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VALIDATION OF THE PERINATAL GRIEF SCALE FOR USE IN CHINESE WOMEN WHO HAVE EXPERIENCED RECENT REPRODUCTIVE LOSS

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The primary objective of this research was to validate the short version of the Perinatal Grief Scale (SVPGS) in the Chinese population. The Chinese SVPGS was administered to a sample of Chinese women who had experienced recent reproductive loss (N = 314). The results of the confirmatory factor analysis rejected the original 3-factor model delineated by Potvin (1989). A follow-up exploratory factor analysis suggested an alternative 3-factor model, consisting of a 12-item Sense of Worthlessness subscale, a 7-item Social Detachment subscale, and a 7-item Painful Recollection subscale. Further analysis showed that both the original and Chinese SVPGS demonstrated good internal consistency. Cronbach's alpha equaled .86, .83, .90, and .95, respectively, for the three subscales of Active Grief, Difficulty Coping, and Despair, and the total original SVPGS, and .85, .93, .91, and .95, respectively, for the new subscales of Sense of Worthlessness, Social Detachment, and Painful Recollection, and the total Chinese SVPGS. Both versions demonstrated satisfactory correlations with the participants' psychological distress and spousal emotional support. The authors suggest that both versions are useful in measuring the responses of Chinese women to reproductive loss; the original SVPGS should be used for cross-cultural studies, whereas the Chinese SVPGS should be used for local studies.

Reproductive loss is defined as the loss of an infant due to miscarriage, stillbirth, or neonatal death (Robinson, Baker, & Nackerud, 1999). It is a common complication in pregnancy and occurs in approximately one-third of pregnant women (Centers for Disease Control and Prevention, 2006). It also has a long-term traumatic impact on a woman, her partner, and other family members (Frost & Condon, 1996; C. Lee & Slade, 1996). The People's Republic of China (PRC) is the world's most populous country, making up one-fifth of the world's population (U.S. Census Bureau, 2007). However, research on the adjustment of Chinese women to reproductive loss remains scarce. Developing a standardized instrument to assess the reactions of Chinese women to reproductive loss will not only set the stage for research in this area, but it will also facilitate the early detection of women at risk for a complicated grief reaction, and thus facilitate timely intervention for women who have experienced reproductive loss. To this end, this study aimed to validate the short version of the Perinatal Grief Scale (SVPGS) for use with Hong Kong Chinese women.

Reproductive Experiences in Chinese Societies

In traditional Chinese culture, a woman's value was measured in terms of her fecundity (Jackson, 1980), and the idea that giving birth to children is essential persists in modern Chinese societies (Zhao, 1995). In the PRC, 61% of women in rural areas and 30% of those in urban areas consider that the sole purpose of getting married was to have children (Lu, Sun, & Lu, 1995). Almost all women (95%) living in rural areas and 62% of those living in urban areas consider children to be indispensable for a happy family (Lu et al., 1995).

Possibly because fecundity is central to the identity of Chinese women, the available findings show that Chinese women experience significant adjustment problems in relation to their reproductive loss. One study found that 12% of Hong Kong Chinese women who had experienced a recent miscarriage met the *DSM-III–R* (the 3rd revised *Diagnostic and Statistical Manual of Mental Disorders*) criteria for major depression, with the index of marital satisfaction and perceived spousal support significantly related to their diagnosis (D. T. S. Lee et al., 1997). In a separate study,

Ma found that Chinese women who experienced threatened miscarriage reported higher levels of anxiety, insomnia, and social dysfunction compared with pregnant controls, and that, in particular, women who received little spousal support reported the poorest psychological well-being (Ma, 1997).

The lack of a valid and reliable instrument in the Chinese language to assess women's reactions to reproductive loss is a major barrier to further research in this area. A standardized instrument assessing women's adjustment to reproductive loss is essential for both research and practice. Among the various instruments used to assess the psychological consequences of reproductive loss, the Perinatal Grief Scale (PGS) has demonstrated good validity and reliability (Neimeyer & Hogan, 2001) and has been recommended for reproductive loss research (Stroebe, Hansson, Stroebe, & Schut, 2001). However, there has been no evidence showing whether the PGS is able to assess adequately the experiences of reproductive loss among Chinese women.

