genes are an important factor in many cases of obesity, a person's environment also plays a significant part. Environment includes health-related behaviors such as what a person eats and how active he or she is. Increases in consumption of high-fat, energy-dense foods and declines in spontaneous and work-related physical activity over the past several decades are two of the major environmental factors thought to contribute to the current epidemic of obesity (Raynor & Epstein, 2001). Adverse dietary patterns have been accompanied by sedentary lifestyles, which contribute to the high prevalence of obesity (Rising, Harper, & Fontvielle, 1994). For example, Americans live in the perfect environment for weight gain as a result of their fast-food and convenience-food culture. Also, due to its culture of convenience, TV and labor-saving devices, most Americans do not get enough physical activity which is another prime environmental cause of obesity and weight gain. Apparently, Taiwanese has been influenced by this culture in the past two decades.

The Prevalence of Obesity in Taiwan

There is limited literature on the prevalence of obesity in Taiwan. Nevertheless, there are some concerns about obesity in Taiwan. Although the WHO uses BMI>30 as the definition for obesity, Chinese's BMI should be 27 when comparing to Caucasian's BMI. According to the third Health and Nutrition Survey conducted by the Department of Health, (Pan et al., 1999) in Taiwan Region one out of seven adults is obese. Using this definition, the prevalence rate of overweight for men is 22.3% and 19.9% is for women, and the prevalence rate of obesity is 2.4% for men and 5.6% in women in Taiwan, thus based on these findings there are approximately 2.1

million overweight people in an overall Taiwanese population of 21 million. Similar to the WHO findings, men may have a greater incidence of overweight, however women have higher rates of obesity in Taiwan. Interestingly some scholars suspect an even higher ratio than the findings. Survey findings reflect 85% of adults with BMI 27 and above have obesity related diseases. Sixty-five percent of female and 68% of male adults with BMI greater than 24 have metabolic diseases related symptoms, in contrast, 70% of female and 68% of male with BMI less than 24 show no signs of symptoms. Therefore, the Department of Health (DOH) in Taiwan has decided to lower the current obesity standard of BMI 26.4 to 24. In other words, The DOH in Taiwan defines BMI $\geqq$ 24 as overweight and BMI $\geqq$ 27 as obesity. Lin et al. (2003) reported the overall and regional prevalence of obesity/overweight in Taiwan and studied its associated risk factors. They found that prevalence rates of overweight and obesity were 21.1 and 4.0% under the current WHO definition. The prevalence rates of overweight and obesity, using the Taiwanese definition, were 22.9 and 10.5% for males and 20.3 and 13.2% for females, respectively. Using the current Taiwanese definition, these investigators have found out that one out of four Taiwanese adults were overweight and there were more obese women than men in every age group. This data is similar in comparison to the other developed countries. Therefore, issues related to obesity seem serious in Taiwan.

Postpartum weight change

Weight gain after childbirth represents postpartum weight changes-usually gains-indexed to a reference non-pregnant weight. The IOM estimates that with each birth, women in the United States experience a permanent weight gain of 2.2 lb (1kg). This amount is above the 0.45 kg (1lb) per year normally gained with age. Study findings have supported that women are heavier after pregnancy than before pregnancy (Greene et al., 1988; Parham, Astrom, & King,

1990; Parker & Abrams, 1993). At least one woman in ten retains excessive weight, ie ≧ 6.6 kg (15 lb), from one pregnancy up to the time of their next pregnancy (Greene et al., 1988). Williamson et al.(1994) reported that childbearing still carried a risk of 40-60% for a major weight gain of more than 28.7 lb (13kg).

Weight gain after childbirth is computed as postpartum weight at a given time (6 weeks after childbirth) minus prepregnant weight. Thus, prepregnant weight serves as a baseline for computing gestational and postpartum weight gain. The influence of time on postpartum weight change is unclear. For example, those measured at 6 weeks postpartum indicated similar weight patterns to those assessed at 10 to 18 months (Anderson & Abrams, 1999). According to recent research conducted by Rooney and Schauberger (2002) women who gain more than the recommended weight during pregnancy and who fail to lose this weight six months after giving birth are at much higher risk of being obese nearly a decade later. However, there is currently no published longitudinal data on weight change in the Taiwanese population.

Impacts of Pregnancy-related weight gain

For pregnant women who have a dramatic increase in weight, there is a higher risk of developing preeclampsia, diabetes, and all other related diseases. Not only is there a higher risk of maternal complications, but also the fetus will become a large-for-gestational-age baby causing difficulties in the delivery process. In addition it is more difficult to lose weight after childbirth, especially for Chinese people who emphasize the ritual of "Tso-Yueh-Tzu" which includes foods like sesame oil chicken and all other high cholesterol food fasting process in weight.

Traditionally, health care providers recommended that women gain 22~28.6 pounds during pregnancy without regard for women's body size categories. In 1990, the Food and

Nutrition Board of the National Institute of Medicine, however, revised the standards of pregnant weight gain that was used in the past. Currently, IOM guidelines for weight gain during pregnancy incorporate prepregnancy body mass index (BMI) in setting the recommended weight gain ranges. Pregnant women are advised to gain the appropriate amount of weight based on their prepregnancy BMI. According to IOM guidelines, total weight gain for a single pregnancy is 28 to 40 pounds if the prepregnancy BMI is less than 19.8; total weight gains of 25 to 35 pounds if BMI ranges from 19.8 to 26.0; total weight gains of 15 to 25 pounds if BMI ranges from 26.1 to 29.0; and total weight gains of 15 pounds if BMI is more than 29.0.

There are several factors that contribute to weight changes after pregnancy. Studies showed that women were more likely to gain rather than lose weight in the year after giving birth. This weight gain may be related to higher postpartum energy intake, higher dietary calories as fat, and lower levels of physical activity (Boardley et al., 1995; Stein & Fairburn, 1996). Wells and Murray (2003) found excessive weight gain during their pregnancy was associated with postpartum weight retention.

During the period after childbirth, women in developed countries usually carry over fat stored during pregnancy to postpartum (Hytten, 1991). Although being underweight may be a source of concern for a few women, the predominant concern after childbirth is being overweight (Fairburn & Welch, 1990). Indeed, in U. S. society, which values thinness in women yet is getting progressively fatter, being overweight after pregnancy may be particularly distressing to women(L. O. Walker, 1998a). Failure to lose weight carried over from pregnancy may also have long-term health consequences. Women who are overweight or obese present a major chronic health concern. Evidence from several studies has begun to link weight during the childbearing years with later health problems, such as breast cancer and coronary disease (Kumar, Lyman,

Allen, Cox, & Shchapira, 1995; Willett et al., 1995). Effects of the obesity epidemic include cardiovascular disease and morbidity, hypertension, elevated blood lipids, diabetes mellitus, effect on an individual's health. Long-term obesity can have profound physiological effects that certain cancers, gall bladder disorders, an increase in the incidence of endometrial, an increased risk of urinary incontinence, gout, abnormal pulmonary functions, and functional burdens on osteoarthritic bones and joints (Lapidus, Bengtsson, Hallstrom, & Bjorntorp, 1989; Lew & Garfinkel, 1979; Manson et al., 1995; National Institutes of Health Consensus Development Panel on the Health Implications of Obesity,1985)

An abundance of literature has shown that female obesity is not only related to many chronic diseases but also induces female psychological and social problems (Y Linne et al., 2002; Morin, 1998; Walker, 1997). There is concern that excessive postpartum weight retention may be associated with significant negative psychosocial consequences. This may involve social stigmatization and discrimination by their family, friends and, for the women, low self-esteem (L. O. Walker, 1998a). This distress affects the well-being of postpartum women. For example, women may avoid some social and recreational situations in which they feel great discomfort because of their weight.

In addition, the impact of obesity manifests itself not only on the nation's health, but also on the nation's economy. In the United States, for example, the economic costs of obesity were estimated to be $69 billion in 1990 (approximate 8% of total health care costs) (J. Hill & Trowbridge, 1998). The economic cost of obesity in US will likely increase as the population ages and as the prevalence of obesity grows. The economic cost (in 1995 dollars) attributable to obesity is $99.2 billion for a few related conditions namely, breast, endometrial, and colon cancer, coronary heart disease, gallbladder disease, hypertension, osteoarthritic, and type 2 diabetes

(Wolf & Colditz, 1998).

Factors Related to Postpartum Weight Change

There have been a number of studies that have examined prenatal weight gain and postpartum weight retention. A variety of factors are associated with postpartum weight gain, including ethnicity, age, parity, prepregnant weight, pregnant weight gain, family income, educational level, employment status, marital status, lactation, body image, and lifestyle such as smoking, physical activity, and nutritional status (Anderson & Abrams, 1999; Ball et al., 2002; Lovejoy, 1998; Morin, Brogan, & K., 2002; Olson, Strawderman, PS, & TA, 2003; Rooney & Schauberger, 2002). The modified construct of thriving provides a comprehensive understanding of factors associated with postpartum weight change (L. O. Walker & Grobe, 1999) as follows.

Behavioral Factors

An important contribution to our understanding of excess postpartum weight retention is relating to health-related lifestyle. Weight generally is regulated by powerful forces such as genetics (Bouchard, 1991). However, the role of health-related lifestyle after childbirth must be considered in identifying factors of postpartum weight change. Health-related lifestyle change might be more important than biologic changes in affecting body weight during the postpartum period (Lederman, 1993).

Overall health-related lifestyle such as exercise, diet, and smoking contribute to the environmental components of weight regulation in the postpartum period. During the postpartal months, women may abandon or reduce getting regular exercise (Harris, Ellison, & Clement, 1999a; Tulman, Fawcett, Groblewski, & Silverman, 1990) as they strive to balance new competing responsibilities for their child. Other facets of health-related lifestyle, such as personal weight goals and beliefs about personal control overweight, may contribute to whether women

adopt dietary changes after childbirth to manage their weight (J. D. Allan, 1989; Saltzer, 1982).

Reductions in exercise and activity after childbirth may decrease energy expenditure and thus prohibit weight loss. Ohlin and Rossner (1996) identifed women who are successful in returning to their pre-pregnant weight report they eat breakfast, follow a regular lunch pattern, and snack infrequently. Although smoking is consistently related to less postpartum weight gain (Greene et al., 1988; Schauberger, Rooney, & Brimer, 1992), less is known about exercise and food intake as contributors to postpartum weight gain. Supporting the relevance of health-related lifestyle, Tulman et al. (1990) found that fewer than 20% of women had resumed activities such as taking walks at 6 months after childbirth.

Physical activity. Studies examining the relationship between exercise and physical activity are also limited. Two studies (Boardley et al., 1995; Schauberger et al., 1992) found no relationship and two other studies found that women who engage in physical activity retain less weight at 6 weeks (Sampselle, Seng, Yeo, Killion, & Oakley, 1999) and one year postpartum (Ohlin & Rossner, 1990). Recent studies found that women reduced physical activity and didn't follow U.S. national recommendations for moderate or higher intensity activity at their six months postpartum (L. O. Walker, Freeland-Graves, Milani, Hanss-Nuss et al., 2004; Wilkinson, Huang, Walker, Sterling, & Kim, 2004). Similarly, Downs and Hausenblas (2004) indicated that women exercised more before they were pregnant than during their pregnancy and postpartum.

Fat-intake habits. Studies examining the relationship between food intake and postpartum weight retention are also limited and show mixed results. In the study of Boardley et al. (1995), there was no relationship between absolute energy intake in the postpartum period, assessed by a food frequency questionnaire, and weight change from prepregnancy. Another study conducted by Ohlin and Rossner (1994) found that women who reported increased food

intake during and after pregnancy (first 6 months postpartum) were more likely to retain at least 5 kg at one year postpartum compared to women who maintained or decreased their food intake. A similar study conducted by Olson et al. (2003) indicates that increasing food intake in the second 6 month postpartum and being less than 20 years old at delivery were significantly associated ($p < 0.05$) with greater risk of major weight gain.

Weight Status Factors

Prepregnant weight. Weight gain after childbirth is computed as postpartum weight at a given time (e.g., 6 months after childbirth) minus prepregnant weight. Thus, prepregnant weight serves as a baseline for computing both gestational and postpartum weight gain. Based on longitudinal studies, prepregnant weight shows associations with postpartum weight gain (Schauberger et al., 1992). Obese and overweight women are particularly likely to gain excessively (Lederman et al., 2002).

Body Mass Index (BMI) and pregnant weight gain. In 1990, the IOM published its recommendations for weight gain during pregnancy based on pregravid body mass index (BMI). BMI is calculated as weight (kg)/height^2 (m). Using BMI, normal weight for height is 19.8 to 26.0, less than 19.8 is considered underweight, greater than 26.0 is considered overweight, and more than 29.0 is considered obese. The IOM makes the following recommendations: underweight women (BMI < 19.8) should gain 12.5 kg to 18.0 kg (28 to 40 lb), normal weight women (BMI 19.8 to 26.0) should gain 11.5 kg to 16.0 kg (25 to 35 lb), overweight women (BMI > 26.0 to 29.0) should gain 7.0 kg to 11.5 kg (15 to 25 lb), and obese women (BMI > 29.0) should gain approximately 6.0 kg (15 lb). Adolescents and black women should strive to gain at the upper end of the recommended range, and short women (<157 cm or 62 in) should strive for gains at the lower end of the range.

Factors that are associated with excess gestational weight gain are not well understood, although Ohlin and Rossner (1990) have suggested that snacking and exercise habits, as well as quitting smoking during pregnancy, may be related to excess weight retention. Excessive gestational weight gains put a woman at risk for higher postpartum weight retention (Gunderson & Abrams, 1999). This is true for those women who are well-nourished or over-nourished prior to pregnancy. Women gaining greater than 15.7 kg (35 lb) to 18 kg (40 lb) during pregnancy are at high risk for retaining weight postpartum and being classified as overfat according to BMI (Gunderson, 1998; Keppel & Taffel, 1993). According to the study of Rooney and Schauberger (2002), women who gained more than recommended amount during their pregnancy had significantly higher weight gains at follow-up 10 years after the study pregnancy. Similarly, Olson, Strawderman, Hinton, and Pearson (2003), in a sample of 540 healthy adult women, also identified that gestational weight gain was strongly related to postpartum weight retention. In the study, only about 38% of women gained an amount of weight in pregnancy that is within the guidelines recommended by the IOM. Women in the normal, high and obese BMI groups who gained more weight in pregnancy than is recommended by the IOM retained significantly more weight at one year postpartum (all $p < 0.01$). It appears that the amount of weight gained during pregnancy is the primary predictor of the amount of weight retained postpartum.

Psychosocial Factors

Depressive symptoms. In the postpartum period, weight retention/gain has been associated with psychosocial factors, such like disappointment, surprise, reduced self-esteem, and depressive symptoms at 1 year postpartum(Walker, 1997). In a study of 149 postpartum women, Walker found that women with higher weight retention at 12 months postpartum reported lower social support as well as higher level of depressive symptoms. Similarly, in a

study of 128 Taiwanese mothers, postpartum depression was related to postpartum weight retention(Kou, 2004). Harris et al.(1999a) explained that postpartum stress and loneliness were the reasons for increasing food intake postpartum and therefore can be related to higher weight gains.

Stressful life events. Little is known about how postpartum stress contributes to weight gain after childbirth, although a study indicated that postpartum stress is inconsistently associated with weight gain after childbirth (L. O. Walker, 1996). However, for some new mothers dealing with the demands of taking care of an infant, running a household and in many cases holding a job, may make dieting and other weight-loss strategies seem overwhelming.

Social support. Several studies found social support to be associated with postpartum weight. Harris (1999b) revealed that mothers with a smaller social support network were found to have higher long-term weight gains. Walker (1999) explained that social support such like partner support may buffer or intensify dissatisfaction with weight during the postpartum period.

Body image attitudes. Body image has been negatively associated with body weight gain. Body image is defined as a person's conception of and feelings about his or her body. Women are more dissatisfied with their bodies postpartum than they are prior to pregnancy (Harris et al., 1999a; Kou, 2004). Harris et al. (1999a) found that women who were more dissatisfied with their postpartum bodies reported higher levels of postpartum depression, decreased exercise, and increased food intake. In Kou's study (2004), 72.8% of 128 Taiwanese women were dissatisfied with their body weight at six months postpartum.

Self-regulation of emotions. Walker (1998a) indicated that body image dissatisfaction may be related to self-management skills related to emotions and mood and balancing self-care

demands with self-care agency. Greater dissatisfaction with body image was related to less self-regulatory capabilities and less healthful overall lifestyle (L. O. Walker, 1998a).

Demographic Factors

Demographic factors like marital status, educational level, family incomes, employment status, and how soon women returned to work have also been correlated with postpartum weight change. Other factors like age, parity, and lactation have been consistently or inconsistently associated with postpartum weight change.

Marital status. Wolfe et al. (1997) examined how the relationship between parity and weight gain is modified by sociodemographic and behavioral factors by race. The authors found that white women who were not married had 18% to 49% greater long-term weight gains than married white women.

Educational level. In Wolfe et al.'s study (1997), women with less education had higher risk of postpartum weight gain with an increase in parity than better educated women.

Family income. Lower income women tend to retain more weight postpartum (Wolfe et al., 1997).

Employment status. Women will retain less weight at six months postpartum if they return to work sooner. Leermakers et al. (1998) explained this possibly because their access to food is limited. Harris et al.(1999a) indicated that many women stay at home after the birth of a baby and because they are home they have greater access to food. In contrast, Walker (1999) found no correlation between employment or being a homemaker and feelings about weight.

Ethnicity. Ethnicity reflects a person's cultural heritage and the unique factors within an ethnic community that may affect beliefs about health and how it might be achieved, as well as social relations affecting health (Corin, 1995). As Abrams (1993) has pointed out, " it is likely

that race is simply a proxy for social, economic, environmental, cultural, and other factors that influence women's health" (p. 1083). For example, the Asian Americans had much healthier nutritional practices than did European Americans (Pender, Murdaugh, & Parsons, 2002). The study of Allan, Mayo, and Michel (1993) had shown that cultural factors may influence women's views about desirable body size.

Ethnicity also is associated with postpartum weight gains (Greene et al., 1988; Parker & Abrams, 1993). Studies of Africa-American and Caucasian women are well documented (Rooney & Schauberger, 2002; Walker & Kim, 2002; L. O. Walker, Freeland-Graves, Milani, George et al., 2004). In the comparison of Africa-American, Hispanic, Native American, Asian, and Caucasian women from a study sample of 2908 women, Abrams et al. (2000) found that all of the four ethnic groups showed a decrease in body mass over the 1-year follow-up. Compared to before pregnancy, however, the body mass remained higher for Africa-American, Hispanic and Native American women, than for Caucasian or Asian women. As is the case with obesity in general, it appears that African American women are at greater risk for excessive weight retention as a result of pregnancy than are Caucasian women (Keppel & Taffel, 1993; Parker & Abrams, 1993). The majority of Taiwanese are Chinese, therefore, this factor will not be the focus in this study.

Chinese Postpartum Confinement. In Chinese culture, a period after birth is perceived as a critical time for a new mother. During this period a woman is considered to be in a weakened state. Traditionally, Chinese have given mothers at least 30 days to recover their weak state is called "Tso-Yueh-Tzu", or "doing the month", or "sitting in for the first month". New mothers spend the first 30 days after childbirth doing little more than sleeping, receiving special treats and getting used to their new role in life both physically and psychologically. The ritual of

"Tso-Yueh-Tzu" has been documented in terms of practices and philosophies, particularly implications from beliefs related to yin and yan, hot and cold. It is the necessity of maintaining a "hot-cold balance" within the body and with the environment after the birth of a baby. Hot-cold concepts of healthcare are centuries old in the traditional cultures of Chinese (R. E. Spector, 2002). In Chinese culture, blood is considered "hot". Therefore, after giving birth, when the woman has lost blood she is considered to be in a cold state. Accordingly, postpartum care in these cultures is aimed at keeping the new mother warm; it is believed that this will restore her humoral balance.

Women believe rest is essential after giving birth. During the customary 30-day postpartum confinement, female relatives or live-in helpers perform household activities for the new mother. The new mother must be confined to her home during a 30-day postpartum period and must perform a variety of avoidance rituals (E. K. Holroyd, Chun, & Ha, 1997).

