

CLINICAL ISSUES

Couples' postpartum health status

Li Fang and Chich-Hsiu Hung

Aims and objectives. This study was conducted in Taiwan on couples for a month in the postpartum period to investigate the correlated factors that affect their health status.

Background. Most studies have focused on the postpartum health status of mothers, but few of them mention about the postpartum health status of fathers.

Design. A cross-sectional design.

Methods. This study was carried out on a cross-section of couples, and the data were collected through telephone interviews conducted by a research assistant using structured questionnaires. A total of 201 couples who had given birth to a healthy single baby at a medical centre in southern Taiwan were recruited between 1 August 2007–31 November 2007.

Results. The two most important factors correlated with mothers' health statuses, during the month-long postpartum period, were mothers' educational and postpartum stress levels. The result also showed that baby's Apgar score at the first minute was the main factor related to father's health status during the month-long postpartum period.

Conclusions. Educational programmes should incorporate factors that affect couples' health status during the one month postpartum period to promote postnatal couples' health.

Relevance to clinical practice. To improve the couples' health status during the one month postpartum period, we need to strengthen the stress-coping skills of mothers and provide them with coping resources to support their maternal roles, to provide social support to fathers and to incorporate issues of marital intimacy and parental attachment into the couples' educational programmes. Also, a father's presence at his infant's birth is encouraged to enhance parental attachment.

Key words: health status, marital intimacy, parental attachment, postpartum stress, social support

Accepted for publication: 16 January 2012

Introduction

Postpartum women and fathers may experience physical and psychological problems owing to which they may be unable to take proper care of their babies and may have unhappy relationship with their partners. These situations may cause health problems among postpartum couples involving somatic symptoms, sleep problems, poor interpersonal relationship, anxiety and depression (Hung 2004). Postpartum depression was reported among 37–40% Taiwanese women having

marital as well as parenting problems (Chen *et al.* 1994, Ko *et al.* 1996). Evidence showed that postpartum fathers also suffered from postnatal depression to a significant extent (Goodman 2004, Gao *et al.* 2009). This was more so with first-time fathers, who had to shoulder new responsibilities and needed to adapt themselves to their new roles.

Postpartum fathers may also experience physical and psychological downturn after the birth of their child (Ferke-tich & Mercer 1995). The prevalence rate in postnatal depression in 2003 among Western new fathers was about

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1–4.9% (Goodman 2004). During the postnatal period, 3.1% men were diagnosed with depression according to DSM-IV in China (Beatrice *et al.* 2010). Gao *et al.* (2009) demonstrated that the prevalence rate of postnatal depression was 10.8% in men and 13.8% in women; there were no significant differences in the prevalence rates between postnatal men and women (Gao *et al.* 2009).

Parent's depression may affect child's care and development. Gjerdingen and Center (2003) analysed the psychological symptoms and well-being of 312 first-time fathers starting from 20 weeks of their partner's pregnancy till 12 months postpartum. They found no significant changes between the prenatal period and the first three months in the postnatal period. However, results indicated that in comparison with the pre-pregnancy period, their sexual relationship with their partners deteriorated during one year postpartum. Gao *et al.* (2009) found that couples' depression was associated with their perceived stress and lack of social support.

Lack of social support is a factor correlated with women's postnatal depression (Heh *et al.* 2004, Hung *et al.* 2010). Taiwanese women may receive high level of social support because of the postpartum ritual (*Tso-Yue-Tzu*). *Tso-Yue-Tzu* is a traditional custom for postpartum women to recover from birth and improve their health (Heh *et al.* 2004, Hung *et al.* 2010). The family provides nutritious food and assistance for baby care or housework to let women rest during one month postpartum. Heh *et al.* (2004) investigated postpartum women aged between 20–50 with spontaneous delivery and found that postpartum women, who had received higher social support, were less prone to the risk of suffering from symptoms of postpartum depression during the month-long postpartum period. Similarly, Taiwanese women showed lesser symptoms of depression when they stayed in their own mothers' homes and were cared by their own mothers during the postpartum ritual of the first month (Heh *et al.* 2004, Hung 2005, Hung *et al.* 2010).