The Perinatal Grief Scale (PGS)

The PGS (Toedter, Lasker, & Alhadeff, 1988) has been used to study perinatal loss, elective abortion, and placement for adoption (Hutti, dePacheco, & Smith, 1998). In the literature, it is one of the most extensively evaluated and psychometrically sound scales measuring grief related to reproductive loss. The original PGS consisted of 104 items based on the Texas Inventory of Grief (Zisook, Devaul, & Click, 1982) and additional items constructed to tap dimensions that were thought, on the basis of previous research, to be important (Borg & Lasker, 1981). The elimination of items with a low inter-item correlation and further factor analysis resulted in a 33-item SVPGS (Potvin, Lasker, & Toedter, 1989). The items of this SVPGS are grouped under three qualitatively different subscales: Active Grief, covering the sadness over, the missing of, and crying for the lost fetus; Difficulty Coping, covering the difficulties in dealing with daily activities and social interactions; and Despair, covering the feelings of worthlessness and hopelessness. The means of these items were generally observed to be progressively smaller, from Active Grief to Difficulty Coping to Despair, indicating an increasingly severe response measured by the three subscales (Lasker & Toedter, 1991).

Correlates of Perinatal Grief

A review of the PGS literature showed that the various character-istics of loss, including maternal age, number of living children, and prior pregnancy loss, yielded mixed results in relation to the PGS scores of women (Lasker & Toedter, 2000). However, poor mental health and lack of social support were consistently related to a high PGS score (for a review, see Toedter, Lasker, & Janssen, 2001). Women's scores on the Symptom Checklist 90 were signifi-cantly related to their PGS scores at two months postloss (Toedter et al., 1988). The perception of support from friends and family and a strong marital relationship were consistently related to lower PGS scores (Cuisinier, Kuijpers, Hoogduin, deGraauw, & Janssen, 1993; Engler & Lasker, 2000; Zeana, Danis, Hirshberg, & Dietz, 1995).

The Present Study

This study used a relatively large sample of women who had experienced recent reproductive loss to validate the Chinese SVPGS. It had four broad aims: (a) to translate the SVPGS for use in the Chinese population; (b) to examine the factor structure of the Chinese SVPGS; (c) to examine the psychometric properties of the Chinese SVPGS, that is, the internal consistency and the descriptive statistics; and (d) to identify the psychosocial correlates of the Chinese SVPGS. On the basis of previous research, we hypothesized that women who experienced more psychological distress and women who received lower levels of spousal emotion-al support would score higher on the Chinese SVPGS.

Method

Translation of the SVPGS

For the present study, a bilingual psychologist first translated the original SVPGS (Potvin et al., 1989) from English into Chinese. Then a Chinese teacher corrected the linguistic and grammatical errors in the Chinese version and another bilingual psychologist translated the Chinese version back into English. Having ensured its adherence to the original SVPGS, two psychologists and one

gynecologist reviewed the Chinese SVPGS to confirm its literal equivalence to the original English version.

Field Testing of the Chinese SVPGS

A convenience sampling procedure was adopted to recruit participants. Women who had been admitted to an acute regional hospital between December 2003 and November 2006 for reproductive loss were individually approached and invited to participate in the study within one week after their loss. Once the purpose of the study and confidentiality issues had been introduced, written consent was obtained from the participants. Trained research assistants then conducted a 30-minute face-to-face structured interview with each of the participants. Approximately 2 of every 10 women who were approached declined to take part in the study, claiming that they were too tired as a result of the operation or were too distressed to talk about their experience.

Participants

A total of 371 women agreed to be interviewed. However, 57 cases were excluded from the subsequent analysis; these were the participants who were under 18 years of age ($n=3$), whose pregnancies were the result of in vitro fertilization ($n=3$), or who were undergoing elective abortions ($n=53$).

The final sample consisted of 314 Chinese women who had experienced a recent reproductive loss. The age of the participants ranged from 18 to 45, with a mean of 32.57 ($SD=5.43$). At the time of this study, 66% of the participants had graduated from secondary school, 6.7% had a diploma, and 22.3% had a degree. A large proportion of the participants were employed full-time (57.3%) or were homemakers (33.4%). Most of them (90.8%) were married and nearly half (49%) did not have any children at the time of the interview; more than half (56.4%) reported losing a planned pregnancy. The majority (79.6%) reported experiencing their first reproductive loss, 14% had experienced one before, 4.1% had experienced two before, and 2.2% had experienced three or more previous losses. The gestational age for the presenting loss ranged from 4 to 40 weeks, with a mean of 10.50 weeks ($SD=5.95$ weeks). The losses mainly occurred during the first trimester (83.8%); those

occurring in the second (12.4%) and third (3.8%) trimesters were relatively rare.