Chinese women believe that childbirth is the time when the body is open and vulnerable to "winds" and "cold" (Chang, 1995). Thus any external assistance during childbirth should aim to restore the equilibrium of heat and cold, rather than focus on the management of local pathology (R.E. Spector, 1991). Based on Chinese health belief, after giving birth, the mother is expected to be kept warm, and to be protected from "the wind". It is important to keep the room warm, lest cold or wind enter the new mother's joints. No matter how hot the weather, the traditional Chinese woman will want the windows closed and the air conditioning off. Bathing is considered dangerous. Therefore, Taiwanese women must dress warmly after giving birth and should not bath for four weeks.

In Chinese culture, food is traditionally thought to play a part in the cause and treatment of disease, and knowledge of "hot" and "cold" foods is passed down to family members through

experience (Henderson & Primeaux, 1981). According to the Chinese beliefs, during the first month after giving birth, postpartum women may not eat salty foods or anything cold such as ice cream or cold drinks even one drop of water. The Chinese have two basic classifications of food, cooling and heating. Too much cooling food, such as cabbage, bamboo shoots, oranges, and many other fruits and vegetables, is believed to produce wind, muscle cramps and rheumatism. Instead, the recovering mother is served foods that are high in protein and calories such as eggs, rice, noodles, brown sugar, ginger, chicken, fish, and pig kidneys. Frying food imbues it with heating element, whereas steaming food is cooling. Old ginger, sesame oil and rice wine reinforce the heating elements of food. That is why the confinement diet uses an excessive amount of these three ingredients. In addition, two typical foods that are a must throughout the postpartum period are ma-yu chi (sesame oil chicken; chicken stewed in sesame-oil and rice wine) and sheng-hua soup (a soup concoction of peach kernels, ginger, Chinese herbs, and rice wine). Chinese postpartum women usually take "hot food" during the period of "Tso-Yueh-Tzu" or "Doing the Month". "Tso-Yueh-Tzu" means Chinese women are expected to be restricted to long periods of lying in bed and be housebound during the month after delivery in order to recover from labor. Traditionally, Taiwanese women should stay indoors and doing nothing more than eating, resting, and sleeping. With the restrictions of dietary and physical activities, Taiwanese women potentially could develop postpartum weight retention problems.

Age. The prevalence of aging which affects on women's weight is well documented (Brown et al., 1992; Lovejoy, 1998). On average, women gained 0.77 lb (0.35 kg) per year (Brown et al., 1992). Further, between the ages of 25-34 years-a key childbearing period-U.S. women are most vulnerable to having a major weight gain (Gunderson, 1998; D. Williamson, Kahn, Remington, & Anda, 1990). In contrast, a research report found greater age, higher level

of education, and being married are inconsistently associated with postpartum weight retention (Waller, Crow, Sands, & Becker, 1988).

Another US study of 274 young, low-income, mostly African-American and Hispanic women between the ages of 12 and 29, found that those who gained more than one and a half pounds a week from the 20th week through the 36th week of pregnancy weighed an average of 12% more six months after giving birth than they weighed before pregnancy (all were in the normal weight range before pregnancy) (Scholl, Hediger, Schall, Ances, & Smith, 1995). Women with low or moderate weight gain weighed an average of only 5% to 7% more six months after giving birth. The study indicates that most of the women with excessive rates of weight gain were adolescents. According to the study, weight during pregnancy by the still-growing adolescent may be easier to gain and more difficult to lose than it is for older women.

Parity. Increasing parity has been found to be associated with increased body weight (Ball et al., 2002; Cederlof & Kaij, 1970; Gunderson, 1998; Schauberger et al., 1992). Primiparous women lose more weight than multiparous women in the first 5 days postpartum. This has been attributed to the increased loss of fluid in the primiparous women because edema seems to be more common in this group. Parity was associated with a gain of 1.2 lb (0.55 kg) with each live birth(Brown et al., 1992). According to IOM, childbearing is associated with an average weight gain of 2.2 lb (1 kg). Other studies were found that each successive birth adds about 2.2 lb (1 kilogram) of body weight above that normally gained with age (Lederman, 1993) and increases the risk of becoming overweight within five to ten years of delivery (Gunderson & Abrams, 1999).

Lactation. Surprisingly, breastfeeding is inconsistently associated with postpartum weight gains. Some studies comparing breast-feeding, bottle-feeding, and combination (breast

and bottle) feeding have shown that breast-feeding leads to significantly faster loss of body weight (Brewer, Bates, & Vannoy, 1989; Kramer, Stunkard, Marshall, McKinney, & Liebschutz, 1993; Olson et al., 2003) and reduction in hip circumference(Kramer et al., 1993) in the early postpartum weeks. Although there is a common belief that breastfeeding will help women to lose any excess body weight after pregnancy, the vast majority of studies do not show an association between lactation and increased weight loss after pregnancy (Boardley et al., 1995; Ohlin & Rossner, 1990; Parker & Abrams, 1993; Schauberger et al., 1992; L. O. Walker & Freeland-Graves, 1998). Lactation seems to have the largest effect on weight loss between 2.5 and 6 months postpartum. By 6-7 months these investigators found no significant difference between lactating and nonlactating women.

Factors attributed to postpartum weight loss include low prepregnant weight, higher metabolic rate, and greater desire to reach a more ideal weight (Brewer et al., 1989; Dugdale & Eaton-Evans, 1989). Researchers suggest that the Recommended Dietary Allowance (RDA) for lactating women is too high (Brewer et al., 1989; Manning-Dalton & Allen, 1983; Sadurskis, Kabir, Wager, & Forsum, 1988). The RDA for 2,500 kcal per day assumes a requirement of 2,000 kcal per day for basal metabolic rate and light work. More recent investigations showed that the breastfeeding mothers had a sedentary lifestyle; therefore, it was suggested that an intake of 1,600 to 1,800 kcal/day would be sufficient to cover the caloric requirement during lactation (Dusdieker, Hemingway, & Stumbo, 1994; Manning-Dalton & Allen, 1983). It challenges the common belief that lactation requires more calories than non-lactation.

Feelings and Thoughts about Weight

Few studies have focused on women's feelings about weight after childbirth. Walker (1998a) conducted a study to assess the extent of weight-related distress reported by new

mothers and explore the associations between anthropometric and psychosocial variables and feelings about weight. Two hundred twenty-seven women were asked to write descriptions of feelings abut their weight, and these were categorized using content analysis. Data were collected as part of a longitudinal health survey of new mothers. From an initial pool of 513 women who received the first panel of the survey, 227 mothers, who ranged from 2.5 to 6.0 months postpartum, responded. Their mean age was 29.8 years, and they were an average of 3.8 months postpartum. The sample was 72% Anglo/White, 19% Hispanic, and 8% Black American, Asian, and "Other" ethnicity. Seventy-seven percent had attended college, and 52% reported having two or more children. The survey questionnaire included an open-ended question on women's feelings about their current weight and items on weight before pregnancy, weight at the end of the pregnancy, current weight, current height, and other demographic and psychosocial variables.

A variety of factors were related to women's feelings about their weight during this time. Foremost were postpartum weight and body image. Weight carried over from pregnancy is lost, on average, at a decelerating rate over the first postpartum year. Based on studies of weight loss, women who are successful in losing weight carried over from pregnancy are likely to have more positive feelings about their weight than women who are less successful. Moreover, because weight gain during pregnancy and prepregnant weight directly contribute to postpartum weight, these two variables are likely related to negative feelings about weight during postpartum. Health behaviors including dietary and exercise patterns may be associated with feelings about weight. More positive health behaviors have been linked to higher feelings of esteem in the general population.

The study found that feelings ranging from satisfaction to distress accompany the biological changes in metabolism, fat redistribution, and weight that occur during the early postpartum months. Those women who viewed themselves as overweight with mild dissatisfaction had a mean postpartum BMI that met the Institute of Medicine (IOM) criterion for overweight (>26), whereas those with weight-related distress had a mean postpartum BMI that met the IOM criterion for obesity (>29). In addition, as both prepregnancy BMI and gestational weight gain increased, feelings about weight changed from satisfied to distressed. This study revealed that BMI before and weight gain during pregnancy appear to play a part in the distress that is connected with postpartum BMI. This suggests that one way to reduce the distress women feel about postpartum weight is to focus more attention on how avoiding excessively high weight gain during pregnancy may be of little or no benefit to mother or baby. Walker (1999) also found that, during the postpartum period, women must seek to reconcile an "increasingly thin standard" for females in the United States with "a more rounded, motherly image." Third, contextual factors in women's lives (e.g. partner support related to weight) may buffer or intensify dissatisfaction with weight during the postpartum period. Walker found no correlation between employment or being a homemaker and feelings about weight. The conclusion was that responsiveness to weight-related needs of individual women and weight management after childbirth that is consistent with women's weight goals should be considered an essential component of postpartum care.

Synopsis and Critique

Numerous studies have examined factors contributing to postpartum weight development. Factors such as pre-pregnant weight, gestational weight gain, lactation, age, parity, race, smoking status, exercise history, marital status, and employment have been investigated for a relationship

to postpartum weight retention. Of these factors, pregnant weight gain is most consistently pointed to be an important factor in maternal average weight changes and weight status after pregnancy in all of the literature studies.

The association between pregnancy and body weight makes the transition to motherhood a focus of research on the contributors to weight gain in adulthood (Ohlin & Rossner, 1994; Wolfe et al., 1997). After reviewing the literature, evidence is accruing that weight gain during pregnancy may contribute to some women becoming overweight or obese after childbirth. Many studies dealing with obesity have included mainly pre and pregnancy rather than post pregnancy.

Lifestyle is also a cultural process. In every culture, there are established norms of acceptable behavior. Many of these are often so ingrained that people are not fully conscious of them. Within society, people as individuals also make self-directed decisions. These cumulative decisions become part of people's means of functioning within society. In that people generally follow the overall norms of society, it is the pattern of the daily decisions that ultimately shapes people's personal lifestyle. Therefore, ethnic and cultural backgrounds serve as important influences on health-related behavior(Pender et al., 2002).

As noted before, several studies have identified risk factors for postpartum weight retention, such as age, race, parity, gestational weight gain, postpartum exercise, food intake and breastfeeding. However, the current studies should be interpreted with caution in light of several methodologic issues. For example, Olson et al. (2003) found that nearly 25% of women experienced a major weight gain of 4.55 kg or more at one year postpartum in this study. Gestational weight gain, exercise frequency, change in food intake and breastfeeding were each significantly related to postpartum weight retention. The strengths of the study were (1) a prospective cohort design, (2) the lost-to-follow up rate was 5%, (3) the subjects who were at

least 18 years of age at the time of delivery and thus maternal growth is not a likely contributor to weight gain, (4) the study had adequate statistical power (n = 540) to demonstrate a significant relationship between the independent variables and postpartum weight retention, (5) and finally both weight retention at one year postpartum and gestational weight gain use the early pregnant weight as a baseline, making gestational weight gain a mathematical component of the weight retention, to minimize any inflated association between gestational weight gain and weight retention. However, the study was limited by the fact that the population of women was primarily white. Therefore, the results can not be generalized to a more racially and ethnically diverse population. Further, this study included a large number of variables, they have also failed to include important predictor variables.

In the study conducted by Lederman et al. (2002), about 2/3 of the women and 100% of the overweight and obese women gained excessive weight during pregnancy. These researchers found that weight gain was most marked in women who started pregnancy overweight or obese. At two months postpartum, women were almost 18 lb above their prepregnant weight and no additional maternal weight was lost by six months postpartum. The results though demonstrated that postpartum women could avoid obesity by regulating their pregnant weight gain, losing weight for a longer period postpartum, and initiating and maintaining exclusive breast-feeding. The limitations of the study was a small sample size (n=47) and that body weight information was collected by self-report. The study relied completely on self-reported data which may be subject to recall or social desirability biases. In particular, body weight is frequently under-reported and height over-reported, and hence BMI derived from self-report surveys such as this are likely to under-estimate the true prevalence of overweight and obesity in the population. Inaccurate reporting may have resulted in measurement error.

Other studies provide potentially biased or inaccurate estimates of average postpartum weight change since they lack measured prepregnant weight and comparison groups to account for age-related weight changes (Boardley et al., 1995; Ohlin & Rossner, 1990; Parker & Abrams, 1993; Schauberger et al., 1992).

Ideally, women would loss their excess pregnancy related weight in the first postpartum year (Dewey, Heinig, & Nommsen, 1993). However, there is accruing evidence that a number of women do not match the normative pattern, and for them childbearing is a transitional period for major weight gain. There is emerging evidence that 3-6 months postpartum may be a timely period for examining weight in postpartal women. By this time, most women have experienced returning pre-pregnant weight, and those who have not are at risk for long-tern weight retention. A number of studies have been conducted on postpartum weight retention. The findings revealed that behavioral, psychosocial, weight status, and demographic factors were associated with postpartum weight retention. In addition, weight gain after childbirth has been associated with disappointment, surprise, eating habits change, reduced self-esteem, and depressive symptoms (Jenkin & Triggemann, 1997; Stein & Fairburn, 1996; Walker, 1997). Dissatisfaction with weight during postpartum period has been positively associated with weight status and development of long-term weight gain.

Gaps

Weight management may be important after childbirth. Unfortunately, literature searches in areas of nursing yields few articles devoted specifically to weight retention in a population of postpartum women.

In the review of literature, ethnicity has been reported to influence postpartum weight retention. Much discussion centered on African-American and Caucasian women, much less is

known about how much weight women of other ethnicities such as Taiwanese women gain or lose after childbirth. Therefore, research studies on identifying the differences of health status among various racial and ethnic groups remains fragmented. Risks for postpartum weight retention among other ethnic minorities have not been well studied. The phenomenon in Taiwan is different than other regions and other ethnicities. Further, research is essential to discover what are the differences and similarities among ethnic groups.

Health care professionals must understand postpartum weight loss patterns and the variables that affect weight retention. The studies reviewed leave many questions unanswered for the nursing professionals. Little is known on implications for appropriate nursing care related to postpartum weight retention. Childbearing women between the ages of 25-34 years have the greatest incidence of major weight gain (D. Williamson et al., 1990). There is little research on the long-term implications of health-related behaviors change and weight gain for women's health during childbearing age. To provide better care for women related to pregnancy-related weight retention for their long-term health and well-being are needed. Therefore, understanding what determinants of health-related behaviors associated with postpartum weight retention are a priority.

It is also hypothesized that changes in women's health-related lifestyle after childbirth may contribute to some women becoming overweight (Lederman, 1993). However, the relationship of behavioral and social influences to each other and the mechanisms through which they may influence postpartum weight retention are not well understood (L. O. Walker, 1995). From a maternal health standpoint, maternal health care after pregnancy is still limited. Despite the significance of health promotion in pregnancy-related women, very little health promotion research has as focused on this target population. Health promotion research especially in

postpartum women related to weight is still seriously lacking.

Factors such as prepregnant weight and excessive pregnant weight gain have been identified as risk factors for postpartum weight and could guide targeted intervention efforts. However, there are few intervention studies in preventing pregnancy-related weight gain or postpartum weight retention. Recently, additional factors related to postpartum weight retention have been identified. Race, prepregnant weight, and pregnant weight gain were the only variables found to consistently be associated with postpartum weight retention. Nevertheless, there still are numerous factors such as age, education level, marital status, educational level, family income, and lactation inconsistently associated with postpartum weight retention. Excessive weight gain during pregnancy presents the health care providers with a dilemma. Studies related to risk factors of postpartum weight retention were numerous in the early 90's, however, further follow-up study such as the relationship between lactation and postpartum weight is needed. When designing research related to postpartum weight gain, nurse researchers should keep in mind that different age and ethnic groups of postpartum women have different perceptions about engaging in health-related behaviors. Specific intervention research based on different age and ethnic backgrounds should also be considered.

Historically, little attention has focused on postpartum women's feelings about weight. Walker's recent studies, however, have explored the concept of weight-related distress and associations of demographic and psychosocial factors with feelings about weight. Her works add to our understanding about critical periods and risks for postpartum women's weight gain. Moreover, she provides an appropriate instrument, the Feelings And Thoughts About Weight scale (FATAW), to assess weight-related distress among postpartum women (L. O. Walker, 1998b). The FATAW scale is a 14-item, 7-point Likert-type self-report measure designed to

focus on feelings about weight and is a psychometric approach to measuring weight-related to distress in postpartum women. Two conceptual domains guided development of the scale: a 10-item "distress-related to weight" scale with a reliability coefficient (Cronbach's alpha) of .94 and a 4-item "salience of weight in self-evaluation" scale with a reliability coefficient (Cronbach's alpha) of .60. Items were generated based on common themes evident in a content analysis of open-ended descriptions of feelings about weight (L. O. Walker, 1998a). Higher scores indicate weight-related distress and salience of weight. The resulting FATAW scale was found to be reliable and valid for measuring weight-related distress among postpartum women. Ratings by 5 content experts showed agreement of 80% or higher for relevance of items to their respective content domains (L. O. Walker, 1998b). Coefficient alpha for the total scale was .92 for the study. Although, the reliability for the Salience subscale in the study was only .60, this instrument's construct validity was significantly supported by Spearman rho correlations (N=101) between BMI and both subscales and total scale scores. Since it is only a 4-item subscale, adding additional items to the Salience scale may improve reliability.

Although several studies have explored factors influencing postpartum weight development, there has been little research conducted to identify and understand the factors associated with postpartum weight change in Taiwan. Gaining an understanding of the specific risk factors associated with postpartum weight change for Taiwanese women may facilitate the development of effective interventions designed to enhance maternal well-being. Results suggest that women's feelings and thoughts about weight significantly contributed to associations with postpartum weight retention. Instruments designed to adequately assess weight-related distress for Taiwanese postpartum women are needed but are not found in the literature.

Summary

It is very important for Taiwanese women to understand their feelings and thoughts about weight during postpartum period before professionals provide an adequate intervention of weight management. A valid and reliable instrument for assessing weight-related distress for Taiwanese postpartum women is needed. An appropriate instrument would provide a useful tool for identifying women at risk for obesity development after childbirth.

CHAPTER 3

Methodology

The purpose of this study was to examine predictors of postpartum weight gain among Taiwanese women using Walker's and Kim's (2002) Modified Thriving Model and to establish the psychometric properties of the Chinese version of the Feelings And Thoughts About Weight scale (CFATAW), designed to assess weight-related distress among postpartum women (L. O. Walker, 1998b). Base on the modified Thriving Model, postpartum women's feelings and thoughts about weight may be associated with a variety of factors. Weight status and demographic factors may influence women's feelings and thoughts about weight to make behavioral and psychosocial changes. Women with weight-related distress may interfere with health-related lifestyle and lead to long-term weight retention. Therefore, the variables of behavioral, weight status, psychosocial, and selected demographic factors were examined to determine their relationship with distress. The Thriving Model suggests that a reciprocal interaction occurs among the three constructs of psychosocial factor, behavioral factors and women's weight-related feelings and thoughts. This chapter includes research design, setting, population, and sample. Protection of participants in the study is delineated. Information concerning data collection and data analysis for the study is discussed.

Description of the Research Design

A descriptive correlational research design was used for this study. A descriptive design is defined as a study conducted in a naturalistic setting without attempt to modify, control, or introduce something new to the environment (Kerlinger & Lee, 2000). Descriptive designs are employed when the researcher wishes to obtain information in areas in which little previous investigation has occurred. Although the Walker's Feelings And Thoughts About Weight Scale

(FATAW), has been used with samples of American women, to the author's knowledge it has not been used in Taiwanese women. For the study presented here, several stages were necessary prior to examining the predictors of postpartum weight gain among Taiwanese women using the modified Thriving Model (Walker & Kim, 2002). First stage was the translation of the FATAW scale into Mandarin Chinese, stage two was pilot testing, and stage three was field testing of the Chinese version FATAW scale (Burns & Grove, 2001; DeVellis, 1991; Mishel, 1997).

Stages of the Chinese Version FATAW Development

The stages for the development of the FATAW Chinese Version are outlined in the following sections.