The postpartum period is a stressful period in women's lifespan. Mothers need to adjust with physical changes and their new roles. Several studies have found that stress is related to mothers' health promotion styles, and this is particularly true with new mothers (Walker 1989, Hung 2001). Hung (2006) confirmed that postpartum stress had a positive effect on women's postpartum depression, and social supports had an indirect effect on postpartum depression.

Postchild birth, a couples' marital intimacy may be disturbed as owing to paucity of time they get to spend lesser time together. New parental roles and more housework may result in conflicts between couples and possibly have a negative effect on their relationship (Ahlborg & Strandmark 2005). Couples having mutual understanding and marital

intimacy are more capable of facing difficulties together. A systematic review conducted by Wee *et al.* (2011) from electronic databases between January 1996–August 2009 showed that antepartum and postpartum depressions in husbands were most commonly caused when their partners also suffered from depression and the relationship between the couples were strained. These findings were corroborated by Bielawska-Batorowicz and Kossakowska-Petrycka's (2006) examination of 80 primiparous couples, which led to the conclusion that the symptoms of depression in the new fathers were associated with their partners' depression and unhappy marital relationship.

Attachment is an affectional connection between an individual and a caregiver (Bowlby 1982). Maternal attachment is an affectionate relationship between mothers and her infants (Muller 1994). This unique relationship will last forever. Closeness and attachment makes infants feel secured and gratified (Bowlby 1982). When one is stressed or unwell, one wishes to be near to that individual with whom one feels emotionally attached. Hence, to nurture such a healthy relationship with one's child, it is important that parents initiate early contact and develop a strong bonding with their newborns. An affectionate attachment with the baby helps couples to adapt easily to their new parental roles (Muller 1994); failure to adapt could lead to postnatal stress and affect physical and psychological well-being of parents.

Most studies on postpartum couples focused on the health of postpartum mothers. However, it is also essential to explore fathers' health during the postpartum period. Therefore, this study aims to look at the health statuses of both mothers and fathers and their correlated factors for one month in the postpartum period.

Method

Design and sampling

This study was based on a cross-sectional design, with data collected between 1 August 2007–31 November 2007. Couples who were recruited for the study signed the informed consent forms at the outpatient department (OPD) of obstetrics on the 36th week of pregnancy. If fathers did not appear at the OPD of obstetrics, they signed the informed consent at home and brought it back in the next OPD visit. Then, a research assistant collected demographic and obstetric data by structured questionnaires through telephone interviews after one month postpartum between 1 August 2007–31 November 2007. A total of 201 couples who had given birth to healthy single babies at a medical centre in southern Taiwan were recruited. This study was approved by

the institutional review board from Kaohsiung Medical University Hospital.

Instrument

The participants were asked by a research assistant to fill out a demographic and an obstetric information sheet. The 12-item Chinese Health Questionnaire (CHQ), the 61-item Hung Postpartum Stress Scale, the 22-item Parent Attachment Inventory, the 15-item Marital Intimacy Scale (MIS) and the 15-item Social Support Scale (SSS) were used in the study.

Demographic and obstetric data – demographic factors include age of couples, their levels of education, religion, length of marriage, household incomes, gestational age, Apgar score (which was developed by Dr Virginia Apgar to quickly assess the health status of the newborn after birth) at the first and fifth minutes, type of delivery, expectations met for baby's gender, baby-feeding methods and place of mother's postnatal stay.