Table 1 presents a summary of the demographic characteristics of the participants.

TABLE 1 Demographic Characteristics of the Participants

Characteristic	N (%)
Age	
18–20	6 (1.9%)
21–30	107 (34.1%)
31–40	162 (54.8%)
41–45	29 (9.2%)
Education level	
Nil	2 (0.6%)
Primary	14 (4.5%)
Secondary	207 (66%)
Diploma	21 (6.7%)
Degree or above	70 (22.3%)
Employment status	
Unemployed	7 (2.2%)
Employed part time	18 (5.7%)
Employed full time	180 (57.3%)
Homemaker	104 (33.4%)
Other	4 (1.3%)
Marital status	
Single	9 (2.9%)
In a relationship	3 (1%)
Cohabitating	12 (3.8%)
Married	285 (90.8%)
Other	5 (1.6%)
Number of children	
0	154 (49%)
1	115 (36.6%)
2	34 (10.8%)
3 or more	11 (32.5%)
Number of previous losses	
0	250 (79.6%)
1	44 (14%)
2	13 (4.1%)
3 or more	7 (2.2%)
Gestation at loss (weeks)	
1–12	263 (83.8%)
13–24	39 (12.4%)
25 or above	12 (3.8%)

Instruments

PERINATAL GRIEF SYMPTOMS

The 33-item SVPGS measures the many dimensions of the grief response in relation to perinatal loss (Potvin et al., 1989). The items are grouped under three subscales, namely Active Grief, Difficulty Coping, and Despair. This scale has been found to be a valid measure of women's responses to reproductive loss and was significantly correlated with the depression scale from the Symptom Checklist 90 (Potvin et al., 1989). Also, the SVPGS has demonstrated satisfactory reliability, with a Cronbach's alpha value of .95 (Potvin et al., 1989). In the literature, the PGS has been referred to as the most extensively evaluated and psychometrically sound perinatal grief scale, and it has been used to study perinatal loss, elective abortion, and placement for adoption (Hutti et al., 1998). For the present study participants rated, on a 4-point scale, the degree to which each item described their post-loss experience, with higher scores indicating stronger symptoms of grief.

PSYCHOLOGICAL DISTRESS

The negative psychological functioning of the participants was assessed by the short form General Heath Questionnaire (GHQ-12; Goldberg, 1972). The GHQ-12 is an index of nonspecific psychological morbidity developed for use in community surveys. It measures three different aspects of psychological distress, namely anxiety, social dysfunction, and loss of confidence (Graetz, 1991; Martin & Newell, 2005). The GHQ-12 has been validated in Chinese populations (C. S. Chen, Tsang, Chong, & Tang, 2000). For the present study, participants rated, on a 4-point scale, the degree to which each item described their post-loss experience, with higher scores indicating poorer psychological functioning.

SPOUSAL EMOTIONAL SUPPORT

The participants' experience of spousal emotional support was assessed using the 7-item Emotional Support subscale of the Social Support Scale developed by Wills (1985); emotional support refers to the opportunities for sharing and communicating between the participants and their partners. A Chinese translation of this subscale is available and has shown satisfactory internal consistency, with an alpha value of .84 (Yan & Tang, 2003). For this study,

participants were asked to indicate, on a 4-point scale, whether their partner had provided each depicted type of support during the past week, with higher total scores indicating higher levels of spousal emotional support.

Results

Factor Structure of the Chinese SVPGS

CONFIRMATORY FACTOR ANALYSIS

To determine whether the Chinese SVPGS could be grouped into the three factors delineated by Potvin et al. (1989), a confirmatory factor analysis (CFA) with maximum likehood estimation was conducted using the EQS program (Bentler, 1992, 1995). The Comparative Fit Index (CFI; Bentler, 1990) and the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990) were used to test the model's goodness of fit; a CFI above .9 and a RMSEA below .8 would indicate an acceptable fit of the proposed model (Bentler, 1992; Browne & Cudeck, 1993). For the present data, the CFI was .72 and the RMSEA was .11, suggesting that it did not fit into the three-factor structure of the original SVPGS.