Stage 1: Translation of FATAW Scale into a Chinese Version FATAW Scale

In the first stage, after obtaining the original scale developer's permission (Appendix A), the Chinese version FATAW scale (CFATAW) was drafted from the original English version of Walker's FATAW scale (Appendix B). The original FATAW was designed to measure weight-related distress among postpartum women. Based on themes in women's descriptions of feelings about weight, the instrument consists of 14 items, 7-point scale that cover feelings, thoughts, and actions related to distress related to weight scales and salience of weight in self-evaluation scales (L. O. Walker, 1999). The development of the scale was guided by two conceptual domains which are 10-items of distress related to weight and 4-items of salience of weight in self-evaluation. The 14-items of this instrument were generated based on common themes evident in a content analysis of open-ended descriptions of feelings about weight (L. O. Walker, 1998a). High scores indicate weight-related distress and salience of weight.

Aim 1: "Is the Chinese version of the FATAW scale equivalent to the English version of the FATAW scale?"

Translation and back translation of the FATAW scale. The process of translation and back translation was used to achieve the equivalence between the original English and the Chinese version of FATAW scale. The term back translation is used in survey research literature and the translation studies to refer to the translation of a translation back into the source language. The purpose of back translation is to compare/contrast the back translation with the source text, usually with a view to assessing the quality of a translation. The translation/back translation process involved three steps: (1) two bilingual experts whose native language is Chinese translated the original English FATAW scale into Chinese, (2) two additional bilingual experts whose native language is English translated the Chinese version instrument back into English, and (3) the two English version instruments was compared to achieve the semantic and conceptual equivalence. The process was repeated until the two English version FATAW scales were identical or contained only minor differences (Behling & Law, 2000).

Establishing content validity. Content validity was established before conducting the study. Lynn (1986) recommended a minimum of five experts to provide sufficient level of control for chance agreement among the experts examining the test items. Therefore, content validity was assessed by asking a panel of seven experts. Content validity of the CFATAW was determined and quantified by the content validity index (CVI): a proportion of items that received the agreement by experts (Lynn, 1986; C. W. Waltz & Bausell, 1981). Seven experts whose native languages are Mandarin Chinese were invited to review the content validity of the questionnaire. They were asked to give each item a grade based on the precision of the statement and the appropriateness to the research purpose. The grade system was a 4-point scale ranging from "very relevant and succinct -4 points", "relevant but needs minor revision – 3 points", "unable to assess relevance – 2 points", to "not relevant – 1 point" (Lynn, 1986). In the study

reported here, the criterion for assuring an item was content valid, was based on the standard proposed by Lynn (1986): at least 5 out of 7 experts must agree that the item is content valid by giving the item a grade of 3 or 4 points. Experts were requested to provide suggestions on the item that they gave a grade less than 3 points. Items that did not receive the agreement from experts were modified based on the experts' suggestions. The expected period for establishing the content validity of the CFATAW was one month.

Stage 2: Pilot Testing of the Chinese Version FATAW Scale

Aim 2: "Is the content of the Chinese version of the Walker's Feelings And Thoughts About Weight (FATAW) scale valid?"

In the second stage, the Chinese version of the FATAW scale was pilot tested with a sample of 30 three-to-nine months postpartum women, to evaluate item clarity and establish initial reliability and validity. Feedback was obtained from participants about problem areas (i.e., ineffective instructions, confusing questions and response options, difficulty of interpreting terms of statements) on the Chinese version FATAW scale. Some questions that might have problems were modified based on the suggestions provided by participants in the pilot testing. The purpose of piloting the Chinese version FATAW scale was to assess the feasibility of questions, obtain frequencies of responses, and conduct preliminary validation analyses.

Pilot testing the instrument allows the researcher to determine if the directions and items are clear to the postpartum women and to identify potential problems prior to the administration of the instrument to a larger sample of postpartum women for the further studies.

Thirty three-to-nine months postpartum women were invited to complete the Chinese version of the FATAW scale. The pilot participant received a packet containing (1) an informed consent, (2) a demographic information form, and (3) the CFATAW. The instrument

administered to the postpartum women provided a space for them to make comments on the clarity of the items and problems that they encountered in completing it. The investigator also timed how long it took participants to complete the entire packet of paperwork. Questionnaires were collected and incentives (about $3 U. S. dollars) were distributed by the investigator. The period for conducting the pilot testing was about one month.

Stage 3: Field Testing of the Chinese Version FATAW Scale

In the third stage, field testing with a sample of 250 three-to-six months postpartum women were recruited to maximize the qualities of reliability, validity, and responsiveness. The testing of the internal consistency of the Chinese version FATAW scale was conducted as well as the examination of the predictors of postpartum weight gain among Taiwanese women. The determination of sample size was based on the need to perform factor analysis. It is recommended that the number of subjects to the number of items ratio be at least 5:1 to 10:1 for reliable factor analysis (Hair, Anderson, Tatham, & Black, 1998). A larger sample size will reduce the effect of sampling errors (Nunnally, 1978). To achieve statistical significance a sample size of 210 postpartum women was needed to evaluate the psychometric properties of a 14-item instrument that is 15 subjects per item. Inclusion criteria included: (1) 18 to 40 years old females with uncomplicated pregnancies, (2) three-to-nine mothers postpartum, and (3) the ability to speak and understand the Mandarin Chinese language. Exclusion criteria included (1) diagnoses known to influence weight such as diabetes mellitus or hypertension, (2) delivered a low birth-weight infant, or had multiple births, (3) unwanted pregnancy, or (4) currently pregnant. One month was required for field testing.

Procedure

After obtaining permission to conduct the study by the relevant authorities, data were collected from September 2005 to January 2006.

The purpose of the research project as well as the techniques and procedures for questionnaire survey were explained to potential participants. Upon informed consent, the questionnaire was administered via self-report survey technique. The self-report method is strong with respect to its directness and versatility. In this study, it offers (1) correct design, the analysis can be easy; (2) useful for sensitive topics regarding weight; (3) one of the easiest instruments to test for reliability and validity; (4) a high return rate; (5) and the opportunity to answer any questions the participants may have. Whereas, disadvantages are: (1) participants may provide socially acceptable answers; (2) participants must be literate; (3) participants may not be representative of the population; (4) and takes more of time via face-to-face, so researcher will have a cost factor involved.

The investigator was on site to distribute a paper and pencil questionnaire, provide instructions on how to fill out the questionnaire, and to answer any questions concerning filling out the questionnaire. The investigator remained in the vicinity to collect the completed forms. After participants finished the questionnaire, the investigator thanked them for their contribution to this study.

Postpartum Weight Retention

According to Chinese Taipei Association, for the study of obesity, postpartum weight retention is defined as: comparing with prepregnant weight, body weight $\geqq$10% or 4.55 kg at six-month postpartum. Participants will be grouped into the following categories of postpartum weight change: postpartum weight no retention (return to their prepregnant weight) and

postpartum weight retention/gain. Postpartum weight will be calculated as postpartum weight minus prepregnant weight and will be measured to 0.1 kg at each contact on a highly accurate portable electronic scale. Women will be weighed without shoes or heavy external clothing, such as belts or coats.

Feelings and Thoughts about Weight Scale –Chinese version (CFATAW)

CFATAW will be used to measure Taiwanese women's thoughts and feelings about postpartum weight retention. The overall scale was comprised of 14 items which provide an overall scale score, as well as two subscales or dimensions of (1) distress related to weight and (2) salience of weight in self evaluation. Weight-related distress was defined as high personal dissatisfaction with current weight that results in negative effects on emotional well-being and on activities of daily living (L. O. Walker, 1998b) and were assessed using the 10 item weight-related distress subscale. Salience of weight is defined as the importance a person gives to weight in her overall self-evaluation (L. O. Walker, 1998b) and was measured by 4 items.

Behavioral Factors

Behavioral factors are considered a domain of self-care activities that are performed by individuals for the sake of well-being. The behavioral factors, based on the definition of Walker et al., reflect physical activity, overall health-related lifestyle, and fat intake habits (L. O. Walker, Freeland-Graves, Milani, George et al., 2004; L. O. Walker & Grobe, 1999). The physical activity and overall health-related lifestyle positively influence postpartum weight. The more physical activity and overall health-related lifestyle, the greater the ability of postpartum women return to their prepregnancy body weight (the more postpartum weight lose). The fat intake habits negatively influence postpartum weight. It means that the more fat intake, the less ability of postpartum women return their body weight to prepregnant weight. The behavioral factors

were measured by 9-items in the demographic questionnaire. Such as "How often did you do your daily activities during traditional Chinese postpartum care?", "Did you take care of your children during traditional Chinese postpartum care?", "Did you housekeep during traditional Chinese postpartum care?", "Did you breastfeed during traditional Chinese postpartum care?", "Had you diet since your childbirth?", "Did you exercise after your childbirth?", "Did you reduce the calorie intake after childbirth?", "Did you reduce fat intake after childbirth?", and "How long have you diet?"

Weight Status Factors

Body Mass Index (BMI). BMI is computed as weight (kg)/height $(m)^2$. Height was measured at the recruited time using a stadiometer.

Prepregnant weight. Prepregnant weight-for-height was indexed by BMI.

Pregnant weight gain. Pregnant weight was computed from weight at the end of pregnancy minus prepregnant weight.

All weight measures was based on self-reported data combined with their perinatal records of the maternity center if there were available. It would reduce bias from self-reported data.

Demographic Factors

The demographic factors included age, parity, lactation, educational level, marital status, employment status, family incomes, and how soon the postpartum women return to work.

Parity. Parity was assessed by the number of live births and stillbirths of each woman.

Data Analysis

The data was analyzed using the Statistical Package in Social Science (SPSS) software program, 13.0. Descriptive statistics (means, standard deviations, percentages) were employed to

illustrate the demographic characteristics of the participants and the field testing of the CFATAW scale. First, in order to look at reliability of the field testing, item analyses of each of the CFATAW subscales and the total scale were conducted and Cronbach's Alpha coefficients was calculated. The alpha coefficient for the each of the subscales and the total scale was set above .50, which is considered an acceptable estimate of reliability for a new scale (Nunnally, 1978). Item-total point biserial correlations were also calculated to measure internal consistency. Each factor of the FATAW was then emerged in the factor analysis. An exploratory factor analysis of the CFATAW scale was conducted, in order to assess if any items in the CFATAW scale were measuring aspects of the same underlying domains or factors. A principal components analysis with varimax rotation was used.

Finally, to examine the predictors of postpartum weight gain among Taiwanese women, correlations were computed among weight-related distress, weight status, and selected demographic variables. In addition, Chi square analyses and multiple regression techniques were used to test the relationships of selected demographic and anthropometric variables on total CFATAW scale, current BMI and postpartum weight retention at the level of significance 0.05.

Protection of Human Subjects

Approval for the study was sought and obtained from the Human Subjects Committee (Appendix C), University of San Diego, as well as Institutional Review Board associated with the maternity center in Taiwan (Appendix D). Participants were selected from those willing to participate in the study based on the inclusion criteria. The participants were given a copy of the informed consent (Appendix E and F) prior to filling out the questionnaire, and a signed consent form was obtained from each participants. All volunteers had the right to withdraw from the study at any time. This study entailed minimal risk to participants. Confidentiality was assured

by coding each participant form with a corresponding number. The investigator was the only person who had a record of the names that corresponded to the numbers. This information was kept in a locked file in a safe place. At the completion of this study, data sheets were coded and reported as group data.

Limitations of the Study

This study has a few limitations. The sample might be biased based on the possibility that participants who were more involved with postpartum weight gain might choose to be in the study, while those who were not interested in postpartum weight gain, might refuse to participate.

Summary

This chapter presented a description of the process of the development of the Chinese version FATAW scale. In addition, the participants used for each stage of instrument development were described and the methods selected to test the validity and reliability of this instrument was outlined.

CHAPTER 4

Results

The purpose of this study was to examine predictors of postpartum weight gain among Taiwanese women using the modified Thriving Model (Walker & Kim, 2002) as the guiding conceptual framework and to establish the psychometric properties of the Chinese version of the Feelings and Thoughts about Weight Scale. Results are presented as they relate to the stages and aims of the study. This study was comprised of 4 phases (stages): (1) Translation of the Feelings and Thoughts about Weight scale (FATAW) (Walker, 1997) into Mandarin Chinese; (2) Pilot testing of the Chinese Version FATAW Scale; (3) Field testing of the Chinese Version of the FATAW Scale and (4) Examination of predictors of postpartum weight gain. In this Chapter the study findings are presented. Translation procedures are presented first, followed by a description of the pilot and field studies conducted with postpartum Taiwanese women to establish the psychometric properties of the Chinese version of the measure. Finally the quantitative findings from the field study of the hypothesized predictors of postpartum weight gain are presented.

Stage 1: Development of the Chinese Version FATAW Scale

Stage 1 of the study was conducted during May – June 2005 to answer the first research question:

"Is the Chinese version of the FATAW scale equivalent to the English version of the FATAW scale?"

As a first step, translation and back translation procedures were utilized to ensure that the Chinese version of FATAW scale was equivalent to the original English version of FATAW scale. Translation and back-translation are frequently employed as a tool to reduce the inaccurate

or misleading translations to the minimum. Brislin's (1970) model of translation, has been identified as the most reliable method for developing an equivalent translated instrument and was used for the translation of the FATAW scale into Chinese (Mandarin). The strength of Breslin's model is grounded in the use of back translation through which translation errors can be effectively identified.

Translation and back translation of the FATAW scale. The original English version of FATAW scale was translated into Chinese by two independent bilingual Taiwanese colleagues; one was from the Nursing Department, Chang Gung Institute of Technology and the other from the School of Nursing, Taipei Medical University. Both were native Chinese speakers and were familiar with American idiomatic usage and culture through their previous experience of living and studying in the United States. In translating the original English version of FATAW scale into the Chinese language, word-for-word translation from the English to the Chinese language was avoided to prevent "lack of equivalence".

Although there were some differences in the versions produced, these were mainly to specific wording used by the two translators. Using the 100% nominal group process for professional agreement, a translation committee, which consisted of the investigator and the two translators, agreed on the final format of the translation of the scale. For example, the meaning of "a big part" can be translated into Chinese using different Chinese words yet the meanings are the same. For the items with wording problems, one set of words was chosen after the discussion among the translation committee. Words were selected based on their most common use among lay persons. For example, the item asking about women's recreational activities was modified for cultural considerations because the clothing for walking outdoors in Taiwan are different from the clothing for walking outdoors in the United States. Based upon the committee's review and

critique, the initial Chinese version of the FATAW scale (FATAW-Chinese Version I) was developed (Appendix G).

This version was sent to two professional bilingual translators for back translation, both of the translators have a high degree of familiarity with both cultures and languages. One, a faculty member from Chang Gung Institute of Technology, had over 15 years of experience teaching English. The other, native Chinese speaker, has lived in US over 25 years. Neither translator had seen the original English version of FATAW scale yet, the translations only slightly differed from the original English version. Some differences were found however in the choice of words with similar meanings. For example, the words "at this time" used in the original version, one translator used the words "at current stage" and the other one used the word "currently".

Once the original English version of the FATAW scale had been translated and back translated, a panel of two bilingual Taiwanese, not the same persons who did the back translation, was assembled to discuss the discrepancies and clarity of the translated verion and the other two English versions. The semantic and conceptual equivalence among the three versions was confirmed by the two experts and investigator.

Finally, the investigator and the two bilingual Taiwanese compared the original English version of the FATAW scale and the two back-translated versions of the FATAW scale. They all agreed that the two back translations were almost identical to the original version. They tracked the minor discrepancies between the two source versions of the FATAW scale back to the first Chinese version of the FATAW scale and made the necessary corrections to ensure that the first Chinese version of the FATAW scale reflects accurately the original English version of the FATAW scale.

Content validity was conducted to answer this research question: "Is the content of the Chinese version of the FATAW scale valid?"

Following the translation and back translation of the FATAW scale, similar procedures were used to gather expert feedback on the scale's 14 items to test content validity. First, an Expert Panel Review Form was developed (Appendix H). Next an expert panel of seven nurses was assembled. Expertise was determined based on an individual meeting one of the following criteria: (1) have clinical experience in maternity, obstetrics, or women's health; (2) be involved and have expertise in the weight control, and (3) be bilingual – Chinese and English. This expert panel consisted of two experienced obstetric nurses, two women's health specialists, two faculty members teaching obstetric nursing in Taichung, Taiwan and one faculty member with overweight prevention experience from Chang Gung Institute of Technology (table 1). The years of nursing experience ranged from 10 to 22 years. Table 1 lists the clinical specialty and years of experience of the seven experts.

Table 1 Clinical specialty and Years of Experience of Content Experts

Content Expert	Specialty	Years of Experience
#1	Maternity Nursing	16
#2	Maternity Nursing	19
#3	Obstetric Nursing	10
#4	Women's Health	12
#5	Overweight Prevention	22
#6	Obstetric Nursing	18
#7	Women's Health	16

An overview of the study, the original English version of the FATAW scale, and the initial Chinese version of the FATAW scale were provided to the panel prior to their completing the expert panel review form. As previously described the scale includes 14 items which provide an overall scale score measuring feelings and thoughts about weight, as well as the two subscales or dimensions of (1) distress related to weight and (2) salience of weight in self evaluation.

The experts were asked to evaluate whether each item adequately represented the content of the dimension. To judge validity, the experts graded each item using a 4-point scale ranging: (1) not relevant, (2) need major revisions, (3) need minor revisions, and (4) succinct and very relevant. A content validity ratio was calculated for each item and for the overall Chinese version of the FATAW scale. In addition, the review form allotted space for the experts to make recommendations on the accuracy, style, clarity, and cultural relevance of the translation and to discuss whether the item was appropriate for the dimensions.

Six of seven experts graded all 14 items as either three or four points, while one graded item 2 as two points based on its wording only. The content validity index (CVI) for the entire scale was 0.85 (Table 2). All 14 items were rated as valid based on Lynn's criteria (1986) which states five of the seven experts had to rate an item as three or four points. The CVI for the dimension of distress was 0.93 and for the dimension of salience was 0.90. The content validity for the first Chinese version of the FATAW scale was supported. Table 3 shows the CVIs for the 14-item scale and each dimension.

Table 2 The CVIs for 14-item Scale and Each Dimension

	#1	#2	#3	#4	#5	#6	#7	Ratio	CVI per Item
Item1	4	4	4	4	4	4	4	28/28	1.0
*Item2	3	3	4	2	3	3	4	22/28	0.79
Item3	4	3	4	3	3	3	4	24/28	0.86
*Item4	4	4	3	4	4	3	4	26/28	0.93
Item5	4	3	3	3	3	3	4	23/28	0.82
Item6	4	3	4	3	4	4	4	26/28	0.93
Item7	4	4	4	4	4	3	4	27/28	0.96
Item8	4	3	4	4	4	3	4	26/28	0.93
Item9	4	4	4	4	4	3	4	27/28	0.96
*Item10	4	4	4	4	4	3	4	27/28	0.96
Item11	4	3	4	4	4	4	4	27/28	0.96
Item12	4	3	4	4	4	3	3	25/28	0.96
*Item13	4	3	4	4	4	3	4	26/28	0.93
Item14	4	3	4	4	4	3	4	26/28	0.93
Entire items	55	47	54	51	53	45	55	360/392	0.92

*dimension of salience of weight in self-evaluation

Table 3 Content Validity Index for Chinese Version FATAW Scale and Each Dimension

Scale/Dimension	CVI
14-Item Chinese FATAW Scale	0.85
Dimension: Distress Subscale (Item 1, 3, 5, 6, 7, 8, 9, 11, 12, 14)	0.93
Dimension: Salience Subscale (Item 2, 4, 10, 13)	0.90

Item Modification

Scale items were slightly modified, based upon the expert panel's review and recommendations, by adding context, examples or using synonyms when literal translations seemed unclear or awkward. For example, four experts suggested that every item could begin with "I" in the sentence. For the item 11, five experts suggested that the example about recreational activities should be modified to adapt cultural discrepancy; therefore, "swimming" was added in the example. Lastly, some items were modified to make the sentences more concise.

All of the experts commented that the 14 items had clarity and could represent the two dimensions for Taiwanese women's feeling and thoughts about weight after childbirth. The result of this content analysis indicates that the Chinese version of the FATAW scale demonstrated content validity. After the modifications were made, the second Chinese version of the FATAW scale was generated (FATAW II).

Readability and educational level

The FATAW II was next submitted to a panel of three teachers who not only had majored in Chinese but also taught Chinese in elementary schools. The teachers were asked to rate each

of the 14 items for appropriateness for six-grade-level readers along a continuous sequence of 20 to 100% comprehension. The average agreement was 90% for comprehension which suggested that the measure was appropriate for use with postpartum women who have attained six-grade-level reading skills. Lastly, the investigator determined equivalency and the final FATAW Chinese version was generated.