12-item Chinese Health Questionnaire (CHQ) – the couples' health statuses in the month-long postpartum period were examined by the 12-item CHQ. The CHQ was developed by Cheng and Williams (1986) and included such factors as somatic symptoms, sleep problems, interpersonal relationship, anxiety and depression (Hung 2004). The frequency of the participant's perception to each item was recorded on a 4-point scale, where a score of 1 point meant not at all and 4 points denoted most of the time. Points 1 and 2 were recoded as 0, and 3 and 4 were recoded as 1. Participants with a total score of 3 or above were considered as 'cases' for minor psychiatric morbidity and those with 2 or below were considered as 'non-cases'. Cronbach's alpha was 0.7 (Hung *et al.* 2010). The internal consistency reliability with Cronbach's alpha in this study was 0.72 for both mothers and fathers.

61-item Hung Postpartum Stress Scale – the 61-item Hung Postpartum Stress Scale was developed by Hung (2001). It is a reliable and valid tool that includes concerns regarding attainment of maternal roles, negative physical changes and lack of social support (Hung 2001, 2005). Each item was rated based on how the participants perceived postpartum stress. They were scored on a five-point scale from 1 for 'not at all' to 5 for 'always'. Cronbach's alpha was 0.95 (Hung 2001). Cronbach's alpha of this study was 0.96 for mothers.

22-item Parent Attachment Inventory – the Parent Attachment Inventory used in this study was modified from the Maternal Attachment Inventory (MAI). It was a reliable tool developed by Muller (1994), which was used to examine postnatal attachment, as well as the unique relationship between a mother and her infant. Original MAI included 26

items, and Cronbach's alpha coefficient was 0.85 (Muller 1994). In this study, the 22 items modified from MAI was used to test the parent's attachment on a four-point Likert scale, and items were scored from 1 for 'almost never' to 4 for 'almost always'. The internal consistency reliability with Cronbach's alpha in this study was 0.96 for both mothers and fathers.

15-item Marital Intimacy Scale – the 15-item MIS developed by Li (2003) includes gratitude, appreciation, togetherness and aspects of tacit understanding. Cronbach's alpha coefficient was 0.75. Participants were asked about their current marital relationship perception, and each item was scored from 5 for 'strongly agree' to 1 for 'strongly disagree'. The internal consistency reliability with Cronbach's alpha in this study was 0.97 for mothers and 0.98 for fathers.

10-item Social Support Scale (SSS) – The 10-item SSS was used to assess the frequency of participants receiving social support from their partners and medical staff. The 5-point Likert scale was used, and items were scored from 1 for 'never' to 5 for 'always'. A summative high score means that participants have greater social support during postpartum period. Cronbach's alpha coefficient was 0.9 (Hung 2004). The internal consistency reliability with Cronbach's alpha in this study was 0.89 for both mothers and fathers.

Data analysis

Data were analysed by using Statistical Product and Service Solutions (SPSS) 13.0 for Windows (SPSS Inc., Chicago, IL, USA). An independent chi-squared test and a one-way ANOVA were used to examine the category and continuous variables. Demographic data were also examined using descriptive statistics that included the distribution of the largest, smallest, frequency, percentage, mean, mode and standard deviation. Multiple logistic regressions were used to identify the major factors affecting the health statuses of the couples.

Results

Demographic and obstetric characteristics

The average age of postpartum mothers and fathers was 30.58 and 32.99 years, respectively. Approximately 46% mothers and 56% fathers had obtained a university diploma or above. Approximately 70% mothers and 76% fathers held religious beliefs. Most mothers had a full-time job, while most of the family household incomes were between NT 50,000 and NT 10,000. The mean length of marriage was 31.35 months; the mean gestational age was 39.19 weeks; 69.60% participants had vaginal deliveries; the average birth weight of the baby was 3.19 kg; and the mean Apgar scores

at the first and fifth minutes were 8.61 and 9.63, respectively. While girl babies were prominent, comprising 55.22%, only 33.83% mothers and 29.35% fathers had a preferred sex for their baby. Approximately 31% of their babies were breast-fed. Most (82%) mothers stayed at their own home, in-laws' home or parents' place in the postnatal period.