EXPLORATORY FACTOR ANALYSIS

Given the CFA findings, and following the suggestion of Wu and Carter (2008), a series of exploratory factor analyses (EFAs) were conducted. An EFA, with maximum likelihood estimation and direct oblimin rotation, was conducted to explore the factor structure of the Chinese SVPGS in the present sample. Direct oblimin rotation was chosen over principle component analysis or varimax rotation because it was hypothesized that the various factors from the PGS were related to each other. Items with an endorsement rate below 10% were eliminated before the EFA was conducted, a procedure previously used in scale development (Woo et al., 2004). As a result, the following four items were excluded from the analysis: "I have considered suicide since the loss," "I take medicine for my nerves," "I feel as though I am just existing and not really living since he/she died," and "It is safer not to love." The first EFA, with an unlimited number of factors to derive, showed that five factors had eigenvalues larger than 1. However, the percentage of variance explained by factors 3 to 5

was minimal (less than 5%). Therefore, an EFA with a two-factor solution was conducted. The two-factor structure of perinatal grief accounted for 49.8% of the total variance, with the first factor accounting for 41.2% and the second factor for 8.6% of the variance. Three items that displayed a factor loading smaller than .4 were dropped; these were "I feel a need to talk about the baby," "I feel I have adjusted well to the loss," and "It feels great to be alive." An examination of the items in these two factors showed that a large number of items were loaded on the first factor and that many of these items came from the original Despair and Difficulty Coping subscales, which were highly correlated. Therefore, a separate EFA was conducted to explore any underlying factor structures within this first factor. The results of the supplementary EFA showed that the items on the first factor loaded on two respective factors. The resulting three factors were named Sense of Worthlessness, Social Detachment, and Painful Recollection. Table 2 summarizes the factor loadings of each item on the three subscales.

The Revised Chinese SVPGS

The reliability (i.e., the internal consistency) of the Chinese SVPGS was calculated with Cronbach's coefficient alpha, and the results showed that the scale's internal consistency was comparable to that of the original SVPGS. The Cronbach's alpha coefficients were respectively .85, .93, .91, and .95 for Sense of Worthlessness, Social Detachment, Painful Recollection, and the total Chinese SVPGS, and .86, .83, .90, and .95 for the three subscales of Active Grief, Difficulty Coping, and Despair, and the total original SVPGS.

   Descriptive statistics were generated to characterize the score distributions, including scale ranges, means, and standard deviations, as well as the percentage of floor and ceiling effects. The full range of scores was observed for all subscales. In general, Sense of Worthlessness and Social Detachment revealed more severe responses than did Painful Recollection. No ceiling effect was observed in the Sense of Worthlessness and Social Detachment subscales, whereas nearly 5% of the respondents scored the highest possible score on Painful Recollection. Table 3 summarizes the Cronbach's coefficient alpha values and the descriptive statistics.

TABLE 2 Factor Loadings of the Chinese Short Version of the Perinatal Grief Scale

Items	Factor loading			Original factor structure		
	Sense of worthlessness	Social detachment	Painful recollection	Difficulty coping	Despair	Active grief
1. I feel depressed.		.69				*
2. I find it hard to get along with certain people.		.91		*		
3. I feel empty inside.		.80				*
4. I cannot keep up with my normal activity.		.60		*		
5. I feel a need to talk about the baby.[b]						*
6. I am grieving for the baby.			−.76			*
7. I am frightened.		.40				*
8. I have considered suicide after the loss.[a]				*		
9. I take medicine for my nerves.[a]					*	
10. I very much miss the baby.			−.58	*		
11. I feel I have adjusted to the loss.[b]				*		
12. It is painful to recall memories of the loss.			−.72			*
13. I get upset when I think about the baby.			−.75			*
14. I cry when I think about him/her.			−.76			*

Item						
15. I feel guilty when I think about the baby.		*		−.64		
16. I feel physically ill when I think about the baby.		*		−.54		
17. I feel unprotected in a dangerous world since he/she died.		*				.50
18. I try to laugh, but nothing seems funny anymore.		*				.62
19. Time passes so slowly since the baby died.	*	*				.83
20. The best part of me died with the baby.		*				.80
21. I have let people down since the baby died.		*	*			.86
22. I feel worthless since he/she died.		*				.66
23. I blame myself for the baby's death.		*				.48
24. I get cross at my friends and relatives.			*		.52	
25. Sometimes I feel like I need a professional counselor to help me get my life back together.			*		.61	

(*Continued*)

TABLE 2 Continued

Items	Factor loading			Original factor structure		
	Sense of worthlessness	Social detachment	Painful recollection	Difficulty coping	Despair	Active grief
26. I feel as though I am just existing and not really living since he/she died.[a]				*		
27. I feel so lonely since he/she died.	.67					*
28. I feel somewhat apart and remote, even among friends.	.55			*		
29. It is safer not to love.[a]					*	
30. I find it difficult to make decisions since the baby died.	.75			*		
31. I worry about what my future will be like.	.78				*	
32. Being a bereaved parent means being a "second-class citizen."	.49				*	
33. It feels great to be alive.				*		

Note. Asterisks (∗) represent items loaded on respective factors in the original factor structure.
[a]Dropped due to endorsement rate below 10%.
[b]Dropped because of factor loading <.40.