Stage 2: Pilot Testing of the Chinese Version FATAW Scale

Upon approval by the Institutional Review Board (IRB) of University of San Diego (Appendix C) the Chinese version of the FATAW scale II (CFATAW) was pilot tested with 30 Taiwanese women three-to-nine months postpartum. The purpose of the pilot study was to evaluate item clarity and establish initial reliability and validity. After obtaining informed consent a survey was self-administered by the participants, which contained two parts: the first part contains the 14-item CFATAW. Participants were asked to rank their degree of distress related to weight and salience of weight in self-evaluation. Each item was ranked on a 7-point scale from disagree strongly (1) to agree strongly (7). Participants were asked to complete each of the items and to also provide a comment for each item, particularly concerning the interpret ability of the scale, their overall impression of the scale, any difficulties participants experienced while taking the survey, any additional comments, and whether the scale incorporated commonly used language in Taiwan. The second part was demographic information questionnaire including age, educational level, family income, and weight-related data (Appendix H).

Results of the pilot study

Subject characteristics. A purposive sample of 30 postpartum women was recruited for the pilot study from a well baby clinic at Chang Gung Memorial Hospital in the Taipei metropolitan area, northern Taiwan during September 2005. The mothers ranged in age from 19 to 39 years, the

mean age 30.73 years. As can be seen in Table 4, all of the participants were married, breastfeeding after childbirth, and had traditional Chinese postpartum care. This was the first child for almost two thirds of the respondents (60%) and the majority (73.3%) were 6 to 9 months postpartum. More than half (60%) worked at home and 80% had total family income ranging from $ 1,000 to 3,500 US dollars. Nearly forty percent of participant BMIs were classified as overweight or obese.

Table 4 Demographic Profile of the Participants in Pilot Study (N=30)

Demographics	Frequency	Percentage %
Age (Mean = 30.73, S.D.=5.20)		
<20	1	3.3
20~25	4	13.3
26~30	10	33.3
31~35	9	30.0
36~39	6	20.0
Marital status		
Married	30	100.0
Single	0	0.0
Divorce	0	0.0
Total family income		
1000~1500	8	26.7
1501~2500	10	33.3
2501~3500	6	20.0
3501~5000	4	13.3
5001 and up	2	6.7
Number of children		
1	18	60.0
2	8	26.7
3	3	10.0
6	1	3.3
Postpartum month (Mean=6.7, S.D.=5.2)		
3~5 months	8	26.7
6~9 months	22	73.3
Traditional Chinese postpartum care		
About 30 days	19	63.3
About 31~45 days	7	23.3
About 60 and up	4	13.3
Employment status		
Household	16	53.3
Full-time job	14	46.7
Part-time job	0	0.0
BMI		
Up to 23.99	19	63.3
25.00 ~ 26.99	3	10.0
27.00 and up	8	26.7
Breastfeeding		
Up to 29 days	8	26.7
30 ~ 60 days	8	26.7
61 and up days	14	46.7

Clarity of the CFATAW scale. All of the participants in the pilot study responded positively to the CFATAW scale, stated all items were clear, made no suggestions to change any of the items, and did not report any specific problems in completing the CFATAW. Time requirements for completing the consent, demographic questions, and CFATAW scale was approximately 10 to 15 minutes.

Individual interviews

A focus group with participants selected from those engaged in the pilot testing, was initially proposed to be conducted after the pilot study in order to obtain the lay experts' opinions on the cultural equivalency of the CFATAW and the appropriateness of the language used in the items. However, none of the 30 participants expressed interest in participating in a focus group, rather the majority stated they didn't have the extra time to come and it would be difficult to set up the same time to get together. The investigator then suggested a modified method so that the participants could complete an individual interview instead of focus group. Subsequently six of participants agreed to a conveniently scheduled individual interview. The investigator led 30 to 45 minute interview was comprised of the following process: each participant was asked to evaluate the clarity of the questions, based upon the perception of ambiguity in the meanings of the cultural sensitivity, and appropriateness of the colloquial language used by postpartum women in Taiwan. Lack of question clarity, ambiguity in the meanings, lack of cultural sensitivity, and inappropriateness of the wording were not identified by the participants. Five of the 6 volunteers did note however that the font of the questionnaire was too big and may give the wrong impression "of taking much time to answer".

As a result of this pilot study and individual interviews, the scale format was minimally changed such as font size; however, no changes were made to the directions of the CFATAW

scale. On the other hand, several of the demographic questions were reworded. For example, number 11 of the demographic questions asked, "What was your body weight after childbirth when you were in the hospital?" Some of the participants indicated that they didn't know their body weight and didn't get weighed while in the hospital. Therefore, this question reworded "What was your body weight after childbirth in the hospital? (If you weren't weighted before you were discharged from hospital, please indicate your first body weight after childbirth.) The final version of the CFATAW scale can be found in Appendix I.

Stage 3: Field Testing of the Chinese Version FATAW Scale

The field testing of the CFATAW scale took place in October 2005. All postpartum women aged 18 to 40 years attending the well baby clinic of Chang Gung Memorial Children Hospital from October, 2005 to February, 2006 were informed of and invited to participate in the field testing of the CFATAW scale.

The determination of sample size was based on the need to perform factor analysis. It is recommended that the number of subjects to the number of items ratio be at least 5:1 to 10:1 for reliable factor analysis (Hair et al., 1998). A larger sample size will reduce the effect of sampling errors (Nunnally, 1978). To achieve statistical significance a sample size of 210 postpartum women was needed to evaluate the psychometric properties of a 14-item instrument that is 15 subjects per item. Inclusion criteria included: (1) 18 to 40 years old females with uncomplicated pregnancies, (2) three-to-nine months postpartum, and (3) the ability to speak and understand the Mandarin Chinese language. Exclusion criteria included (1) diagnoses known to influence weight such as diabetes mellitus or hypertension, (2) delivered a low birth-weight infant, or had multiple births, (3) unwanted pregnancy, or (4) currently pregnant.

Results of the field testing

The results of the field testing will be presented as follows: (1) sample description, (2) psychometric properties of the CFATAW including scale reliabilities, and (3) factor analysis.

Sample and sampling. A sample of 260 postpartum women was recruited for the field testing; 8 were excluded due to health status known to influence weight. After obtaining informed consent a self-administered survey was completed by the participants, which included the CFATAW and demographic questions.

Sample Characteristics. The demographic characteristics of the participants are presented in Table 5. The mean age of the participants was 29.66 (sd = 4.3), ranging from 19 to 40 years. The majority of participants (96.4%) were married and slightly more than half (52%) were multiparious with 2 or more children in the household. Over two thirds (66.69%) had attended college, worked outside the home (66.2%) with over three quarters reporting total family income from $ 1,000 to 3,500 US dollars. Participants ranged from 3 to 9 months postpartum, mean of 7.55 months and almost all (98.8%) had engaged in traditional Chinese postpartum care. Two thirds (65.5%) were breastfeeding rather than using formula for more than 30 days (66.7%). Approximately 37% (n = 92) experienced a Cesarean section and 65.5% (n = 165) elected to breastfeed.

Table 5 Demographic Characteristics of Postpartum Women in CFATAW Field Testing

Characteristic	n	%
Age		
≤ 19	1	0.4
20~25	45	17.9
26~30	99	39.3
31~35	84	33.3
36~40	23	9.1
Educational status (School years)		
Elementary to high school (6~12 years)	86	34.2
Undergraduate (13~16 years)	152	60.3
Graduate (17~20 years)	14	5.6
Marital status		
Married	243	96.4
Single	5	2.0
Divorce	4	1.6
Employment status		
Household	85	33.7
Full-time job	156	61.9
Part-time job	11	4.4
Parity (live births)		
Primiparous	121	48
Multiparous (2^{nd})	89	35.3
Multiparous (3^{rd})	32	12.7
Multiparous (4^{th})	9	3.6
Multiparous (5^{th})	1	0.4
Children numbers in household		
1	125	49.6
2	92	36.5
3	33	13.1
4	2	0.8
Delivery type		
Virginal delivery	160	63.5
Cesarean section	92	36.5
Feeding type		
Breastfeeding	165	65.5
Formula	87	34.5
Breastfeeding		
Up to 29 days	84	33.3
30 ~ 60 days	92	36.5
61 and up days	76	30.2

Note: N= 252

Weight Management. As can be seen in Table 6, more than half of the participants (52.8%) reported weight gain greater than 13 kg during pregnancy. Mean BMI before pregnancy was 20.98, with a standard deviation of 3.26, a median of 20.30, and ranged from 15 to 37. Forty-four percent (n = 112) of the participants were in the "under weight" category before pregnancy. Only 4.4% (n = 11) were classified as obese, while 9.5% (n = 24) were in the "overweight" range, and 41.7% (n = 105) were in the "normal weight" range.

Mean BMI at delivery was 24.23, with a standard deviation of 3.56, a median of 23.65, and ranged from 18.4 to 37.10. The percentage of participants in the "under weight" category decreased from 44.4% to 7.5% (n = 19). There was a slight increase in the percentage in the "normal weight" category, from 41.7% to 45.2% (n = 114). The "over weight" and "obese" category percentages increased, with "over weight" rising from 9.5% to 28.2% (n =71), and "obese" rising from 4.4% to 19.0% (n = 48).

Mean BMI at recruitment (current BMI) was 22.20, with a standard deviation of 3.57, a median of 21.55, and ranged from 15.9 to 35.10. The percentage of participants in the "under weight" category increased from 7.5% to 31.3% (n = 79). There was a slight decrease in the percentage in the "normal weight" category, from 45.2% to 40.5% (n = 102). The "over weight" and "obese" category percentages increased, with "over weight" decreasing from 28.2% to 18.3% (n = 46), and "obese" rising from 19.0% to 9.9% (n = 25).

Table 6 The Sample's BMI at Pre-pregnancy, Delivery, and Recruitment

Characteristic	N	%
Pre-pregnant BMI M(SD) 20.98(3.26)		
Under weight (BMI < 20)	112	44.4
Normal weight (20 ≦ BMI < 24)	105	41.7
Over weight (24 ≦ BMI < 27)	24	9.5
Obesity (BMI ≧ 27)	11	4.4
BMI at delivery M (SD) 24.23 (3.56)		
Under weight (BMI < 20)	19	7.5
Normal weight (20 ≦ BMI < 24)	114	45.2
Over weight (24 ≦ BMI < 27)	71	28.2
Obesity (BMI ≧ 27)	48	19.0
Current BMI M (SD) 23.2 (19.2)		
Under weight (BMI < 20)	79	31.3
Normal weight (20 ≦ BMI < 24)	102	40.5
Over weight (24 ≦ BMI < 27)	46	18.3
Obesity (BMI ≧ 27)	25	9.9

Note: N = 252

As shown in the Table 7, over one third of participants (n = 84, 33.3%) reported having postpartum weight retention with mean 3.08 kg and SD 4.88 (postpartum weight gain at recruitment in this study greater than 4.55 kg comparing with self-reported pre-pregnant weight). Mean postpartum weight loss compared with delivery weights was 5.19 kg (sd 4.32).

Table 7 Anthropometric Characteristics of the Participants in Field Testing (N = 252)

Characteristic	N	%
Postpartum weight retention†		
Non-postpartum weight retention (< 4.55 Kg)	168	66.7
Postpartum weight retention (>= 4.55 Kg)	84	33.3
Mean	3.08	--
SD	2.00	--
Median	4.88	--
Mode	2.00	--
Range	50	--
Postpartum weight loss‡		
Mean (SD)	5.19 (4.32)	--
Median	5.00	--
Mode	2.00	--
Range	36.00	--

†: Postpartum weights were compared to self-reported pre-pregnancy weight at the time of participation in this study to compute weight retention
‡: Postpartum weights were compared to delivery weights to compute weight loss

Table 8 presents information on traditional Chinese postpartum care. Ninety-eight percent of the participants (n = 249) reported having experienced the traditional Chinese postpartum care. During the traditional Chinese postpartum care, 77.5% (n = 195) of participants spent over two thirds of the time on the bed and 66.7% (n = 168) of participants neither took of their newborn nor did housekeeping. Of the 207 participants, a large percentage (82.1%) returned to regular lifestyle (or return to work) at 30 to 60 days after childbirth with mean 44.99 days (SD = 24.08). Of the 167 who reported, 66.3% had never exercised after childbirth. Although more than two thirds (71.8%, n=181) of the participants were of normative or under weight, 69% (n = 174), they considered that they themselves should modify their body weight. One hundred eighty two reported that they had never dieted after childbirth (72.2%) (Table 9).

Table 8 Activities during Traditional Chinese Postpartum Care

Activity	Frequency	Percentage %
Traditional Chinese postpartum care		
No traditional Chinese postpartum care	3	1.2
About 30 days	184	73.0
About 31~45 days	53	21.0
About 60 days	11	4.4
61 days and up	1	0.4
Activities during traditional Chinese postpartum care		
Always on the bed (90% and up)	13	5.2
Often on the bed (60~89%)	74	29.4
Sometimes on the bed (30~59%)	108	42.9
Rarely on the bed (1~29%)	54	21.4
Never on the bed (0%)	3	1.2
Return to work (return to regular lifestyle)		
< 29 days	34	13.5
30~60 days	207	82.1
> 60 days	11	4.4
Taking care newborn during traditional Chinese postpartum care		
Not at all	168	66.7
50% of the time	77	30.6
All the time	7	2.8
Housekeeping during traditional Chinese postpartum care		
No	168	66.7
50% of the time	77	30.6
All the time	7	2.8

Note: N = 252

Table 9 Demographic and Anthropometric Characteristics of the Participants in Field Testing (N=252)

Demographics and anthropometric	Frequency	Percentage %
Exercise after childbirth		
Not at all	167	66.3
Yes	85	33.7
I feel that I should lose weight after childbirth		
Not at all	78	31
A little bite	95	37.7
100% need to	79	31.3
I am on diet after childbirth		
No	182	72.2
Yes	70	27.8
Return to work (return to regular lifestyle)		
< 29 days	34	13.5
30~60 days	207	82.1
> 60 days	11	4.4

Psychometric Properties

Internal consistency reliability procedures were employed to investigate the preliminary reliability estimates (Cronbach's coefficient alpha) to answer the research question: "Are the Chinese version of FATAW scale total scale and subscales internally consistent for Taiwanese postpartum women?"

If items comprising a scale have a strong connection to the latent variable they are intended to measure, they will also have a strong relationship to each other. This measure is referred to as the internal consistency of the scale (DeVellis, 1991).Cronbach's coefficient alpha is the measure used in this study to indicate the internal consistency of the scales comprising the instrument.

In addition, the intercorrelations between each item within a subscale and the sum of the other items of the subscale (r) are reported. The purpose of this stage of the study was to determine if each subscale of the CFATAW scale measured separate but distinct characteristics of the designated dimensions. The items receiving the highest correlation indicate a greater relationship to the other items of the subscale. Corrected-item totals ($r \geqq 0.30$) indicate a moderate to high degree of relationship of that item with the remaining items of the subscale.

The distress subscale showed a moderate to high degree of relationship among the items. The correlated item-total ranged from $r \geqq 0.43$ to $r \leqq 0.73$ for 10 items of the distress subscale. A similar result was found for the salience subscale. The range of the corrected-item total for the 4 items of the salience subscale was $r \geqq 0.32$ to $r \leqq 0.49$. Overall, the degree of correlation among the items of each subscale indicates these items are measuring related elements of that dimension. The means and standard deviations for each subscale and total scale are also reported in Table 10. The item analysis for each subscale is presented in Table 11 and Table 12. The

correlation between distress and salience subscales is r = 0.60 with significant at p < .01 level and indicates that the subscales are measuring related but separate dimensions.

Table 10 Means, Medians, Standard Deviations and Ranges of Each Subscale and Total Scale the Field Testing (N = 252)

	Distress subscale	Salience subscale	Total scale
Median	32.0	14.0	46.0
Mean	34.03	13.95	47.98
SD	11.59	4.48	14.73
Possible range	10-70	4-27	15-95

Table 11 Item Analysis for Distress Subscale of CFATAW Scale the Field Testing Sample (N=252)

Distress subscale/Item	Mean	SD	Corrected Item-Total r
1	4.05	1.86	0.61
3	3.07	1.68	0.66
5	3.37	1.68	0.52
6	4.67	1.60	0.51
7	2.67	1.43	0.68
8	4.67	1.68	0.43
9	2.83	1.61	0.73
11	3.34	1.90	0.65
12	2.89	1.66	0.67
14	2.48	1.42	0.69
Distress subscale alpha = 0.88			

Table 12 Item Analysis for Salience Subscale of CFATAW Scale the Field Testing Sample (N=252)

Salience subscale/Item	Mean	SD	Corrected Item-Total r
2	3.67	1.71	0.40
4	4.22	1.72	0.49
10	2.77	1.35	0.37
13	3.29	1.78	0.32
Salience subscale alpha = 0.62			

As shown in Table 13, Cronbach's coefficient alpha computed on each derived factor ranged from 0.62 to 0.88. Factor 1 (Behavioral Distress) had the highest reliability with an alpha of 0.88, and Factor 3 (Salience Related to Weight) had the lowest reliability with an alpha of .62. Correspondingly, for the two conceptual domains of the CFATAW scale, the distress subscale items maintained an alpha of 0.88. The salience subscale had an alpha of 0.62. The entire reliability coefficient alpha of the CFATAW scale was 0.89.

Alpha values of 0.7 or higher are considered acceptable, with 0.6 being acceptable for new scales, and that even an alpha of 0.5 or greater can be considered very significant and provide information for further study (DeVellis, 1991; Hair et al., 1998; Nunnally, 1978). Therefore, if the lower level of alpha = 0.5 is used, then the two subscales of the CFATAW demonstrate an acceptable level of internal consistency. To summarize, the research question 3 was generally answered by adequate internal reliability estimates for the CFATAW subscales. In addition, the CFATAW scale was judged to be reliable for the total scale.

Table 13 Cronbach's Coefficient Alphas and Numbers of Items of the Three Resulting Factors (N = 252)

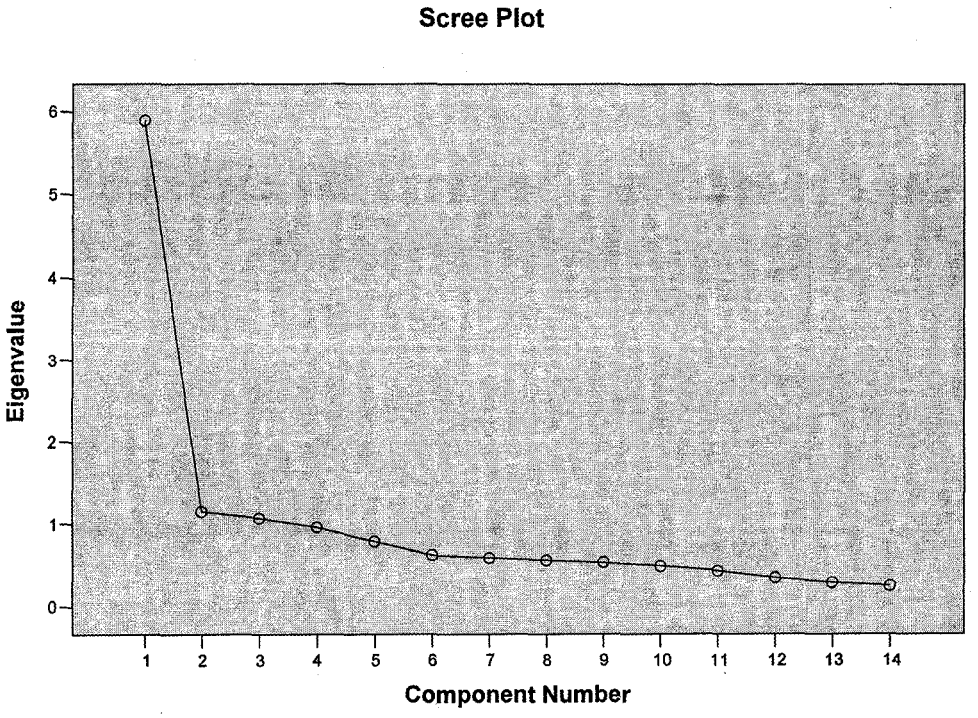
Factor	Number of Items	Alpha
1. Behavioral distress related to weight	7	0.88
2. Confidence distress related to weight	3	0.69
3. Salience related to weight	4	0.62
Total scale		0.89

Item analysis and factor analysis were used to answer the research question: "Is the construct of the Chinese version of the Walker's FATAW scale valid?"