Couples' health status, social support, intimacy, parental attachment and women's postpartum stress

Approximately 24% mothers and 16% fathers had minor psychiatric morbidity. The mean score of social support was 38.76 (SD 7.29) for women and 36.95 (SD 7.33) for their husbands. The mean score of marital intimacy of participants was 129.80 (SD 19.93) for women and 133.70 (SD 21.04) for their husbands, while the mean score of parental attachment was 81.70 (SD 8.54) for mothers and 80.92 (SD 8.46) for fathers. The mean score of mothers' postpartum stress was 121.65 (SD 38.11).

Relationships between participants' health statuses and demographic/obstetric characteristics, social support, intimacy, parental attachment and postpartum stress

As Table 1 shows, there were no significant differences found between the couples' health statuses and their demographic/obstetric characteristics, except that women's health status significantly differed with the level of education ($p = 0.02$), and husbands' health status was considerably affected by baby's Apgar scores at the first and fifth minutes ($p = 0.03$). As Table 2 shows, women who were the non-case of minor psychiatric morbidity were found to have significantly higher level of postpartum stress than women who were the case of minor psychiatric morbidity ($p < 0.000$). Women's health statuses did not vary significantly in different levels of social support, marital intimacy and parent attachment. However, the health status of their husbands again notably changed according to their social support ($p = 0.049$), marital intimacy ($p = 0.03$) and degree of parental attachment ($p = 0.04$).

Important predictors of couples' health status

To identify the main factors that influence the health status of mothers and fathers during the month-long postpartum period, multiple logistic regression analyses were used. The result showed that postpartum stress and educational levels were significant determinants of mothers' health status (Table 3). Women would have minor psychiatric morbidity by 1.02 times, while there was an increase in postpartum stress by one point. Women with university education or

above were 2.32 times more likely to suffer from minor psychiatric morbidity compared with those who had junior college or lesser education. Fathers with a one-point increase in baby's Apgar scores at the first minute would be 0.12 times less likely to suffer from minor psychiatric morbidity (Table 3). In sum, mothers' educational and postpartum stress levels were the two most important factors correlated with mothers' health status, during the month-long postpartum period. Baby's Apgar score at the first minute was the main factor related to father's health status during the month-long postpartum period.

Discussion

Educational levels and postpartum stress are predictors of mothers' health status in our study. Gao *et al.* (2009) indicated that mothers with lower educational levels had higher postnatal depression. The results obtained from this study vary from those of Gao *et al.* (2009). Mothers with higher educational levels possibly set higher expectations to their lives, which would result in more stress, thereby affecting their health status (Gao *et al.* 2009). The result of this study was similar to that of Hung's (2006) study, which showed that postpartum stress had a positive effect on postpartum depressions. In this study, women would have minor psychiatric morbidity by 1.02 times and a one-point increase in the scores of postpartum stress.

In the results of this study, babies' Apgar scores at the first minute is an important predictor of fathers' health status. Fathers with a one-point increase in their babies' Apgar scores at the first minute are 0.12 times less likely to suffer from minor psychiatric morbidity.

According to Misra *et al.* (1994), Apgar scores at the fifth and tenth minutes were correlated with better neurodevelopmental functions (Misra *et al.* 1994). Babies with better Apgar scores at the first minute meant that they did not need immediate medical care. Therefore, this may influence fathers' mood and result in a positive effect on fathers' health status. However, Apgar score at the fifth minute was not a predictor. It merely meant that babies would have better neurodevelopment and health status.