TABLE 3 Descriptive Statistics of the Chinese Short Version of the Perinatal Grief Scale (SVPGS)

Measure	Internal consistency: Cronbach's α	Possible range	Range	M	SD	% Floor	% Ceiling
Revised SVPGS	.95	26–130	26–125	65.82	19.72	0.6	0.0
Sense of Worthlessness	.85	7–35	7–34	16.97	5.54	4.5	0.0
Social detachment	.93	12–60	12–58	26.51	9.82	6.7	0.3
Painful recollection	.91	7–35	7–35	22.34	6.84	1.6	4.8
Original SVPGS	.95	33–165	35–139	80.23	21.72	0.0	0.0
Difficulty coping	.83	11–55	11–42	23.62	6.77	2.5	0.0
Despair	.90	11–55	11–48	24.67	8.40	4.1	0.0
Active grief	.86	11–55	11–54	31.94	8.33	0.3	0.0

Note. % Floor refers to percentage of respondents who scored the lowest possible score on the respective subscales and % Ceiling refers to percentage of respondents who scored the highest possible score on the respective subscales.

TABLE 4 Correlation Between the Short Version of the Perinatal Grief Scale (SVPGS) and Other Major Variables

Variable	1	2	3	4	5	6	7	8	9	10
1. Sense of worthlessness	1.00									
2. Social detachment	0.75**	1.00								
3. Painful recollection	0.57**	0.67**	1.00							
4. Chinese SVPGS	0.85**	0.94**	0.84**	1.00						
5. Difficulty coping	0.87**	0.87**	0.51**	0.86**	1.00					
6. Despair	0.77**	0.96**	0.74**	0.95**	0.85**	1.00				
7. Active grief	0.76**	0.80**	0.91**	0.93**	0.67**	0.81**	1.00			
8. Original SVPGS	0.86**	0.95**	0.79**	0.99**	0.90**	0.96**	0.91**	1.00		
9. Psychological distress	0.71**	0.68**	0.54**	0.73**	0.68**	0.70**	0.64**	0.73**	1.00	
10. Spousal emotional support	−0.25**	−0.27**	−0.07	−0.23**	−0.34**	−0.31**	−0.11*	−0.27**	−0.27**	1.00

*$p < .05$. **$p < .01$.

Psychosocial Correlates of the SVPGS

On the basis of previous research, we hypothesized that women who experienced greater psychological distress and a lower level of spousal support would score higher on the Chinese SVPGS. Consistent with this hypothesis, the participants' psychological distress was positively and significantly related to their scores on Sense of Worthlessness ($r = .71$, $p < .01$), Social Detachment ($r = .68$, $p < .01$), and Painful Recollection ($r = .54$, $p < .01$). Partially supporting our hypothesis, women who experienced a low level of spousal support reported a higher level of Sense of Worthlessness ($r = -.25$, $p < .01$) and Social Detachment ($r = -.27$, $p < .01$), but not Painful Recollection ($p > .05$).

An examination of the correlates of the original factor structure showed that the participants' psychological distress and spousal emotional support correlated better with the original factors than the revised factors. The participants' psychological distress was positively and significantly related to their scores on Active Grief ($r = .64$, $p < .01$), Difficulty Coping ($r = .68$, $p < .01$), and Despair ($r = .70$, $p < .01$), as well as to the total original SVPGS score ($r = .73$, $p < .01$), whereas their experience of spousal emotional support was significantly and negatively related to their scores on Active Grief ($r = -.11$, $p < .05$), Difficulty Coping ($r = -.34$, $p < .01$), and Despair ($r = -.31$, $p < .01$), as well as to the total original SVPGS score ($r = -.27$, $p < .01$).

Table 4 summarizes the results of a Pearson correlation analysis between the Chinese SVPGS and the various major variables.

Discussion

The aim of this study was to validate the SVPGS for use in the Hong Kong Chinese population.