To establish the construct validity of the CFATAW scale, an exploratory factor analysis was subsequently undertaken to examine the factor structure of the scale (Tabachnick & Fidell, 2001). Before the exploratory analysis, Kaisor-Meyer-Olkin (KMO) and Bartlett's sphericity test were used to measure the sampling adequacy. The results showed that the KMO value was 0.908, and the significance of Bartlett's sphericity was .000 ($\chi^2 = 1396$, d.f. = 91, p = .000), indicating that the samples met the criteria for factor analysis (Hair et al., 1998).

Principal component factor analysis was performed using varimax rotation with Kaiser Normalization. Factor analysis yielded 3-factor solution with an explained variance of 57.97%, which had Eigenvalues greater than 1.00. Eigenvalues represent the relative importance of a factor, or the percentage of the variance that has been extracted. The scree plot (Figure 2) suggested that a three-factor solution should be examined. The factor loading cutoff point was set at .30. Parsimony and an interpretable solution were employed as criteria for the best factor solution. The factor analysis results indicated that the three-factor solution of the principal components analysis with varimax rotation was the most parsimonious and interpretable.

Figure 2. The Scree Plot for Principal Components Analysis of the 14-item CFATAW Scale



The results of the principal components analysis of the CFATAW scale are presented as follows:

Factor 1 was labeled "behavioral distress" (Table 14 and Table 15). This was the strongest factor, explaining the greatest percentage of variance of the CFATAW scale (42.09%) with an Eigenvalue of 5.89. Item loading on this factor included 9 items with factor loadings ranging from .453 to .786. There were 3 items that had double loadings including items 1 (0.606) and 5 (0.343) on factor 2, and item 2 (0.383) on factor 3.

Factor 2 was labeled "confidence distress" (Table 14 and Table15). It contained 5 items with factor loadings ranging from 0.317 to 0.795, and accounted for 8.22% of variance with an

eigenvalue of 1.15. There were 3 items that had double loadings including items 1 (0.453) and 5 (0.541) on factor 1, and item 4 (0.664) on factor including 3 items.

Factor 3 was labeled "salience related to weight" (Table14 and Table 15). It contained 4 items with factor loadings ranging from 0.383 to 0.742, and accounted for 7.66% of variance with an eigenvalue of 1.07. There were 2 items that had double loadings including item 2 (0.497) on factor 1 and item 4 (0.317) on factor 2.

Table 14 Eigenvalues, Cumulative Percentage of Variance Explained by Three Factors on the CFATAW Scale (N = 252)

Factor	Factor label	Eigenvalue	Variance explained %	Cumulative %
1	Behavioral distress	5.89	42.09	42.09
2	Confidence distress	1.15	8.22	50.31
3	Salience	1.07	7.66	57.97

Table 15 Items, Factor Loadings, and Side Loadings of CFATAW Scale (N = 252)

Weight-related feelings and thoughts			
	Factor 1: Behavioral Distress	**Factor 2: Confidence Distress**	**Factor 3: Salience**
Conceptual Domains: Distress			
3. My feelings about my weight have stopped me from going out to social activities.	**.668**		
5. Because of my weight, I have avoided going places where appearance is important.	**.541**	.343	
7. I prefer to stay home because of my weight.	**.781**		
9. I feel ashamed of myself because of my weight.	**.748**		
11. I avoid recreational activities (such as walking outdoors, swimming) that show off my weight.	**.700**		
12. My self-esteem has gone down because of my weight	**.786**		
14. I feel like a failure when I think about my weight.	.777		
1. I fell less confidence in myself because of my weight.	.453	**.606**	
6. I'm not proud of my current weight. (reversed)		**.795**	
8. I prefer to wear clothes that hide my weight.		**.726**	
Conceptual Domains: Weight Salience			
2. My weight is a big part of how good I feel about myself.	.497		**.383**
4. Weight is a big priority for me at this time. (reversed)		.317	**.664**
10. Weight is one big part of who I am. (reversed)			**.742**
13. My weight does affect how good I feel about myself as a person. (reversed)			**.610**

The analysis tended to indicate that the 14-item instrument possessed sufficient construct validity. All extracted factors had factor loadings of at least a 0.30 (C. F. Waltz, Strickland, Lenz, & Soeken, 2005). Factor loadings of items retained on the three factors during the analysis ranged from 0.383 to 0.795. These loadings are considered significant (Nunnally, 1978).

To answer the research question: "Is weight-related distress associated with differences in weight status variables and selected demographic variables?"

Pearson or Spearman rho correlations was performed to identify the relationships between demographic and anthropometric variables and the CFATAW scales. As shown in Table 16 and Table 17, all the anthropometric variables such as BMI at delivery, current BMI, postpartum weight gain (based on prepregnant weight), BMI at pre-pregnancy, and pregnant weight gain made positively significant correlations to the subscales and total scale. That is, women with higher BMI gained more weight during pregnancy, retained more weight postpartum, and had higher weight-related distress. Postpartum weight loss had a significant negative correlation with the total scale and salience subscale of CFATAW. That is, women who lost more postpartum weight felt less weight-related distress.

Other variables that were significantly correlated with the subscales and total scale of CFATAW were a history of thought to modify current body weight, attempted to reduce caloric and fat intake after childbirth, breastfeeding days and return to work after childbirth. A significant negative correlation was found for diet before childbirth, but had been on diet since childbirth made positively significant correlation with all scales. Age was significantly correlated with Distress subscale and total scale of FATAW, but not significantly correlated with Salience subscale.

Table16 Pearson Correlations between Weight-related Variables and Subscale and Total scale Scores

	Distress Subscale	Salience Subscale	Total Scale
BMI at delivery	0.287**	0.265**	0.307**
Current BMI	0.367**	0.289**	0.377**
Postpartum weight gain	0.200**	0.241**	0.230**
Postpartum weight loss	-0.179**	-0.250	-0.162**
Age	0.173**	0.078	0.160*
School year	-0.081	-0.075	-0.086
Children number in household	0.000	-0.003	-0.001
Postpartum month	-0.025	0.026	-0.012

**: Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table17 Spearman Correlations between Selected Variables and Subscale and Total Scale Scores

	Distress Subscale	Salience Subscale	Total Scale
Should modify current body weight	0.445**	0.337**	0.450**
Pre-pregnant BMI	0.308**	0.183**	0.296**
Reduce caloric intake after childbirth	0.247**	0.212**	0.256**
Pregnant weight gain	0.232**	0.187**	0.241**
Had been on diet before childbirth	-0.220**	-0.235**	-0.239**
Reduce fat intake after childbirth	0.229**	0.183**	0.228**
Had been on diet since childbirth	0.135*	0.211**	0.172**

Table 17 Spearman correlations between selected variables and subscale and total scale scores (Continue)

	Distress Subscale	Salience Subscale	Total Scale
Breastfeeding days	-0.128*	-0.177**	-0.160*
Return to work after childbirth	-0.032	-0.128*	-0.071
Activities during traditional Chinese postpartum care	0.063	0.082	0.077
Feeding type	-0.052	-0.086	-0.068
Marital status	0.050	0.017	0.043
Exercise after childbirth	-0.039	-0.012	-0.028
Parity	0.021	0.093	0.041
Delivery type	0.116	0.099	0.117
Employment status	-0.036	0.015	-0.027
Housekeeping during traditional Chinese postpartum care	-0.026	0.042	-0.004
Taking care newborn during traditional Chinese postpartum care	-0.013	0.087	0.016
Total income	0.010	0.042	0.028
Traditional Chinese postpartum care	-0.005	-0.044	-0.019

**: Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Bivariate analyses were conducted to test the relationship of current BMI and postpartum weight retention on the subscales and total scale of the CFATAW. Pearson's Chi Square statistic was used to test for significance. Table 18 presents odds ratios and 95% CIs for the subscales and total scale of the CFATAW and current BMI. The total and subscales of CFATAW were tested in a 2x2 table of CATAW scale (higher, lower) against current BMI (non-overweight, overweight). Women with current BMI equal or greater than 24.00 had 2.75 (95% CI: 1.56 ~ 4.84) the odds of higher total CFATAW scale (mean = 47.98, SD = 14.73) as compared to those with a current BMI smaller than 24.00. Women with current BMI equal or greater than 24.00 had 2.44 (95% CI: 1.39 ~ 4.27) the odds of higher subscale of the CFATAW (mean = 34.03, SD = 11.59) as compared to those with a current BMI smaller than 24.00. Women with current BMI equal or greater than 24.00 had 1.87 (95% CI: 1.06 ~ 3.29) the odds of higher subscale of the CFATAW (mean = 13.95, SD = 4.48) as compared to those with a current BMI smaller than 24.00.

Table 18 Relationship between Total Scale and Subscales of CFATAW and Current BMI from the 252 Participants in the Field Testing

Frequency of CFATAW[1]	Current BMI[2] Non-overweight	Overweight	χ^2	p	Odds ratio	95% CI
Total CFATAW scale						
Higher	70 (27.8%)	45 (17.9%)	12.6	0.000	2.75	1.56~4.84
Lower	111 (44.0%)	26 (10.3%)				
Distress subscale						
Higher	65 (25.8%)	41 (16.3%)	9.9	0.002	2.44	1.39 ~ 4.27
Lower	116 (46.0%)	30 (11.9%)				
Salience subscale						
Higher	87 (34.5%)	45 (17.9%)	4.8	0.035	1.87	1.06 ~ 3.29
Lower	94 (37.3%)	26 (10.3%)				

χ^2 value: Likelihood ratio, df = 1, p = Fisher's exactly two-side test.
[1]Frequency of FATAW, Higher: above the average score of the scales, Lower: Below the average score of the scales.
[2]Non-overweight: current BMI is normal or under weight, Overweight: current BMI is overweight or obesity.

Women with current BMI equal or greater than 24.00 had 1.87 (95% CI: 1.06 ~ 3.29) the odds of higher subscale of the CFATAW (mean = 13.95, SD = 4.48) as compared to those with a current BMI smaller than 24.00.

As shown in Table 19, the Chi Square analyses between the CFATAW scales and postpartum weight retention presented a similar picture. The majority of women with postpartum weight retention had higher weight-related distress. Compared with women without postpartum weight retention, women with postpartum weight retention had 2.33, 2.53,and 2.42 (95% CI: 1.37~ 3.98, 1.48~ 4.32,and 1.40~ 4.18) respectively the odds of higher total scale, Distress subscale, and Salience subscale of the CFATAW.

Table 19 Relationship between CFATAW Total Sccale and Subscales and Postpartum Weight Retention from the 252 Participants in the Field Testing

Frequency of CFATAW[1]	Postpartum weight retention[2] Non-weight retention	Weight retention	χ^2	p	Odds ratio	95% CI
Total CFATAW scale						
Higher	65 (38.7%)	50 (59.5%)	9.8	0.002	2.33	1.37~ 3.98
Lower	103(61.3%)	34 (40.5%)				
Distress subscale						
Higher	58(54.7%)	48 (45.3%)	11.7	0.001	2.53	1.48~ 4.32
Lower	110 (75.3%)	36 (24.7%)				
Salience subscale						
Higher	76 (57.6%)	56 (42.4%)	10.3	0.002	2.42	1.40~ 4.18
Lower	92 (76.7%)	28 (23.3%)				

χ^2 value: Likelihood ratio, df = 1, p = Fisher's exactly two-side test.
[1]Frequency of FATAW, Higher: above the average score of the scales, Lower: Below the average score of the scales.
[2]Non-weight retention: current postpartum weight compared with pre-pregnant weight less than 4.55 kg, Weight retention: current postpartum weight compared with pre-pregnant weight equal or greater than 4.55 kg.

Additional Findings

Further analyses were conducted to assess the correlations between selected variables and postpartum weight gain. As shown in Table 20 and Table 21, eight anthropometric and demographic data, BMI difference compared between BMI at delivery and pre-pregnancy (r = 0.626, p = 0.000), current BMI (r = .422, p = 0.000), pregnant weight gain (r = 0.285, p = 0.001), BMI at delivery (r = 0.242, p = 0.000), parity (r = 0.186, p = 0.003), housekeeping during traditional Chinese postpartum care (rho = 0.170, p = 0.007), children numbers in household (r = 0.136, p = 0.031), and returning to work after childbirth (rho = -0.128, p = 0.043) with statistical

significance, related to the postpartum weight gain. The BMI at pre-pregnancy was approaching significance with the postpartum weight gain ($r = -0.120$, $p = 0.058$). Variables that were not significantly correlated with age, educational status, taking care of newborn during the traditional Chinese postpartum care, activities during traditional Chinese postpartum care, postpartum months, employment status, feeding type, exercise, marital status, following traditional Chinese postpartum care, family total income, delivery type, and on diet after childbirth. In order to further examine the variables that affect postpartum weight gain, multiple regression analysis was calculated for the independent variables BMI difference, current BMI, pregnant weight gain, BMI at delivery, parity, children number in household, housekeeping during traditional Chinese postpartum care, return work after childbirth, and BMI at pre-pregnancy on the dependent variable postpartum weight gain. Two independent variables, housekeeping during traditional Chinese postpartum care and return work after childbirth, were converted into two groups (housekeeping and non-housekeeping) and transformed by square root (transformed return to work) respectively to meet the assumptions of multiple regression.

Table 20 Pearson Correlations between Selected Demographic Characteristics and Postpartal Weight Gain (N = 252)

	Postpartal weight gain	
	r	p
BMI difference (BMI at delivery minus pre-pregnancy)	0.626**	0.000
Current BMI	0.422**	0.000
Pregnant weight gain	0.285**	0.001
BMI at delivery	0.242**	0.000
Parity	0.186**	0.003
Children number at household	0.136*	0.031
BMI at pre-pregnancy	-0.120	0.058
Age	0.078	0.215
Educational status	-0.046	0.464

**: Correlation is significant at the 0.01 level (2-tailed).
*: Correlation is significant at the 0.05 level (2-tailed).

Table21 Spearman Correlations between Selected Demographic Characteristics and Postpartal Weight Gain (N = 252)

	Postpartal weight gain	
	rho	p
Housekeeping during traditional Chinese postpartum care	0.170**	0.007
Return to work after childbirth	-0.128*	0.043
Taking care of newborn during the traditional Chinese postpartum care	0.080	0.204
Activities during traditional Chinese postpartum care	0.113	0.073
Postpartum months	0.037	0.561
Employment status	0.087	0.168
Feeding type	0.088	0.163
Exercise	0.052	0.408
Marital status	-0.021	0.746
Following traditional Chinese postpartum care	-0.025	0.694
Family total income	0.033	0.598
Delivery type	-0.037	0.562
On diet days after childbirth	0.014	0.830

**: Correlation is significant at the 0.01 level (2-tailed).
*: Correlation is significant at the 0.05 level (2-tailed).

Initially, multiple regression was conducted to determine the best linear combination of BMI difference, current BMI, pregnant weight gain, BMI at delivery, parity, children numbers in household, housekeeping and non-housekeeping, transformed return to work, and BMI at pre-pregnancy for predicting postpartum weight gain. The means, standard deviations, and intercorrelations can be found in Table 22. This combination of variables significantly predicted postpartum weight gain, $F(8, 243) = 1870.34$, $p < 0.001$, with only current BMI and BMI at pre-

pregnancy significantly contributing to the prediction. The multiple correlation coefficient (R), using all the predictors simultaneously, is 0.992 ($R^2 = 0.984$) and the adjusted R^2 is 0.983.

Table 22 shows that the correlations of the other variables with BMI difference, current BMI, pregnant weight gain, BMI at delivery, parity, children number in household, housekeeping and non-housekeeping, transformed return to work, and BMI at pre-pregnancy are all significantly correlated with postpartum weight gain. However, Table 18 indicates large correlations, r higher than 0.5 ~0.6, between BMI difference and pregnant weight gain, between current BMI and BMI at delivery, between current BMI and BMI at pre-pregnancy, between parity and children number in household, and between BMI at delivery and BMI at pre-pregnancy. To deal with this problem, the investigator eliminated variables that are highly correlated, pregnant weight gain, BMI at delivery, BMI at pre-pregnancy, and parity.

Table 22 Means, Standard Deviations, and Intercorrelations for Postpartum Weight Gain and Predictor Variables (N = 252)

Variable	M	SD	1	2	3	4	5	6	7	8	9
Postpartum weight gain	3.08	4.88	.626**	.422**	.285**	.242**	.186**	.136*	-.138**	-.135*	-.120*
Predictor variable											
1	3.26	2.00	-	.202**	.635**	.426**	.082	.083	-.049	-.039	-.149**
2	22.21	3.57		-	.182**	.889**	.289**	.223**	-.121*	.037	.847**
3	14.05	5.06			-	.390**	.075	.040	.085	.081	.036
4	24.23	3.56				-	.240**	.200**	-.075	.081	.832**
5	1.73	0.85					-	.759**	-.286**	-.087	.212**
6	1.65	0.73						-	-.257**	-.099	.168**
7	0.67	0.47							-	.316**	-.052
8	6.49	1.69								-	.113*
9	20.98	3.26									-

**: Correlation is significant at the 0.01 level (2-tailed).
*: Correlation is significant at the 0.05 level (2-tailed).
Predictor variables: 1. BMI difference, 2. current BMI, 3. pregnant weight gain, 4. BMI at delivery, 5. parity, 6. children numbers in household, 7. housekeeping during traditional Chinese postpartum care, 8. return to work after childbirth, and 9. BMI at pre-pregnancy

A multiple regression was recomputed after omitting the highly correlated variables. Based on the result of the multiple regression analysis, variables that provided unique significant contributions to the prediction of the postpartum weight gain were BMI difference, current BMI, and transformed return to work after childbirth. The beta weights, presented in Table 23, suggest that BMI difference contribute most to predicting postpartum weight gain, and that current BMI, and transformed return to work also contribute to this prediction. The adjusted R squared value

was 0.489 ($p < 0.001$). This indicates that 48.9% of the variance in postpartum weight gain was explained by the model. According to Cohen (1988), this is a large effect.

Table 23 Simultaneous Multiple Regression Analysis Summary for BMI Difference, Current BMI, Housekeeping during the First-month-postpartum, Returning to Work after Childbirth, Parity, and Children Numbers in Household Predicting Postpartum Weight Gain (N = 252)

Variable	B	SEB	β	T	Sig
BMI difference	1.358	0.112	0.557	12.078	0.000
Transformed return to work	-0.325	0.138	-0.112	-2.354	0.019
Housekeeping and no housekeeping	-0.389	0.508	-0.038	-0.767	0.444
Children number in household	0.01	0.317	0.000	0.003	0.997
Current BMI	0.422	0.065	0.309	6.513	0.000
Constant	-8.348	1.655		-5.045	0.000

$R^2 = 0.499$, Adjusted $R^2=0.489$; $F(5, 246) = 49.08$, $p < .001$
*p < .05; **p < .01

Additional analyses related to current BMI and postpartum weight retention

Further Chi square analyses were conducted to assess the following relationships: selected variables (e.g. BMI at pre-pregnancy, BMI at delivery, BMI difference, parity, children number in household, housekeeping during traditional Chinese postpartum care, and return to work after childbirth) on current BMI and independent variables (e.g. pregnant weight gain, BMI at pre-pregnancy, BMI at delivery, housekeeping during traditional Chinese postpartum care, children number in household, and return to work after childbirth) on postpartum weight retention. Only relationships that were deemed significant at p=<0.05 were recorded in the table.

As shown in Table 24, the Chi Square analysis indicated that women who had a higher BMI at pre-pregnancy (OR=77.7, 95% CI=17.8~337.9), a BMI difference greater than 3

compared BMI at delivery and pre-pregnancy (OR=2.5, 95% CI=1.4~4.6), and more than one live birth (OR=3.9, 95% CI=1.0~3.1) were associated with postpartum weight retention.