The results of this study indicated that fathers with lower levels of social support, marital intimacy and parental attachment would suffer from minor psychiatric morbidity compared with those with higher levels. The outcomes of this study were similar to those of Gao *et al.* (2009). The results thus indicated that fathers with a lower level of social support showed symptoms of depression. Ahlborg and Strandmark (2005) reported that couples who experienced intimacy could motivate themselves to cope with stress situations. The results

Table 1 The relationship between couples' health and their demographic/obstetric characteristics

	Mothers' health status (<i>n</i> = 201)				Fathers' health status (<i>n</i> = 201)			
	Non-case = 153	Case = 48	<i>t</i> or χ^2	<i>p</i>	Non-case = 169	Case = 32	<i>t</i> or χ^2	<i>p</i>
Age (years)	30.58 ± 3.80	32.99 ± 4.07	0.96	0.34	393.81 ± 49.48	403.03 ± 45.24	-0.98	0.33
Their level of education				0.02* ^f				0.57 ^f
Junior college or less	90	19			73	16		
University or above	63	29			96	16		
Religion				0.21 ^f				0.54 ^f
No	42	18			53	8		
Yes	111	30			116	24		
Full-time job				0.63 ^f				
No	52	17						
Yes	101	31						
Household incomes			1.78	0.41 ^c			0.44	0.80 ^c
Less than NT50,000	26	10			30	6		
NT50,000 to 100,000	99	26			104	21		
More than NT100,000	28	12			35	5		
Length of marriage (months)	30.49 ± 2.46	21.52 ± 3.11	1.67	0.10	32.93 ± 3.05	26.31 ± 2.15	1.67	0.10
Gestational age (weeks)	39.26 ± 1.29	38.98 ± 1.29	1.28	0.20				
Type of delivery				0.68 ^f				
Vaginal deliveries	123	37						
Caesarean sections	30	11						
Weight of baby (kg)	3.21 ± 3.53	3.15 ± 3.59	1.02	0.31	3.12 ± 3.50	3.22 ± 3.78	-0.50	0.62
Apgar score								
First minute	8.66 ± 0.52	8.46 ± 0.65	1.93	0.06	8.66 ± 0.51	8.36 ± 0.72	2.23	0.03*
Fifth minute	9.66 ± 0.49	9.51 ± 0.54	1.79	0.08	9.66 ± 0.49	9.45 ± 0.56	2.18	0.03*
Baby's gender				0.38 ^f				0.44 ^f
Boy	65	25			78	12		
Girl	88	23			91	20		
Expectations met for baby's gender				0.38 ^f				0.67 ^f
No	104	29			118	24		
Yes	49	19			51	8		
Baby-feeding method			2.63	0.41 ^c			1.22	0.54 ^f
Breastfeeding	44	18			52	10		
Formula	21	3			22	2		
Breastfeeding and formula	88	27			95	20		
Place of mother's postnatal stay				0.53 ^f				
Postpartum nursing centre	126	38						
Own home or their family's home	26	10						

Statistical methods: *y*, Yates' correction; *c*, chi-squared tests; *f*, Fisher's exact test.

*Significant at the 0.05 level (two-tailed).

Table 2 Couples' health statuses and social support, intimacy, baby attachment and women's postpartum stress

	Mothers (<i>n</i> = 201)				Fathers (<i>n</i> = 201)			
	Health status				Health status			
	Non-case = 149	Case = 46	<i>t</i> or χ^2	<i>p</i>	Non-case = 161	Case = 28	<i>t</i> or χ^2	<i>p</i>
Social support	39.29 ± 7.19	37.08 ± 7.41	1.84	0.07	37.57 ± 6.90	33.63 ± 8.63	2.84	< 0.01*
Marital intimacy	131.37 ± 18.36	124.77 ± 23.79	1.76	0.09	135.10 ± 20.02	126.28 ± 24.82	2.190	0.03*
Parent attachment	82.331 ± 7.34	79.68 ± 11.41	1.88	0.06	81.45 ± 8.32	78.09 ± 8.80	2.07	0.04*
Postpartum stress	114.10 ± 34.07	145.71 ± 40.62	-5.345	< 0.01*				