The Revised Chinese PGS

The CFA results rejected the original three-factor model delineated by Potvin et al. (1989), whereas the EFA results suggested a model consisting of three subscales, namely the 12-item Sense of Worthlessness subscale, the 7-item Social Detachment subscale, and a 7-item Painful Recollection subscale. The preliminary results show

that the revised Chinese SVPGS is a reliable and valid instrument. The Chinese SVPGS demonstrates good internal consistency, with Cronbach's alpha exceeding .80 for all three subscales and .90 for the total scale. Also, this revised Chinese SVPGS correlates significantly with the two hypothesized psychosocial variables, namely psychological distress and spousal emotional support. Correlation results indicate that the women who experienced a high level of psychological distress and a low level of spousal emotional support reported higher levels of perinatal grief.

The authors believe that the Chinese SVPGS would be more effective in appealing to the Chinese cultural dimension of reproductive loss. For example, the Sense of Worthlessness subscale clearly reflects that the value of Chinese women is still strongly related to their ability to bear children (Jackson, 1980) and the Social Detachment subscale appeals to the collectivistic culture that places a strong emphasis on social relationships.

The Original SVPGS Factor Structure

Although the present study shows that the original SVPGS factor structure may not perfectly fit the present data, its value should not be discounted. The beauty of the original SVPGS is that each subscale has an equal number of items, making comparisons across the subscales simple. Furthermore, retaining the original factor structure would allow for cross-cultural studies and further improve our understanding of how women adjust to reproductive loss across different settings.

In examining Chinese women's scores on the original SVPGS, we found that the scale scores reported by Chinese women who had experienced recent reproductive loss were slightly lower than those reported in Western samples. A review of the data of 1,589 women from 22 studies indicated that women who experienced reproductive loss reported a mean score of 86 on the original SVPGS (Toedter et al., 2001); however, Chinese women in the present study reported a mean score of 80.23 on the Chinese SVPGS. This is consistent with previous findings showing that Chinese women are less distressed by the experience of miscarriage than their Western counterparts. Previous studies using Western samples have shown that 44% of women who have had a recent miscarriage have clinical levels of depression following the pregnancy loss

(Neugebauer et al., 1992; Thapar & Thapar, 1992; Prettyman, Cordle, & Cook, 1993); however, only 12% of Hong Kong Chinese women who had experienced recent miscarriage met the *DSM-III–R* criteria for major depression (D. T. S. Lee et al., 1997). This is also consistent with the observation of a relatively low rate of depression within the Chinese population. Whereas lifetime prevalence of depression in Western countries ranges between 3% and 17% (Kessler et al., 1994), rates as low as 0.19% in China and 1.14% in Taiwan have been reported (Hwu, Chang, Yeh, Chang, & Yeh, 1996). A cross-nation collaborative study found that, among nine countries, Taiwan reported the lowest lifetime and annual prevalence of major depression (Weissman et al., 1996).

The present study replicates the results of studies from Western societies, showing that the mean of Active Grief is generally larger than the means of Difficulty Coping and Despair (Toedter et al., 2001). The results show that the scale score of Active Grief is significantly larger than the scale scores of Difficulty Coping and Despair, while the scale scores of the latter two are actually quite similar. Consistent with previous findings showing that Difficulty Coping and Despair are closely related, with a correlation of .80 (Potvin et al., 1989), the present study finds that they are also highly correlated in this sample ($r = .85$, $p < .01$). As Potvin et al. suggested, each subscale represents a qualitatively different aspect of grieving. The two subscales of Difficulty Coping and Despair should be considered related but separate constructs, despite their high correlation.

Limitations of the Present Study

The present study has several limitations. First, this study relied solely on participant self-reports, and the results are subject to the biases of recall or social desirability. The sample also represented a highly selective group of women suffering recent reproductive loss. All of the women participated on a voluntary basis; women who were extremely traumatized by the loss may have turned down the interview and therefore were not represented in the sample. Moreover, since women experiencing early reproductive loss are overrepresented in the present sample, it is hard to tell whether the results can be generalized to women experiencing late reproductive loss. Also, while there is some precedent in

the literature, the present sample size may not be ideal to maximize the statistical approaches used. Furthermore, this study is cross-sectional, which limits its capacity to draw inferences about the causal relationship between factors. Related to this, the women were recruited and assessed after the reproductive loss had occurred; there was no information as to whether they had displayed any psychiatric morbidity prior to the reproductive loss. Further empirical support is needed to address the above limitations. It would also be useful to know whether the Chinese SVPGS is sensitive to clinical changes and whether it is useful in measuring the perinatal grief symptoms of the partners of women who have experienced reproductive loss.