Table 24 Relationship between Selected Variables and Current BMI from the 252 Participants in the Field Ttesting

Variables	Current BMI		χ^2	p	Odds ratio	95% CI
	Non-overweight	Overweight				
BMI at pre-pregnancy[1]						
Overweight Non-	2 (5.7%)	33 (94.3%)	87.8	0.000	77.7	17.8~337.9
overweight	179 (82.5%)	38 (17.5%)				
BMI difference						
Higher (>= mean 3)	94 (64.4%)	52 35.6%)	9.5	0.003	2.5	1.4~4.6
Lower (< mean 3)	87 (82.1%)	19(17.9%)				
Parity						
More than one live birth	87 (66.4%)	44 (33.6%)	3.9	0.05	1.8	1.0~3.1
One live birth	94 (77.7%)	27 (22.3%)				

χ^2 value: Likelihood ratio, df = 1, p = Fisher's exactly two-side test.
[1]Non-overweight: BMI at pre-pregnancy is normal or under weight (that is BMI < 24.0), Overweight: BMI at pre-pregnancy is overweight or obesity (that is BMI >= 24.0).

In addition, Chi square analysis was conducted on selected variables and postpartum weight retention (shown in Table 25). Compared to women who without postpartum weight retention, women who reported overweight with current BMI had 7.6 times the odds, pregnant weight gain greater than 13 kg had 2.2 times the odds, and no housekeeping during traditional Chinese postpartum care had 1.9 times the odds for postpartum weight retention.

Table 25 Relationship between Selected Demographic Variables and Postpartum Weight Retention from the 252 Participants in the Field Testing

Variables	Postpartum weight retention		χ^2	p	Odds ratio	95% CI
	Non-weight retention	Weight retention				
Current BMI						
Overweight (>= 24)	24 (9.5%)	47 (18.7%)	46.62	0.000	7.6	4.14~14.03
Normal (<24)	144 (57.1 %)	37 (14.7%)				
Pregnant weight gain						
>= 13 Kg	78 (31.0%)	55 (21.8%)	8.26	0.005	2.2	1.27~3.76
< 13 Kg	90 (35.7%)	29 (11.5%)				
Housekeeping during traditional Chinese postpartum care						
Yes	48 (19.0%)	36 (14.3%)	5.06	0.033	1.9	1.09~3.24
No	120 (47.6%)	48 (19.0%)				

χ^2 value: Likelihood ratio, df = 1, p = Fisher's exactly two-side test.

Summary

Study results for each research question, the equivalence between the original and Chinese versions of FATAW scale, content and construct validity, reliability of the CFATAW scale, the identification of demographic variables associated with CFATAW scale, and additional findings, were discussed in this chapter. A discussion of the results of the research questions and additional findings, limitations, and implications for further research will be addressed in Chapter 5.

CHAPTER 5

Discussion

This chapter provides an overview of the study, its findings, discussion of the methodological issues, limitations of this study, and conclusions drawn from the data. Implications based on the findings are discussed as well. The last part of this chapter presents several recommendations for further research.

Overview of the Study Findings

The purpose of this study was to examine predictors of postpartum weight gain among Taiwanese women using Walker's and Kim's (2002) Modified Thriving Model and to establish the psychometric properties of the Chinese version of the Feelings And Thoughts About Weight scale (FATAW). This process involved translation and back-translation of the original English version to Chinese and psychometrically test the translated version. The instrument was tested in the sampling of 30 and 252 Taiwanese postpartum women respectively from a maternal and child center in the metropolitan northern Taiwan area.

Discussion of Study Findings

Equivalence Between the Original and the Chinese versions of FATAW Scale

There were some semantic discrepancies in translating process. A few terms did not always apply directly to single Chinese term. Such words sometimes have to translate with a set of words. For example:

In item 2, " My weight is a big part of how good I feel about myself." translated into Chinese were as follows:

Version 1, "我的體重，是我如何看待自己的一大部分。"

Version 2, "我的體重，對於我覺得我自己有多好扮演著重要的角色。"

In item 10, "Weight is only one small part of who I am." translated into Chinese were as follows:

Version 1, "對我而言，體重只代表我這個人的一小部分。"

Version 2, "我如何看我自己，體重只是佔其中的一小部分。"

In item 13, "My weight doesn't affect how good I feel about myself as a person." Translated into Chinese were as follows:

Version 1, "我的體重，並不會影響我身爲一個人如何看待我自己。"

Version 2, "我的體重，並不會影響我如何看待我自己。"

In addition, there were few grammatical and syntactical discrepancies in translating process. In item 3, for example, "My feelings about my weight have stopped me from going out to social activities." translated into Chinese became "我對於我體重的感受，會阻止我去參加社交活動。" and "我對自己體重的感覺，曾經阻止我去參加社交活動。" Although there was no doubt to read these two versions into different meanings in Chinese, it would get two opposite meanings when back translate into English. In version 1, "會阻止" meant "stop to go to". In contrast, version 2 "曾經阻止" meant "have stopped going to".

Despite concerns about wording problems of some items and response options, the results of this study demonstrated that overall the translation and back translation process resulted in a Chinese language Feelings and Thoughts about Weight Scale equivalent to the original English FATAW Scale. Although the translation and back translation process was time consuming, the outcome made the effort worthwhile. The systematic and scientific process used to translate the instrument made the international, cross-cultural study possible.

Brislin (1970) proposed three factors that determine the translation quality: (a) the translators' familiarity with English contributes to the differences in translation quality, (b) the translation quality depends on the target language into which bilinguals translate, and (c) translation quality is better for concepts with which the translators had more experience. Two translators who translated the original FATAW Scale into Chinese are native Chinese speakers. Both of them took their graduate degrees in the U.S. and were familiar with the constructs for this study. The translation process was carried out successfully based on the adequacy of two translators' personal background, knowledge, and experience. Finding a bilingual person with adequate ability to do the back translation and with the experience on health-related topics was more difficult than fining a bilingual person who was qualified of doing the forward translation. The investigator found two back translators who were native Chinese speakers but one of them was not familiar with the health-related topics. Both of the two back translators have a high degree of familiarity with both cultures and languages. Therefore, the result turned out to be successful. Semantic and conceptual equivalence were confirmed by the investigator and a panel of experts who were Taiwanese bilingual and did not back translate. The constructs of the CFATAW Scale remained the same after the translation and back translation process.

Content Validity

The measurement of instrument must ensure the content validity. A survey has content validity if there is agreement among the researchers and the participants that the items in the survey adequately cover the domain of the research subject. That is, are we measuring what we think we are measuring? Content validity is determined outside the Statistical models. In the present study, content validity is based on the original version of FATAW scale and on eliciting the expert opinion of knowledgeable professionals. The experts' confirmation of the content

validity on the CFATAW Scale increased the confidence that the CFATAW Scale would be an adequate instrument for further use.

Construct Validity and Reliability

In order to develop valid and reliable scales, factor analysis and Cronbach alphas were used to evaluate each of the constructs used in the present research. The validity of an instrument is the extent to which it measures what it claims to measure while construct validation is an ongoing process whereby hypothetical "constructs" are tested. Construct validity was defined as the degree to which an instrument measures the construct under investigation (Polit & Hungler, 1999). From the analysis, Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMPO) measure of sampling adequacy were used to evaluate the strength of the linear association among the 14-item CFATAW Scale in t he correlation matrix. Bartlett's test of sphericity was significant (p=0.000), which indicated that the correlation matrix was not an identity matrix. The KMO statistic (0.908), which is an index that compares the magnitude of the observed correlations with the magnitude of the partial correlation coefficients, was "marvelous" according to Kaiser's (1974) criteria. These results suggested that a factor analysis was appropriate and could be expected yield common factors. The 3-factor solution of the principal components analysis with a factor loading cutoff point of 0.30 was most parsimonious and interpretable. The CFATAW Scale is established as a two-dimensional scale, indicating feelings and thoughts about weight among postpartum women. This scale demonstrates acceptable internal consistency, with 14-item version appearing psychometrically in Taiwanese postpartum women.

The principal components analysis supported the construct validity of the CFATAW total scale and two subscales. The three factors represent the two domains of weight-related feelings

and thoughts: factor 1, behavioral distress, and factor 2, confidence distress, denote the subscale of Distress related to weight; factor 3, Salience, represent the subscale of Weight Salience to self-evaluation. The CFATAW Scale consisted of 14 items with two subscales encompassed three factors: Weight-related distress, encompassed factor 1 "behavioral distress" and factor 2 "confidence distress", and Salience of weight, encompassed factor 3 "salience". The numbers of items in the two subscales with three factors ranged from 3 items to 7 items.

There are 4 items have side loadings that are item 1, item 2, item 4, and item 5. In fact, Nunnally (1978) contended that just because items load on the same factor does not mean that they necessarily measure the same theoretical construct. Item 5 "Because of my weight, I have avoided going places where appearance is important." remains in factor 1 because it is congruent with the conceptual underpinning of "behavioral distress". Item 1 "I fell less confidence in myself because of my weight." was categorized as factor 2 "confidence distress" because it is congruent with the conceptual underpinning of this factor. Item 2 "My weight is a big part of how good I feel about myself." and item 4 "Weight is a big priority for me at this time." reflect the idea of factor 3 "salience related to weight". Therefore, these two items remain in factor 3 because they are congruent with the conceptual underpinning of this factor.

Reliability is a consistency among the scales in their measurement for a latent construct. Highly reliable scales are strongly inter-correlated, indicating that they are measuring the same latent concept (Hair et al., 1998). Statistical analyses are used to document scale reliability in this study. An alpha value of 0.7 or greater is preferred but 0.6 can be acceptable in an exploratory research (Nunnally, 1978). In the present study, the Cronbach's coefficient alphas of the three factors ranged from 0.62 to 0.89 indicated a reliable internal consistency for a new scale. Therefore, the CFATAW Scale presented acceptable reliabilities of the total and subscales.

In general, the results of this study support its usefulness and generalizability in a Chinese environment. As shown in Table 26, Taiwan values are compared to the values obtained by Walker in this development of the FATAW Scale in U.S. Although the validity scores are somewhat lower than those of Walker's tests, they are above the standard set for validity of a measure.

Table 26 CVI and reliability of the FATAW Scale and CFATAW Scale

	CFATAW Scale (Taiwan)	FATAW Scale (U.S.)
CVI	0.85~0.93	0.8~1.0
Internal Consistency Reliability		
Cronbach's alpha		
- Distress Subscale	0.88	0.94
- Salience Subscale	0.62	0.60
- Total Scale	0.89	0.92

Relationships between the CFATAW Total Scale and Selected Variables

Regarding the relationship between the demographic and anthropometric variables and the scores of the subscales and total scale of CFATAW Scale were examined. Increases in pregnant weight and postpartum weight are significantly associated with increases in subscales and total scale of CFATAW. Women loss more their postpartum weight is significantly associated with decreases in distress subscale and total scale of CFATAW. Increases in BMI at pre-pregnancy, BMI at delivery, and current BMI, are significantly associated with increases in subscales and total scale of CFATAW. While women feel that they should modify their current body weight, reduce caloric and fat intake after childbirth and have been on diet since childbirth, are significantly associated with increases in subscales and total scale of CFATAW. Also, age is positively significantly associated with increases in distress subscale and total scale of CFATAW. Furthermore, the fewer breastfeeding, the more increases in subscales and total scale of

CFATAW. Women had been on diet before childbirth is significantly negative associated with subscales and total scale of CFATAW. Interestingly, return to work after childbirth is significantly negative associated with salience subscale. One possible explanation is that women return to work earlier might give higher evaluation of their weight.

Similar with Walker's study (1997), almost half (45.6%) of women reported higher level of weight-related distress at mean 7.6 months postpartum. The finding is important because weight-related to distress is associated with motivations and actions to manage weight (L. O. Walker, 1999). The results obtained in this study indicated those postpartum women with higher level of weight-related distress and weight salience were generally experienced more pregnant weight gain, higher BMI at pre-pregnancy, delivery, and current BMI.

Generally, the results of this study would tend to indicate that women with BMI equal or greater than 24.00 and weight retention had a significantly higher relative risk of reporting higher level of weight-related distress in the early months after childbirth in Taiwan.

Discussions of Additional findings

The increasing prevalence of overweight and obesity among women of childbearing age is a public health problem. Linne et al (2004) investigate that postpartum weight retention lead to long-term overweight and obesity. The overall descriptive results of this study showed a mean postpartum weight retention of 3.08 kg (SD = 2kg), while values ranged from –22 to 28 kg. The mean postpartum weight retention in this study is higher than that found by other studies (Harris et al., 1999b; Harris, Ellison, Holliday, & Lucassen, 1997; Ohlin & Rossner, 1996; Olson et al., 2003; Rossner & Ohlin, 1995). The range of postpartum weight retention is wider than other studies, -12 to 26 kg (Ohlin & Rossner, 1996; Rossner & Ohlin, 1995).

The cesarean delivery rate is 32.3% in Taiwan (H. C. Lin & Xirasagar, 2004) which far exceed the WHO's (1985) recommended of 15% of all deliveries. Similarly, a total of 36% of participants in this study required cesarean delivery. In this study, postpartum weight retention was not associated with cesarean section rate, nonetheless, women who gain excess pregnant weight account for a growing proportion of cesarean deliveries in other studies (Brost, Goldenberg, & Mercer, 1997; Witter, Caufield, & Stoltzfus, 1995).

The results are generally consistent with those from pervious studies such as pregnant weight gain (Kac, Benicio, Velasquez-Melendez, Valente, & Struchiner, 2004; Olson et al., 2003), BMI difference, at delivery, and current BMI (L. O. Walker, Freeland-Graves, Milani, Hanss-Nuss et al., 2004). These results are inconsistent with literature that has shown that parity, children number in household, and returning to work after childbirth are related to postpartum weight retention (Lee, Sobal, Frongillo, Olson, & Wolfe, 2005; L. O. Walker, Freeland-Graves, Milani, Hanss-Nuss et al., 2004; Wolfe et al., 1997)

Though no previous study examined the relationship between housekeeping during traditional Chinese postpartum care and postpartum weight retention, this result indicates that the sooner women perform regular housekeeping during traditional Chinese postpartum care the less postpartum weight retain.

The findings are inconsistent with previous studies that postpartum weight retention is unrelated to age, exercise, educational status, feeding type, family total income, postpartum months, marital status, delivery type, employment status, and on diet after childbirth (change in the amount of dietary intake) (Baruffi et al., 2005; Kac et al., 2004; O'Toole, Sawicki, & Artal, 2003; Schauberger et al., 1992; Walker, 1997; L. O. Walker, Freeland-Graves, Milani, Hanss-

Nuss et al., 2004). In addition, taking care of newborn during traditional Chinese postpartum care is either not related with postpartum weight retention.

Studies reveal that exercise is an important part of postpartum weight retention (O'Toole et al., 2003; Stacy, Della, & Delia, 2003). Several studies show that physical activity is associated with postpartum weight retention (Harris et al., 1999a; Olson et al., 2003; Rosenberg et al., 2003). Ohlin and Rossner (1994) indicate hat women who retained greater than 5 kg at one year postpartum were seldom physically active (as defined by performing 4 to 6 hours of light activity/week) in their leisure time. However, the result of this study is similar with other studies that exercise after childbirth is inconsistent significantly associated with postpartum weight retention (Boardley et al., 1995; L. O. Walker & Freeland-Graves, 1998). About two thirds of participants in this study would not exercise after childbirth. Similar findings have been reported in other studies that lower average physical activity levels in participants who retained more weight (Ohlin & Rossner, 1990; Segel & McAnarney, 1994). Interestingly, nearly 70% of participants thought they should modify their current weight. It is unclear as to why exercise and taking care of newborn during Chinese traditional postpartum care were not associated with postpartum weight retention, but housekeeping during Chinese traditional postpartum care related to postpartum weight retention. These results leave open the question as to what level of physical activities impact women's weight after childbirth.

A large percentage of participants (98.8) in current study had traditional Chinese postpartum care. This indicates that Taiwanese women believe strongly in Traditional Chinese postpartum practices. A period of care right after the delivery ranging from one to three months is known as the "sitting month" or "doing the month". According to the Chinese custom of tso Yueh-tzi (" doing the month"), women should (1) not wash their body or hair, (2) not go outside

the home, (3) not eat raw or cold foods, (4) eat chicken daily, (5) not sit in a draft or otherwise in the wind, (6) not move about the house needlessly, (7) not visit another's home, (8) practice positive behaviors to avoid becoming ill, (9) not read or cry, (10) abstain from sexual intercourse, (11) not eat with other family members, (12) not burn incense, (13) avoid any potentially disease-causing object, (14) avoid offending the gods or contaminating family members with any fetal blood residues, (15) and consume hot foods (Pillsbury, 1978). In order to restore the energy after childbirth, women need to consume food that are considered "hot" such as ginger, rice wine, and sesame chicken that are high in protein and avoid exposing themselves to cold air, cold water or wind (Galanti, 1997; E. Holroyd, Katie, Chun, & Ha, 1997).

Feeding type is another variable that has been discussed frequently in relation to postpartum weight retention. Breastfeeding is frequently recommended as a strategy to accelerate postpartum weight loss(Lu, Lange, Slusser, Hamilton, & Halfon, 2001), however, similar with other studies found that the amount of weight loss associated with breastfeeding is small (Dewey, cohen, Brown, & Rivera, 2001; Janney, Zhang, & Sowers, 1997; Parker & Abrams, 1993). It could explain that the significant advantage in weight loss should be maintained at long-term breastfeeding (Dewey et al., 1993; Ohlin & Rossner, 1990). Olson et al (2003) found that continuing breastfeeding to one year postpartum may benefit women in terms of postpartum weight retention, breastfeeding does not appear to be a major avenue for minimizing it.

Studies indicate that pregnant weight gain is strongly related to postpartum weight retention (Olson et al., 2003). Surprisedly, the multiple linear regression analysis did not show that pregnant weight gain contributes to postpartum weight retention. The possible explanation is that pregnant weight gain might impact on postpartum weight retention when it is greater than 13 kg. However, results of the multiple regression analysis found BMI difference, current BMI, and

return to work after childbirth to be independently associated with postpartum weight retention. The relative risk of being overweight at prepregnancy, higher BMI difference, and more than one live birth for remaining overweight in the postpartum period was 77.7 times, 2.5 times, and 1.8 times, respectively. In addition, this study does show that being overweight in the three-to-nine months postpartum, gaining equal or higher 13 kg pregnant weight, and housekeeping during traditional Chinese postpartum care have higher risk to retain postpartum weight (OR = 7.6, 2.2, 1.9, respectively). Furthermore, being overweight in the early postpartum months produced 7.6 times the risk of postpartum weight retention and high pregnant weight gain produced 2.2 times the risk of postpartum weight retention. Unexpectedly, while women housekeep during traditional Chinese postpartum care have 1.9 times the risk of postpartum weight retention.

Overall, these analyses suggest that BMI difference is a stronger predictor of postpartum weight retention. In addition, overweight or obese women in the early postpartum are at increased risk for postpartum weight retention. The importance of BMI at prepregnancy, BMI difference, returning to work after childbirth, parity, and current BMI in this phenomenon should be a research priority. This study provides further evidence that postpartum weight retention is influenced by multiple factors. A better understanding of how these factors are associated with postpartum weight retention may facilitate the development of more effective weight management strategies among postpartum women in Taiwan.

Limitations

The following limitations should be considered when evaluating the results of this study. Participants were obtained just from one clinic setting in the metropolitan northern Taiwan area. Thus, the results cannot be generalized to all postpartum women. The results may have been

obtained if the number of participants was larger or if they came from other types of settings, or other geographic area (for example, a community health care center).

The CFATAW was a self-report instrument to measure feelings and thoughts about weight among postpartum women. Postpartum women who voluntarily responded may be those individuals who are more sensitive about their weight. The study assumed that the participants responded honestly and in a way that was consistent with their personal feelings and thoughts.

About 265 three-to-nine months postpartum women were contacted in well baby clinic at maternal child center over six months. 260 of these postpartum women agreed to and completed the CFATAW instrument. Nearly 5 of these postpartum women refused to fill out the questionnaire, citing reasons such as no time or weight was a private issue.

A limitation related to content validity was the choice of content experts. The seven experts used for testing content validity had many years of experience in a nursing specialty and had clinical experience in maternity, obstetrics, women's health, or was involved in the weight control expertise. The investigator wanted to include these experts because of their diverse experiences with postpartum women in various settings. The experts were provided an explanation on how the two dimensions of the FATAW scale were conceptualized and defined for the purpose of this instrument refinement.