Table 3 Important predictors of couples' health status

Variables	B	SE	Wald	p-value	Exp (B)
Mothers					
Their level of education (University or above/ Junior college or less)	0.84	0.36	5.30	0.02*	2.32
Postpartum stress	0.02	0.01	21.12	<0.01*	1.02
Constant	-4.56	0.75	37.24	0.000	0.010
Fathers					
Apgar score at the first minute	-2.11	1.06	3.97	<0.05*	0.12
Apgar score at the fifth minute	1.26	1.23	1.05	0.30	3.53
Social support	-0.07	0.04	3.53	0.06	0.94
Marital intimacy	0.00	0.01	0.10	0.76	1.00
Parent attachment	-0.03	0.03	1.08	0.30	0.97
Constant	9.28	5.01	3.44	0.06	10,698.27

*Significant at the 0.05 level (two-tailed).

of Wee *et al.* (2011) study show that poor partner relationship could be correlated with symptoms of depression in fathers. According to Muller (1994), developing an attachment with the baby helps parents to adapt to their parental roles and to decrease the negative impact on their physical and psychological health. The results of this study are consistent with those of Muller (1994). Fathers with lower level of parental attachment were more likely to suffer from minor psychiatric morbidity (Bowlby 1982). However, the three factors – social support, marital intimacy and parental attachment – were not predictors of fathers' postpartum health status.

Conclusion

In sum, the important factors that correlated with women's health status during the month-long postpartum period were postpartum stress and level of education. These factors played an important role in strengthening the problem-solving and stress-coping skills in mothers; these skills are crucial for postpartum women as they enable them to perform their maternal roles better and instil in them the self-confidence required to adapt themselves to their new roles. The result of this study also showed that the babies' Apgar scores at the first minute were the main factors. Social

References

- Ahlborg T & Strandmark M (2005) Factors influencing the quality of intimate relationship six months after delivery – first –time parents' own views and coping strategies. *Journal of Psychiatric Obstetrics and Gynecology* 27, 163–172.
- Beatrice PY, Alan KL, Dominic TS, Alexander SK & Tony KH (2010) Detecting postnatal depression in Chinese men: a comparison of three instruments. *Psychiatry Research* 180, 80–85.
- Bielawska-Batorowicz E & Kossakowska-Petrycka K (2006) Depressive mood in men after the birth of their offspring in

support, marital intimacy and parental attachment were also correlated with fathers' postpartum health status.

In Taiwanese culture, women receive more social support during the postpartum period than their husbands do. This study suggests that it is important to pay attention to fathers as well. Most of the hospitals provide educational programmes in prenatal mothers' and fathers' classes for expectant mothers (Shi *et al.* 2004). Fathers' participation rate is around 37–62% in Taiwan (Hung & Chung 1998; Li *et al.* 2001). Greenberg and Morris (1974) indicated that fathers' participations at their infant births will make them feel more comfortable to hold their babies afterwards, which means that fathers' participations at their babies' births will improve the attachments between them. Therefore, encouraging fathers' presence at their babies' births is important for parental attachment enhancement. Taiwanese Labour Committee (2008) declared that fathers were allowed to have three-day off-duty leave to accompany wives' labour. This policy is helpful to encourage fathers' participations in their wives' labours. The ways to enhance marital intimacy and parental attachment should be considered and incorporated into the educational programmes for couples, and social support may also be provided to fathers. Further, nurses may be made aware of the factors affecting the health status of couples during a month-long postpartum period so that they are able to advise couples better in future.

The participants in our study were recruited from a medical centre in southern Taiwan. It is one of the biggest teaching hospitals in Taiwan. However, the samples in this study could not be representative of Taiwanese couples. Thus, generalisation of this study results is limited.

Acknowledgement

This study was supported in part by a grant from the National Science Council, Taiwan (NSC 93-2314-B-037-096).

Contributions

Study design: CHH; data collection and analysis: LF, CHH and manuscript preparation: LF, CHH.