Practical Implications

Despite the above limitations, the present study provides preliminary evidence for the validity and reliability of the Chinese SVPGS for measuring perinatal grief symptoms in Chinese women who have experienced a recent reproductive loss. The factor analysis of the Chinese SVPGS not only formed factors that demonstrated satisfactory similarity to the theoretically driven subscales, but also generated a new clustering of items for further investigation. In the local health care setting, where time and personnel are of the essence, the Chinese SVPGS has good potential for identifying women for whom a more complete evaluation might be indicated. It is brief and easy to administer, and it works best as a screening instrument. It is believed that the results from this study will facilitate research in Chinese communities and advance our understanding of women's adjustment to reproductive loss.

References

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107,* 238–246.

Bentler, P. M. (1992). On the fit of models to covariances and methodology to the Bulletin. *Psychological Bulletin, 112,* 400–404.

Bentler, P. M. (1995). *EQS structural equations program manual.* Encino, CA: Multivariate Software.

Borg, S., & Lasker, J. N. (1981). *When pregnancy fails: Families coping with miscarriage, ectopic pregnancy, stillbirth, and infant death.* New York: Bantam.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 445–455). Newbury Park, CA: Sage.

Centers for Disease Control and Prevention. (2006). *Final births for 2004.* Retrieved April 10, 2008, from http://www.cdc.gov/nchs/products/pubs/pubd/hestats/%20finalbirths04/finalbirths04.htm.

Chen, C. S., Tsang, H. Y., Chong, M. Y., & Tang, T. C. (2000). Validation of the Chinese health questionnaire (CHQ-12) in community elders. *Kaohsiung Journal of Medical Science, 16,* 559–565.

Cuisinier, M., Kuijpers, J. C., Hoogduin, C. A. L., deGraauw, A. P. H. M., & Janssen, H. (1993). Miscarriage and still birth: Time since loss, grief intensity, and satisfaction with care. *European Journal of Obstetrics and Gynecology and Reproductive Biology, 52,* 163–168.

Engler, A. J., & Lasker, J. N. (2000). Predictors of maternal grief in the year after a newborn death. *Illness, Crisis & Loss, 8,* 227–243.

Frost, M., & Condon, J. T. (1996). The psychological sequelae of miscarriage: A critical review of the literature. *Australian and New Zealand Journal of Psychiatry, 30,* 54–62.

Goldberg, D. P. (1972). *Manual of the General Health Questionnaires.* London: NFER.

Graetz, B. (1991). Multidimensional properties of the General Health Questionnaire. *Social Psychiatry and Psychiatric Epidemiology, 26,* 132–138.

Hutti, M. H., dePacheco, M., & Smith, M. (1998). A study of miscarriage: Development and validation of the perinatal grief intensity scale. *Journal of Obstetric, Gynecologic and Neonatal Nursing, 27,* 547–555.

Hwu, H. G., Chang, I. H., Yeh, E. K., Chang, C. J., & Yeh, L. L. (1996). Major depressive disorder in Taiwan defined by the Chinese diagnostic interview schedule. *Journal of Nervous and Mental Disease, 184,* 497–502.

Jackson, L. (1980). Prostitution. In J. Lebra & J. Paulson (Eds.), *Chinese women in Southeast Asia* (pp. 32–65). Singapore: Times Books International.

Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshleman, S., et al. (1994). Lifetime and 12-month prevalence of *DSM-III–R* psychiatric disorders in the United States. *Archives of General Psychiatry, 51,* 8–19.

Lasker, J. N., & Toedter, L. J. (1991). Acute versus chronic grief: The case of pregnancy loss. *American Journal of Orthopsychiatry, 61,* 510–522.

Lasker, J. N., & Toedter, L. J. (2000). Predicting outcomes after pregnancy loss: Results from studies using the Perinatal Grief Scale. *Illness, Crisis & Loss, 8,* 350–372.

Lee, C., & Slade, P. (1996). Miscarriage as a traumatic event: A review of the literature and new implications for intervention. *Journal of Psychosomatic Research, 40,* 234–244.

Lee, D. T. S., Wong, C. K., Cheung, L. P., Leung, H. C. M., Haines, C. J., & Chung, T. K. H. (1997). Psychiatric morbidity following miscarriage: A prevalence study of Chinese women in Hong Kong. *Journal of Affective Disorders, 43,* 63–68.

Lu, G., Sun, Y., & Lu, Y. (1995). Psychological predicament of sterile women. In C. Tao & Y. Xiao (Eds.), *Research on women's reproductive health in China* (pp. 399–446). Beijing, China: New World Press.