Grant and David (1997) recommended clinical expertise among content experts. They also made the recommendation that the content experts be chosen from those that have published or presented on the topic of interest. The selected experts had diverse clinical experiences and were familiar with the concept of distress related to weight, yet had not published on the topic. An advantage of using experts that have researched and published articles related to distress related to weight is that they are familiar with how's feelings and thoughts about weight among

postpartum women. For future content validity of scale, efforts to locate and enlist the help of experts who have published articles related to distress related to weight should be made. This type of expertise may prevent the inconsistency in the wording of items.

In addition, validity of an instrument is not firmly established during scale development. As DeVellis(1991) indicated that validation is a cumulative, ongoing process, and the most successful instruments are those for which the authors take long-term responsibility for further refinement (McDowell & Newell, 1996), more effort needs to be devoted to the CFATAW Scale. Particularly, validity and reliability testing should be used to examine both the methods and the relation to alternative reliable, validated measurements of the same phenomenon. Future research is needed to test and report the reliability and validity of this newly translated instrument in other settings.

The result of the factor analysis in the present study revealed that the three-factor model of the CFATAW Scale could explain only 57.97% of the variance. How can the remainder of the variance be understood? Did we ask the right questions to the Taiwanese postpartum women? Are there other variables that are missing in constructing the measurement in terms of CFATAW Scale? The Salience subscale had a somewhat weak reliability coefficient (0.62), developing additional items that related to salience is necessary and should be further explored. Therefore, further studies are recommended using both qualitative and quantitative researches to explore weight-related feelings and thoughts among Taiwanese postpartum women. Moreover, doubts remain over the reliability and validity of self-administered questionnaires, and, naturally, self-serving bias or social desirability cannot be overruled from participants' responses. Furthermore, the study results could be biased because self-reported weight before pregnancy and pregnant

weight gain may be underestimated in overweight or obese women (A. Hill & Roberts, 1998; Paxton, Sculthorpe, & Gibbons, 1994).

Conclusions

The purpose of this study was to translate an instrument for the measurement of weight-related feelings and thoughts developed in the United States from the original English language into the target Chinese language. In addition, the study investigated the reliability and validity of the Chinese version of the instrument. The results of this study support the content validity, construct validity, and internal consistency of Chinese version of weight-related feelings and thoughts among Tawaneise postpartum women. In the future, the CFATAW Scale can be used as a screening instrument or for the development of evidence-based intervention strategies on postpartum weight gain or retention among Taiwanese women after childbirth.

Implications for Nursing and Recommendations for Future Research

This research has introduced a conceptual framework to describe the construct of thriving using a newly translated version of the FATAW instrument (Mandarin Chinese) to measure weight-related feelings and thoughts as a two-dimensional construct in Taiwan. This study suggests several important new research directions. It is important to note that weight-related feelings and thoughts among postpartum women are complex constructs that may be inadequately measured with any single instrument. First, some research items need to be developed in the Chinese language by taking advantage of cultural adaptation approach to further examine the factor structure of the CFATAW Scale in Taiwan. The item should target the factors with lower reliability (e.g., Weight-related Salience).

Second, additional potential factors would be added to the CFATAW Scale. Extensive reviews of potential factors in the Taiwanese literature are also needed to ensure that the

instrument includes all factors relevant to Taiwan's culture. Alternatively, one might use qualitative approaches to generate potential factors. For example, a panel of experts' discussion would help to identify potential factors. On the other hand, one could also develop open-ended questionnaires about weight-related feelings and thoughts and use content analysis to identify potential weight-related feelings and thoughts factors.

Third, future research is needed in order to accumulate evidence for the validity and reliability of the CFATAW Scale. The validity and reliability of the CFATAW Scale have been established only by using the factor analysis approach. Furthermore, short-term test-retest reliability and tests of discriminant are needed for testing the reliability and validity of the CFATAW Scale.

Fourth, the CFATAW Scale was first tested on Taiwanese postpartum women in one maternal center at metropolitan northern Taiwan area; therefore, it is necessary for further study to establish the validity and reliability of the CFATAW Scale in different groups or various settings.

Fifth, additional research will be needed with confirmatory factor analysis to determine the stability of the factor structure identified in the present study. Sixth, the issue of cultural differences is another focus for further research. A cross-cultural comparison will provide an addition to the discipline's knowledge base about the weight- related feelings and thoughts among postpartum women. Seventh, the investigation indicates that Chinese cultural tradition does have strong effect on postpartum practice in Taiwan. Information on such variables would help nursing professionals design weight interventions and guidelines for weight management after women's childbirth. Further, qualitative studies are needed to explore the culturally influences on weight-related factors to postpartum weight retention among Taiwanese women.

Last, other predicting variables also call for further research. By studying the predicting variables, nurse professionals will be able to design appropriate nursing interventions for postpartum women to control and manage their weight after childbirth.

Summary

The purpose of this study was to examine predictors of postpartum weight gain and to psychometrically test a translated instrument that measures weight-related to feelings and thoughts among Taiwanese postpartum women. A discussion of the psychometric findings, the limitations, and the implications for future research and knowledge development demonstrates the significance of these early findings. The most significant finding of this study focuses on the evidence that postpartum women experience their feeling and thoughts about weight in Taiwan.

Efforts were made to minimize the limitations in this study but unavoidable ones were explicated. Recommendations for future testing of the newly developed feelings and thoughts about weight instrument are made and include (a) use of content experts who have published on the topic of distress related to weight among postpartum women,

The validity and reliability findings for the newly developed feelings and thoughts about weight among postpartum women instrument are acceptable at this stage of instrument development. The three factors that resulted from the principal component exploratory factor analysis with varimax orthogonal rotation are supportive of the concept definition and add more clarity and depth to conceptual framework. Further, adding items of salience subscale of CFATAW is needed to improve the reliability of the instrument. The development of a valid and reliable distress related to weight instrument specifically for Taiwanese postpartum women will demonstrate and measure distress related to weight and enable the longitudinal measurement of distress related to weight.

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Appendix A: The Permission Letter from Dr. Walker

April 20, 2005

School of Nursing
University of Texas at Austin
1700 Red River Street
Austin, TX 78701-1499

RE: Feelings And Thoughts About Weight Scale

Dear Dr. Walker,

I am writing to request written permission to use the Feelings And Thoughts About scale in my dissertation research entitled" Development and Psychometric Testing of Walker's Feelings And Thoughts About Weight in Taiwan."

My dissertation is being supervised by my advisor, Kathy James, Associate Professor, Hahn School of Nursing and Health Science, University of San Diego, San Diego, Ca 92110.

If this request meets your approval, please sign, date and return this letter to me in the enclosed self-addressed, stamped envelope. I am also enclosing an additional copy for your records.

Thank you for your help and prompt attention.

Sincerely,

Shuwen Chang
15 Straw Flower
Irvine, CA 92620

I agree to the above request.

Lorraine O. Walker, RN, EdD, FAAN

4/25/05
Date

Appendix B: The English version of Walker's Feelings And Thoughts About Weight Scale (FATAW)

Weight-Related Feelings and Thoughts

Here are many personal reactions that women have about their weight. Decide how much you agree or disagree with each statement.

(Circle the number above your choice.)

1. I feel less confidence in myself because of my weight.

1	2	3	4	5	6	7
Disagree Strongly	Disagree Moderately	Disagree Slightly	Neither	Agree Slightly	Agree Moderately	Agree Strongly

2. My weight is a big part of how good I feel about myself.

1	2	3	4	5	6	7
Disagree Strongly	Disagree Moderately	Disagree Slightly	Neither	Agree Slightly	Agree Moderately	Agree Strongly

3. My feelings about my weight have stopped me from going out to social activities.

1	2	3	4	5	6	7
Disagree Strongly	Disagree Moderately	Disagree Slightly	Neither	Agree Slightly	Agree Moderately	Agree Strongly

4. Weight isn't a big priority for me at this time.

1	2	3	4	5	6	7
Disagree Strongly	Disagree Moderately	Disagree Slightly	Neither	Agree Slightly	Agree Moderately	Agree Strongly

5. Because of my weight, I have avoided going places where appearance is important.

1	2	3	4	5	6	7
Disagree Strongly	Disagree Moderately	Disagree Slightly	Neither	Agree Slightly	Agree Moderately	Agree Strongly

6. I am proud of my current weight.

1	2	3	4	5	6	7
Disagree Strongly	Disagree Moderately	Disagree Slightly	Neither	Agree Slightly	Agree Moderately	Agree Strongly

7. I prefer to stay home because of my weight.

1	2	3	4	5	6	7
Disagree Strongly	Disagree Moderately	Disagree Slightly	Neither	Agree Slightly	Agree Moderately	Agree Strongly

8. I prefer to wear clothes that hide my weight.

1	2	3	4	5	6	7
Disagree Strongly	Disagree Moderately	Disagree Slightly	Neither	Agree Slightly	Agree Moderately	Agree Strongly

9. I feel ashamed of myself because of my weight.

1	2	3	4	5	6	7
Disagree Strongly	Disagree Moderately	Disagree Slightly	Neither	Agree Slightly	Agree Moderately	Agree Strongly

10. Weight is only one small part of who I am.

1	2	3	4	5	6	7
Disagree Strongly	Disagree Moderately	Disagree Slightly	Neither	Agree Slightly	Agree Moderately	Agree Strongly

11. I avoid recreational activities (such as walking outdoors) that show off my weight.

1	2	3	4	5	6	7
Disagree Strongly	Disagree Moderately	Disagree Slightly	Neither	Agree Slightly	Agree Moderately	Agree Strongly

12. My self-esteem has gone down because of my weight.

1	2	3	4	5	6	7
Disagree Strongly	Disagree Moderately	Disagree Slightly	Neither	Agree Slightly	Agree Moderately	Agree Strongly

13. My weight doesn't affect how good I feel about myself as a person.

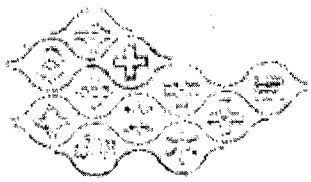
1	2	3	4	5	6	7
Disagree Strongly	Disagree Moderately	Disagree Slightly	Neither	Agree Slightly	Agree Moderately	Agree Strongly

14. I feel like a failure when I think about my weight.

1	2	3	4	5	6	7
Disagree Strongly	Disagree Moderately	Disagree Slightly	Neither	Agree Slightly	Agree Moderately	Agree Strongly

Appendix D: IRB Approval of Chang Gung Memorial Hospital

FROM : SHU-MEI CHENG FAX NO. : 27581345 Jun. 19 2005 12:46PM P1



長庚紀念醫院
台北院區：台北市敦化北路一九九號
林口醫學中心：桃園縣龜山鄉復興街五號
基隆院區：基隆市麥金路二二二號
CHANG GUNG MEMORIAL HOSPITAL
199, TUNG HWA NORTH ROAD, TAIPEI TAIWAN, R.O.C
PHONE: 台北(TAIPEI) (02) 27135211
林口(LIN-KOU) (03)328 1200 • 328 1300
基隆(KEE-LUNG) (032)31 3131

Shu-wen Chang
15 Straw Flower
Irvine, Ca 92620

June 1, 2005

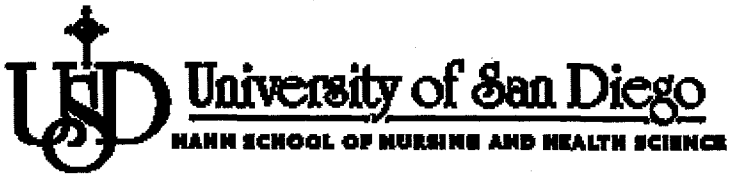
Dear Ms. Chang:

I am pleased to inform you that your research project entitled " Empirically Testing the Walker's Feelings And Thoughts About Weight Scale in Taiwan" has been accepted by the research committee in Chang Gung Memorial Hospital. As the Director of Nursing Department in the hospital, I grant you permission to conduct your research study in Chang Gung Memorial Hospital and look forward to your findings contributing to the Taiwanese postpartum women and benefiting the nursing professionals.

Sincerely,

Bee-Chin Chou, RN, MSN
Director of Nursing Department
CGMH

Appendix: E: Consent Form (Chinese)



中文版 Walker's "產後對體重的感受與想法" 量表之發展與測試

參與研究同意書

參與者姓名：_____ 日期：_____ 編號：_____

您好!敝人(張淑文)是長庚技術學院老師，目前爲美國聖地牙哥大學護理學院之博士候選人以及本研究之主研究員。在 Kathy James 副教授的指導下進行本研究。本研究目的爲：發展與測試適合本土的中文版 Walker's "產後對體重的感受與想法" 量表，以了解婦女對其產後體重的感受與想法、進而協助產後婦女計畫其產後體重管理。**我們非常需要您提供您的寶貴資料，無論您有或沒有產後體重至滯留的問題。**本訪談將協助研究者了解產後體重困擾，進而協助研究者發展中文版 Walker's "產後對體重的感受與想法" 量表，以期促進台灣產後婦女健康的相關服務與照護。

研究者將兩階段的分別邀請 30 名與 250 名產後三至九個月的婦女參與本研究之問卷調查。本研究預計完成的時間爲六個月(九月至二月)。參與本研究，誠屬自願，且無直接的傷害或益處。您僅需完成填寫一份問卷。本問卷所收集的資料將協助研究者發展與測試中文版 Walker's "產後對體重的感受與想法" 問卷。填寫此問卷時，某些問題可能會讓您覺得不自在，但不致於造成任何傷害。填寫本問卷的指引已詳列於問卷中，您可以在任何時間參與或是退出此研究計畫。您在填寫問卷時，若對問卷內容有任何疑問，均可隨時向研究員提出，研究員將一一詳細爲您說明。填寫問卷後，研究員會記錄您目前的體重。爲了比較您的懷孕前、後體重，研究員將會調閱您的醫院病歷記錄，以分析您的產前、後的體重變化。您的參與將有益於提高大眾對此健康問題的重視與使用良好的預防措施，以協助產後婦女有效管理體重。

任何從您得到的消息，將會保持隱密，只有編號會被使用來評估研究結果。除了主研究員(張淑文)是唯一能閱讀已填答問卷的人，沒有任何人可拿到資料，也沒有任何人的名字會被使用。您填答完成的問卷將儲存於主研究員辦公室上鎖的。研究者將視您所提供的資料爲機密文件，您可以跳答某些題目或是選擇不完成填寫此問卷，這些做法不會導致任何結果。本問卷所收集的資料與研究結果，將會被刊載於學術雜誌或是發表於學術研討會。

參與本研究，您不需要繳交任何費用，爲了感謝您的協助與參與，研究者將致贈您一份禮物。問卷調查前，您就會收到此份禮物。您不需要簽訂任何收據。依照本研究計

畫，您與主研究員的接觸僅只一次。但日後主研究員若對您提供與本研究相關資料有關的問題，需要您的澄清時，可能會與您做電話的訪談。

如果有任何問題有關於此研究，您都可洽張淑文美國聖地牙哥大學護理學院，電話：(714)832-5685，如果有任何問題有關於您參與此研究的權利，可於本研究進行的任何時間詢問 我的指導教授 Associate Professor Dr. Kathy James 美國聖地牙哥大學護理學院，電話：(619)260-4600。

您底下的簽名，代表您已閱讀且了解上述所描述的過程，並代表您正式同意參與此研究且授權於主研究員調閱您的醫院病歷，即同意您所提供的資料可併列入由其他參與研究者所提供的資料。如果您對此研究結果有興趣，您將可在此研究結束後收到研究成果摘要報告。

參與者簽名	參與者姓名	日期

參與者連絡地址	參與者電話號碼

研究者簽名	日期

張淑文之連絡方式：
美國聖地牙哥大學護理學院博士候選人，http://www.sandiego.edu，
School of Nursing, University of San Diego, 5998 Alcalá Park, San Diego, CA 92110-2492 (619) 260-4600
E-mail: shuwenc@sandiego.edu ，Home: (714)832-5685

Appendix: F: Consent Form (English)

Translation and Testing the Walker's Chinese Version "Feelings and Thoughts about Weight" Scale
Participation Consent Form (Questionnaire)

Name of Participant： _____ Date： _____ Serial Number： _____

Greetings! My name is Shu-Wen Chang. I am a doctoral student in the school of nursing at University of San Diego, also I am the main researcher of this research under the supervision of assistant professor Kathy James. The purpose of this research is to translate and test the Walker's "Feelings and Thoughts about Weight" scale adapting the Taiwanese region in order to understand women's distress related to postpartum weight. We would hope you could provide those precious data to us regardless whether you have postpartum weight retention/obesity or not. This in term will help the researchers to promote the services and cares for the postpartum women in Taiwan.

Main researcher will invite two groups of 30 and 250 three-to-nine months postpartum women to participate in the questionnaire portion of this research. This research is estimated to be completed in six months time (from September 2005 to February 2006). All the involvement in this research is voluntarily, there will be neither direct benefits nor harms. You will only be asked to complete one questionnaire. Data obtained in this questionnaire will be used to assist researchers to develop and test the Chinese version of the Walker's "Feelings and Thoughts about Postnatal Weight" questionnaire. While you're filling out this questionnaire, some of the questions may cause you some discomforts, but it won't cause any damages or harms. All the instructions to filling the questionnaire are listed in detail, you may choose to join or quit this research study at any time. If you have any doubts regarding to the content of this questionnaire while filling it out, you are welcomed to inform the researcher and the researcher will answer your questions in details. The researcher will record your current weight after you have filled out the questionnaire. And in order to compare your weight prior to pregnancy and after the pregnancy and to analyze the weight changes, the researcher will also review your medical history from Chang Gung Memorial Hospital. Your participation will raise the general public's concerns for health problems and the use of excellent prevention methods to assist the postpartum women in a more efficient weight management.

Any information obtained from you will be kept confidential, only the serial number will be used to evaluate the result of the research. Only the main researcher (Shu-Wen Chang) can read the questionnaire, no one else can obtain the data, and no name will be used or included. The questionnaire you have filled out will be stored in a locked cabinet in the office of the main researcher, and the researcher will treat the data as confidential documents. You may select to skip certain questions or not to complete this questionnaire. This will not cause you any penalties nor will it affect the result of this research. The data obtained in this questionnaire and the research results will be published in academic journals or other academic seminars.

There are no fees required to participate in this research. In order to thank you for your assistance and participation, the researcher will give you a gift certificate prior to the start of this research. You don't have to sign any receipts for the gift certificate. According to the research plan, you will only come in contact with the main researcher once throughout this research except 6-8 participants of 30 participants in the pilot testing will be invited to voluntarily participate in the focus group interview. However, you might receive phone interviews if the main researcher has any questions regarding to the data you had provided and would need you to clarify a few things.

If there are any concerns or questions regarding to this research, you can contact Shu-When Chang of the school of nursing at university of San Diego, the telephone number is (714) 832-5685. If there are any concerns of questions about your participating rights regarding to research, you can contact my instructing professor, Associate

Professor Dr. Kathy James, School of nursing at university of San Diego, at any time. Her telephone number is (619) 260-4600.

The signatures signed by you below means you have read the descriptions above and understands the procedures and are now officially agree to participate in this research, giving the main researcher the authority to access your medical records and to incorporate your data provided into the data provided by other researchers. If you are interested in the results of this research, you will receive a summary report of the research results once this research is over.