- relation to a partner's depression, social support, fathers' personality and prenatal expectations. *Journal of Reproductive & Infant Psychology* 24, 21–29.
- Bowlby J (1982) *Attachment*, 2nd edn. Basic Books, New York, NY.
- Chen CH, Tseng YF, Wang SY & Lee JN (1994) The prevalence and predictors of postpartum depression. *The Journal of Nursing Research* 2, 263–274.
- Cheng TA & Williams P (1986) The design and development of a screening questionnaire (CHQ) for use in community studies of mental disorders in Taiwan. *Psychological Medicine* 16, 415–422.
- Ferketich SL & Mercer RT (1995) Predictors of role competence for experienced and inexperienced fathers. *Nursing Research* 44, 89–95.
- Gao LL, Chan S & Mao Q (2009) Depression, perceived stress, and social support among first-time Chinese mothers and fathers in the postpartum period. *Research in Nursing & Health* 32, 50–58.
- Gjerdingen DK & Center BA (2003) First-time parents' prenatal to postpartum changes in health, and the relation of postpartum health to work and partner characteristics. *Journal of the American Board of Family Practice* 16, 304–311.
- Goodman JH (2004) Paternal postpartum depression, its relationship to maternal postpartum depression, and implications for family health. *Journal of Advanced Nursing* 45, 6–35.
- Greenberg M & Morris N (1974) Engrossment: the newborn's impact upon the father. *American Journal of Orthopsychiatry* 44, 520–531.
- Heh SS, Coombes L & Bartlett H (2004) The association between depressive symptoms and social support in Taiwanese women during the month. *International Journal of Nursing Studies* 41, 573–579.
- Hung CH (2001) Postpartum stress and social support of women at different places of their confinement and a different point of time during postpartum. *The Journal of Public Health* 28, 241–254.
- Hung CH (2004) Predictors of postpartum women's health status. *Journal of Nursing Scholarship* 36, 345–351.
- Hung CH (2005) Measuring postpartum stress. *Journal of Advanced Nursing* 50, 417–424.
- Hung CH (2006) Revalidation of the postpartum stress scale. *Journal of Clinical Nursing* 15, 417–424.
- Hung CH & Chung HH (1998) The effect of husband's childbirth for perinatal couples' psychological responses. *Kaohsiung Journal of Medical Science* 14, 791–799.
- Hung CH, Yu CY, Ou CC & Liang WW (2010) Taiwanese maternal health in the postpartum nursing centre. *Journal of Clinical Nursing* 19, 1094–1101.
- Ko HC, Chang AJ, Liu HS, Yeh TL, Yao BL & Chang FM (1996) Prevalence rate, perceived symptoms, and the risk factors associated with depression in the first three months postpartum. *Advanced Obstetrics and Perinatology* 6, 7–15.
- Li TS (2003) Construct and measure of marital intimacy. *Chinese Journal of Mental Health* 12, 29–51.
- Li YL, Liou HT, She MS, Jih YC, Sheu MY, Lai YH & Lin S (2001) A study of the effect of the father's childbirth participation in the municipal hospital. *New Taipei Journal of Nursing* 3, 63–75.
- Misra PK, Srivastava N, Malik GK, Kapoor RK, Srivastava KL & Rastogi S (1994) Outcome in relation to Apgar score in term neonates. *Indian Pediatrics* 31, 1215–1218.
- Muller ME (1994) A questionnaire to measure mother-to-infant attachment. *Journal of Nursing Measurement* 2, 129–141.
- Shi HL, Lee TY & Chang YC (2004) The effects expectant efficacy and perception of nursing instruction on fathers' accompanying maternal labor support during labor and birth. *Yuan-Yuan Nursing* 1, 43–52.
- Walker LO (1989) A longitudinal analysis of stress process among mothers of infants. *Nursing Research* 38, 10–16.
- Wee KY, Skouteris H, Pier C, Richardson B & Milgrom J (2011) Correlates of ante- and postnatal depression in fathers: a systematic review. *Journal of Affective Disorders* 130, 358–377.

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