Ma, T. (1997). *Factors predicting the psychological well-being of women two weeks before early miscarriage.* Unpublished doctoral dissertation, Chinese University of Hong Kong.

Martin, C. R., & Newell, R. J. (2005). The factor structure of the 12-item General Health Questionnaire in individuals with facial disfigurement. *Journal of Psychosomatic Research, 59*, 193–199.

Neimeyer, R. A., & Hogan, N. (2001). Quantitative or qualitative? Measurement issues in the study of grief. In M. S. Stroebe, R. O. Hansson, W. Stoebe, & H. Schut (Eds.), *Handbook of bereavement research* (pp. 89–118). Washington, DC: American Psychological Association.

Neugebauer, R., Kline, J., O'Connor, P., Shrout, P., Johnson, J., Skodol, A., et al. (1992). Depressive symptoms in women in the six months after miscarriage. *American Journal of Obstetrics and Gynecology, 166*, 104–109.

Potvin, L., Lasker, J., & Toedter, L. (1989). Measuring grief: A short version of the Perinatal Grief Scale. *Journal of Psychopathology and Behavioral Assessment, 11*, 29–45.

Prettyman, R., Cordle, C., & Cook, G. (1993). A three-month follow-up of psychological morbidity after early miscarriage. *British Journal of Medical Psychology, 66*, 363–372.

Robinson, M., Baker, L., & Nackerud, L. (1999). The relationship of attachment theory and perinatal loss. *Death Studies, 23*, 257–270.

Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioral Research, 25*, 173–180.

Stroebe, M. S., Hansson, R. O., Stroebe, W., & Schut, H. (2001). *Handbook of bereavement research: Consequences, coping, and care.* Washington, DC: American Psychological Association.

Tang, C., & Chung, T. (1997). Psychosexual adjustment following sterilization: A prospective study on Chinese women. *Journal of Psychosomatic Research, 42*, 187–196.

Thapar, A. K., & Thapar, A. (1992). Psychological sequelae of miscarriage: A controlled study using the General Health Questionnaire and the Hospital Anxiety and Depression Scale. *The British Journal of General Practice, 42*, 94–96.

Toedter, L. J., Lasker, J. N., & Alhadeff, J. M. (1988). The Perinatal Grief Scale: Development and initial validation. *American Journal of Orthopsychiatry, 58*, 435–449.

Toedter, L. J., Lasker, J. N., & Janssen, H. (2001). International comparison of studies using the Perinatal Grief Scale: A decade of research on pregnancy loss. *Death Studies, 25*, 205–228.

U.S. Census Bureau. (2007). *World population profile.* Washington, DC: Author.

Weissman, M. M., Bland, R. C., Canino, G. J., Faravelli, C., Greenwald, S., Hwu, H. G., et al. (1996). Cross-national epidemiology of major depression and bipolar disorder. *Journal of the American Medical Association, 276*, 293–299.

Wills, T. A. (1985). Supportive functions of interpersonal relationships. In S. Cohen & S. L. Syme (Eds.), *Social support and health* (pp. 61–82). Orlando, FL: Academic Press.

Woo, B. S. C., Chang, W. C., Fung, D. S. S., Koh, J. B. K., Leong, J. S. F., Kee, C. H. Y., et al. (2004). Development and validation of a depression scale for Asian adolescents. *Journal of Adolescence, 27,* 677–689.

Wu, K. D., & Carter, S. A. (2008). Further investigation of the Obsessive Beliefs Questionnaire: Factor structure and specificity of relations with OCD symptoms. *Journal of Anxiety Disorders, 22,* 824–836.

Yan, E., & Tang, C. (2003). The role of individual, interpersonal, and organizational factors in mitigating burnout among elderly Chinese volunteers. *International Journal of Geriatric Psychiatry, 18,* 795–802.

Ying, P., & Jiang, Q. (2000). Psychosomatic symptoms and psychosocial aspects of patients with secondary infertility. *Chinese Mental Health Journal, 14,* 239–241.

Zeanah, C. H., Danis, B., Hirshberg, L., & Dietz, L. (1995). Initial adaptation in mothers and fathers following perinatal loss. *Infant Mental Health Journal, 16,* 80–93.

Zhao, J. (1995). Women-centered reproductive health. In J. Zhao, K. N. Zhang, Y. Q. Wen, & G. C. Yang (Eds.), *Women-centered reproductive health* (pp. 25–54). Beijing, China: China Social Sciences Press.