Signature of Participant _____ Name of Participant _____ Date _____

Contact Address of Participant _____ Telephone Number of Participant _____

Signature of Researcher _____ Date _____

Contact Information of Shu-Wen Chang：
PhD(c), Hahn School of Nursing and Health Science at University of San Diego, USA
http://www.sandiego.edu，
Hahn School of Nursing and Health Science, University of San Diego, 5998 Alcalá Park, San Diego, CA 92110-2492
(619) 260-4600 E-mail: shuwenc@sandiego.edu，Home: (714)832-5685

Appendix G: The First Chinese Version of Walker's Feelings And Thoughts About Weight Scale (CFATAW)

與體重相關的感受與想法
(Weight-Related Feelings and Thoughts)

以下陳述爲女人對自己體重的一些個人反應，請選擇您對這些陳述的同意程度。

請將你的選擇圈起來

1. 我的體重會讓我比較沒有信心。

1	2	3	4	5	6	7
非常不同意	不同意	稍微不同意	沒意見	稍微同意	稍微的同意	非常同意

2. 對於我覺得自己有多好，我的體重扮演著重要的角色。

1	2	3	4	5	6	7
非常不同意	不同意	稍微不同意	沒意見	稍微同意	稍微的同意	非常同意

3. 我對於我體重的感受，會阻止我去參加社交活動。

1	2	3	4	5	6	7
非常不同意	不同意	稍微不同意	沒意見	稍微同意	稍微的同意	非常同意

4. 在現階段，體重對我而言並不是很重要。

1	2	3	4	5	6	7
非常不同意	不同意	稍微不同意	沒意見	稍微同意	稍微的同意	非常同意

5. 因爲我的體重，我會避免去很注重外表的地方。

1	2	3	4	5	6	7
非常不同意	不同意	稍微不同意	沒意見	稍微同意	稍微的同意	非常同意

6. 我對我目前的體重很自豪。

1	2	3	4	5	6	7
非常不同意	不同意	稍微不同意	沒意見	稍微同意	稍微的同意	非常同意

7. 因爲我體重的關係，我寧願待在家中。

1	2	3	4	5	6	7
非常不同意	不同意	稍微不同意	沒意見	稍微同意	稍微的同意	非常同意

8. 我偏好穿可以掩飾我體重的衣服。

1	2	3	4	5	6	7
非常不同意	不同意	稍微不同意	沒意見	稍微同意	稍微的同意	非常同意

9. 我的體重，讓我對自己感到羞愧。

1 2 3 4 5 6 7
非常不同意 不同意 稍微不同意 沒意見 稍微同意 稍微的同意 非常同意

10. 對我而言，體重只代表我這個人的一小部分。

1 2 3 4 5 6 7
非常不同意 不同意 稍微不同意 沒意見 稍微同意 稍微的同意 非常同意

11. 我會避免從事那些會顯露體重的休閒活動 (像是在戶外走動)。

1 2 3 4 5 6 7
非常不同意 不同意 稍微不同意 沒意見 稍微同意 稍微的同意 非常同意

12. 我的體重會讓我的自尊降低。

1 2 3 4 5 6 7
非常不同意 不同意 稍微不同意 沒意見 稍微同意 稍微的同意 非常同意

13. 我的體重並不會影響我如何看待我自己。

1 2 3 4 5 6 7
非常不同意 不同意 稍微不同意 沒意見 稍微同意 稍微的同意 非常同意

14. 我只要想到我的體重時，就會覺得自己很失敗。

1 2 3 4 5 6 7
非常不同意 不同意 稍微不同意 沒意見 稍微同意 稍微的同意 非常同意

Appendix H: Expert Panel Review Form

Item Content Validity
婦女對於體重相關的想法與感受
（Women's Feelings and Thoughts about Weight）

感謝您同意參與本研究的專家效度評估，以期協助本研究測量產後婦女“與體重相關的困擾”。

本量表的目的爲測量產後婦女“與體重相關的困擾”。基於婦女描述她們對於體重的感受，本量表共有 14 題，包含婦女的想法、感受和行動。文獻查證發現婦女對於體重相關的想法與感受分爲兩部份：“與體重相關的困擾(distress related to weight)”及“自我評價中對於體重的特點(salience of weight in self-evaluation)”。本量表的題目均由這兩部份發展出來的。

重點指示：

1. 請圈選每題的效度。請根據兩部份的特性，決定每題的內容是否切題且可確實測量該部份。以下爲圈選的標準：(1)不切題或不具代表性；(2) 需要大幅度的修訂，以期具代表性；(3) 需要小幅度的修訂，以期具代表性；或(4)簡潔且非常切題或非常具代表性。

2. 請提供您寶貴的建議以期題目更清楚與切題。此問卷的對象爲年齡 18 至 40 歲的產後六個月婦女。

3. 請根據您寶貴的專業經驗提供其他相關的題目，以協助此量表本土化。

請提供以下資料:

姓名:_____

護理專長：_____

護理年資：_____

與體重相關的感受與想法
(Weight-Related Feelings and Thoughts)

<u>與體重相關的困擾</u>

與體重相關的困擾的定義： 個人對於目前體重的不滿意度越高，越容易導致心理健康和日常生活的負面影響。 (High personal dissatisfaction with current weight that results in negative effects on emotional well-being and on activities of living.)

以下陳述爲女人對自己體重的一些個人反應，請選擇您對這些陳述的同意程度。

請將你的選擇圈起來

1.	我的體重會讓我比較沒有信心。 1 非常不同意 2 不同意 3 稍微不同意 4 沒意見 5 稍微同意 6 稍微的同意 7 非常同意			
	1 不切題	2 需要大修訂	3 需要小修訂	4 簡潔且非常切題
	建議：			
2.	對於我覺得自己有多好，我的體重扮演著重要的角色。 1 非常不同意 2 不同意 3 稍微不同意 4 沒意見 5 稍微同意 6 稍微的同意 7 非常同意			
	1 不切題	2 需要大修訂	3 需要小修訂	4 簡潔且非常切題
	建議：			
3.	我對於我體重的感受，會阻止我去參加社交活動。 1 非常不同意 2 不同意 3 稍微不同意 4 沒意見 5 稍微同意 6 稍微的同意 7 非常同意			
	1 不切題	2 需要大修訂	3 需要小修訂	4 簡潔且非常切題
	建議：			
4.	在現階段，體重對我而言並不是很重要。 1 非常不同意 2 不同意 3 稍微不同意 4 沒意見 5 稍微同意 6 稍微的同意 7 非常同意			
	1 不切題	2 需要大修訂	3 需要小修訂	4 簡潔且非常切題
	建議：			
5.	因爲我的體重，我會避免去很注重外表的地方。 1 非常不同意 2 不同意 3 稍微不同意 4 沒意見 5 稍微同意 6 稍微的同意 7 非常同意			
	1 不切題	2 需要大修訂	3 需要小修訂	4 簡潔且非常切題
	建議：			
6.	我對我目前的體重很自豪。 1 非常不同意 2 不同意 3 稍微不同意 4 沒意見 5 稍微同意 6 稍微的同意 7 非常同意			

	1 不切題	2 需要大修訂	3 需要小修訂	4 簡潔且非常切題
	建議：			
7.	因爲我體重的關係，我寧願待在家中。 1 非常不同意 2 不同意 3 稍微不同意 4 沒意見 5 稍微同意 6 稍微的同意 7 非常同意			
	1 不切題	2 需要大修訂	3 需要小修訂	4 簡潔且非常切題
	建議：			
8.	我偏好穿可以掩飾我體重的衣服。 1 非常不同意 2 不同意 3 稍微不同意 4 沒意見 5 稍微同意 6 稍微的同意 7 非常同意			
	1 不切題	2 需要大修訂	3 需要小修訂	4 簡潔且非常切題
	建議：			
9.	我的體重，讓我對自己感到羞愧。 1 非常不同意 2 不同意 3 稍微不同意 4 沒意見 5 稍微同意 6 稍微的同意 7 非常同意			
	1 不切題	2 需要大修訂	3 需要小修訂	4 簡潔且非常切題
	建議：			
10.	對我而言，體重只代表我這個人的一小部分。 1 非常不同意 2 不同意 3 稍微不同意 4 沒意見 5 稍微同意 6 稍微的同意 7 非常同意			
	1 不切題	2 需要大修訂	3 需要小修訂	4 簡潔且非常切題
	建議：			

以上的題目是否題意清楚、切題(與體重相關的困擾)，且適合於產後六個月婦女的閱讀程度?

是 _____

否 _____, 有些題目不清楚 (請在以下空白處填寫哪些題目不清楚)：

對不清楚題目的建議：

對於此部分請問您還有其他的建議嗎?

以下尚有另一部分問卷需要填寫(請繼續)

體重特點(Salience of weight)的定義：個人自我評價認爲體重的重要性(The importance a person gives to weight in her overall self-evaluation.)

11.	我會避免從事那些會顯露體重的休閒活動 (像是在戶外走動)。 1 非常不同意 2 不同意 3 稍微不同意 4 沒意見 5 稍微同意 6 稍微的同意 7 非常同意			
	1 不切題	2 需要大修訂	3 需要小修訂	4 簡潔且非常切題
	建議：			
12.	我的體重會讓我的自尊降低。 1 非常不同意 2 不同意 3 稍微不同意 4 沒意見 5 稍微同意 6 稍微的同意 7 非常同意			
	1 不切題	2 需要大修訂	3 需要小修訂	4 簡潔且非常切題
	建議：			
13.	我的體重並不會影響我如何看待我自己。 1 非常不同意 2 不同意 3 稍微不同意 4 沒意見 5 稍微同意 6 稍微的同意 7 非常同意			
	1 不切題	2 需要大修訂	3 需要小修訂	4 簡潔且非常切題
	建議：			
14.	我只要想到我的體重時，就會覺得自己很失敗。 1 非常不同意 2 不同意 3 稍微不同意 4 沒意見 5 稍微同意 6 稍微的同意 7 非常同意			
	1 不切題	2 需要大修訂	3 需要小修訂	4 簡潔且非常切題
	建議：			

以上的題目是否題意清楚、切題(體重特點)，且適合於產後六個月婦女的閱讀程度?

是 _____

否 _____, 有些題目不清楚 (請在以下空白處填寫哪些題目不清楚)：

對不清楚題目的建議：

對於此部分請問您還有其他的建議嗎?

Appendix I: Chinese Version of Feelings and Thoughts about Weight (CFATAW) Scale and Demographic questionnaire in Pilot Study

與體重相關的感受與想法

No.___

您填問卷(同意書及所有問卷)的時間由: ___ : ___~ __ :

※以下陳述爲女人對自己體重的一些個人反應，請選擇您對這些陳述的同意程度。
注意事項：我們更想要知道這份問卷的語意是否清楚，如果您對該題的題意不清楚，請在該題目下方空白處註明，或提供您寶貴的意見給我們。謝謝!

☆請勾選你的選擇	1.非常不同意	2.不同意	3. 稍微不同意	4. 沒意見	5. 稍微同意	6. 同意	7. 非常同意
1. 我的體重讓我比較沒有信心。	1	2	3	4	5	6	7
建議：							
2. 我覺得我自己有多好，體重扮演著重要的角色。	1	2	3	4	5	6	7
建議：							
3. 我會因爲體重的因素，而不想參加社交活動。	1	2	3	4	5	6	7
建議：							
4. 我覺得就目前而言，體重對我並不是很重要。	1	2	3	4	5	6	7
建議：							
5. 我會因爲體重，而避免去很注重外表的地方。	1	2	3	4	5	6	7
建議：							
6. 我對我目前的體重很自豪。	1	2	3	4	5	6	7
建議：							
7. 我會因爲自己體重的關係，寧可待在家裏。	1	2	3	4	5	6	7

建議：

☆請勾選你的選擇	1.非常不同意	2.不同意	3.稍微不同意	4.沒意見	5.稍微同意	6.同意	7.非常同意
8. 我偏好穿可以掩飾體重的衣服。	1	2	3	4	5	6	7
建議：							
9. 我會因爲自己的體重而感到羞愧。	1	2	3	4	5	6	7
建議：							
10. 我覺得體重只是代表我這個人的一小部分。	1	2	3	4	5	6	7
建議：							
11. 我會避免從事那些會顯露體重的休閒活動(像是戶外走動、游泳)。	1	2	3	4	5	6	7
建議：							
12. 我的體重會降低我的自尊。	1	2	3	4	5	6	7
建議：							
13. 我的體重不會影響我如何看待我自己。	1	2	3	4	5	6	7
建議：							
14. 我只要想到我的體重，就會覺得自己很失敗。	1	2	3	4	5	6	7
建議：							

以上這 14 題您認爲題意清楚嗎？

是_____；否_____，請註明：

應更改爲：

(上半部結束，請繼續下半部問卷)

基本資料

請填寫或勾選(∨)您的基本資料：

1. 您的生日是：西元____年____月 _日
2. 您的教育程度總共是:____年
   舉例,
   6 年 = 國中畢業
   12 年 = 高中畢業
   13 年 = 專科畢業
   16 年 = 大學畢業
   18-20 年 = 研究所畢業

3. 您的工作狀況是:
   家管___ 全職 _ 兼差
   其他_____(請描述)：

4. 請問您在產後多久回到工作崗位? 產後_____天

5. 您的懷孕次數是 ___次

6. 您家中的小孩有_____位

7. 您的婚姻狀況是： 未婚____ 已婚___ 離婚/分居

8. 您這胎的生產方式爲： 自然產 ____ 剖腹產

9. 懷孕前體重爲：_____公斤

10. 懷孕體重共增加：_____公斤

11. 生產後的體重爲(產後在醫院量的體重)：_____公斤

12. 目前的體重爲：_____公斤

13. 身高：_____公分

14.您的孩子生日爲：西元___ 年 ____ 月 ____日

15.您在產後有坐月子嗎? 有,___ 沒有,
若有，您坐月子多久?
30 天___ 45 天___ 60 天___ 其他__(請描述):

16.您坐月子時的活動量如何?
總是躺著(81~100%躺著)
經常躺著(51~80%躺著)
約半躺著(31~50%躺著)
偶而躺著(11~30%躺著)
從來沒有躺著，除了晚上睡覺時間(0~10%躺著)

17.坐月子期間，您有否照顧孩子?
都沒有__，我的孩子都是由我的_____照顧的。
一半的時間是由我照顧(約 50%)
都是我照顧的

18.坐月子期間，您做家事嗎？
都沒有__， 家事都由_____負責的
一半的家事是由做的(約 50%)
都是我做的

19.您坐月子時的飲食方式 (請回想您坐月子時，典型三餐內容爲)：

20.您產後有哺餵母乳嗎? 有___ 沒有
若有，您是純餵母乳
大部分餵母乳
大部分餵配方奶
若有，請問您哺餵多久?_____天；其他 (請描述):

21.每個月的家庭總收入爲：
少於三萬元
三萬元 ～ 五萬元之間

五萬零一元 ～ 八萬元之間
八萬零一元 ～ 十萬元之間
十萬零一元 ～ 十五萬元之間
超過十五萬元

22.請問您是否有慢性疾病？例如，糖尿病或高血壓。
有___ 沒有

23.您節食嗎?
總是(81~100%)
經常(51~80%)
約半(31~50%)
偶而(11~30%)
從來沒有(0~10%)

24.您在這次產後有節食過嗎?
沒有__；有___，若有您如何節食? 請描述：

25.您產後有運動嗎?
有__，一週運動多久? 約__小時/週，請描述：

26.您目前有爲了減重而減少您的熱量攝取嗎?
沒有__；有___，若有您如何減少攝取? 請描述：

27.您目前有爲了減重而減少脂肪的攝取量嗎?
沒有__；有___，若有您如何減少攝取脂肪量? 請描述：

28.目前您若有在進行節食，請問已經進行多久了?
沒有__；有___，請註明已進行了 ___天__星期__月

以上基本資料部分，題目是否清楚？是___ ；否
不清楚的是：
我的建議是：

謝謝您的協助，完成這份問卷!

Appendix J: Chinese Version of Feelings and Thoughts about Weight (CFATAW) Scale and Demographic questionnaire in Field Testing

與體重相關的感受與想法

No.

☆請在號碼上勾選(V)您的選擇	1.非常不同意	2.不同意	3.稍微不同意	4.沒意見	5.稍微同意	6.同意	7.非常同意
1. 我會因為我的體重而比較沒有自信心	1	2	3	4	5	6	7
2. 我的體重是我覺得自己有多好的最大考量因素	1	2	3	4	5	6	7
3. 我會因為體重的因素，而不想參加社交活動	1	2	3	4	5	6	7
4. 我覺得就目前而言，體重對我並不是很重要	1	2	3	4	5	6	7
5. 我會因為體重，而避免去很注重外表的地方	1	2	3	4	5	6	7
6. 我對我目前的體重很自豪	1	2	3	4	5	6	7
7. 我會因為自己體重的關係，寧可待在家裏	1	2	3	4	5	6	7
8. 我偏好穿可以掩飾體重的衣服	1	2	3	4	5	6	7
9. 我會因為自己的體重而感到羞愧	1	2	3	4	5	6	7
10. 我覺得體重只是代表我這個人的一小部分	1	2	3	4	5	6	7
11. 我會避免從事那些會顯露體重的休閒活動 (像是戶外走動、游泳)	1	2	3	4	5	6	7
12. 我的體重會降低我的自尊	1	2	3	4	5	6	7
13. 我的體重不會影響我如何看待我自己	1	2	3	4	5	6	7
14. 我只要想到我的體重，就會覺得自己很失敗	1	2	3	4	5	6	7
15. 我覺得體重會影響夫妻的關係	1	2	3	4	5	6	7

(上半部結束，請繼續下半部問卷)

基本資料

請填寫或勾選(ˇ)您的基本資料：

1.您的生日是：西元或民國__年_____月 _日

2.您的教育程度總共是:_____年

舉例, 6 年 = 國中畢業

12 年 = 高中畢業

13 年 = 專科畢業

16 年 = 大學畢業

18-20 年 = 研究所畢業

3.您的工作狀況是:

□家管 □全職 □兼差 □其他 (請描述)：

4.請問您在產後多久回到工作崗位? 產後_____天

(如果您是家管，請您填寫產後第幾天開始做家事、帶小孩等)

5.您的懷孕次數是 □1 次 □2 次 □3 次 □4 次 □5 次 □5 次以上

6.您家中的小孩有_____位

7.您的婚姻狀況是： □未婚 □已婚 □離婚/分居

8.您這胎的生產方式為： □自然產 □剖腹產

9.懷孕以前體重為：_____公斤

10.懷孕體重共增加：_____公斤

(如果您不知道，請填寫生產前最後一次量的體重)

11.生產後的體重為(產後在醫院量的體重)：_____公斤

(若是您在醫院沒有量體重，請問您產後第一次量的體重是____公斤，是在產後的多久？_____)

□生產後從沒有量過

12.您目前的體重為：_____公斤

13.您的身高是：_____公分

14.您這胎的孩子生日為：西元或民國___ 年 ____ 月 ____日

15.您在產後有坐月子嗎? □有 □沒有

若有，您坐月子多久? □30 天 □45 天 □60 天 □其他(請描述):

16.您坐月子時的活動量如何?

□總是躺著(81~100%躺著)

□經常躺著(51~80%躺著)

□約半躺著(31~50%躺著)

□偶而躺著(11~30%躺著)

□從來沒有躺著，除了晚上睡覺時間(0~10%躺著)

17.坐月子期間，您有否照顧孩子?

□都沒有(0%)，我的孩子都是由我的_____照顧的。

□一半的時間(約 50%)是由我照顧

□都是我照顧的(100%)

18.坐月子期間，您做家事嗎？

□都沒有， 家事都由_____負責的

□一半(約 50%)的家事是由_____負責的

□都是我做的(100%)

19.您產後有哺餵母乳嗎? □沒有 □有；

若有，請問您哺餵多久?_____天

□純餵母乳 □大部分餵母乳 □大部分餵配方奶 □其他 (請描述):

20.每個月的家庭總收入為：

□少於三萬元

□三萬元 ~ 五萬元之間

□五萬零一元 ~ 八萬元之間

□八萬零一元 ~ 十萬元之間

□十萬零一元 ~ 十五萬元之間

□超過十五萬元

21.請問您是否有慢性疾病？例如，糖尿病或高血壓。

□沒有 □有，是：

22.您節食嗎?

□總是(81~100%)

□經常(51~80%)

□約半(31~50%)

□偶而(11~30%)

□從來沒有(0~10%)

23.您在這次產後有節食過嗎?

□沒有；□有，若有您如何節食? 請描述：

24.您產後有運動嗎?

□沒有；□有，一週運動多久? 約__小時/週，請描述：

25.您目前有為了減重而減少您的熱量攝取嗎?

□沒有；□有，若有您如何減少攝取? 請描述：

26.您目前有為了減重而減少脂肪的攝取量嗎?

□沒有；□有，若有您如何減少攝取脂肪量? 請描述：

27.目前您若有在進行節食，請問已經進行多久了?

□沒有；□有，請註明已進行了___月___星期___天

28.您覺得目前需要調整體重嗎？□還好，不需要 □有一點需要 □很需要

29.您坐月子時的飲食方式 (請回想您坐月子時，典型三餐內容為)：

謝謝您的協助，完成這份問卷!