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# Taiwanese women's experiences of becoming a mother to a very-low-birth-weight preterm infant: A grounded theory study

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**Abstract**

*Background:* Significant improvements have occurred in the survival rates of small preterm infants. As more infants survive their preterm birth, the number of parents associated with this experience has also increased. Clearly, the birth of very-low-birth-weight (VLBW) preterm infants poses considerable challenges for all mothers. These challenges are further compounded in Taiwan, where women are traditionally required to practise the cultural ritual (Zuo Yue Zi) which includes confinement to the house with a special balanced diet for the first month postnatally. Moreover, there is a deficit of information on mothers' experiences when their preterm infants are in neonatal intensive care units (NICUs).
*Aims:* The aim of this study was to explore Taiwanese mothers' ($n = 26$) parenting experiences when their preterm infants were in NICUs.
*Design:* A qualitative research approach, grounded theory, was used to explore the mothers' lived reality of these experiences.
*Methods:* In-depth interviews and participant observations were conducted to gain insight into the experience of parenting.
*Findings:* A theoretical model was formulated from the findings delineating Taiwanese mothers' parenting experiences during their preterm infants stay in hospital. The findings indicated that the preterm birth, together with the admission of their infants to a NICU, presented mothers with an unexpected crisis. The particular cultural postnatal ritual posed this group of Taiwanese mothers with an additional difficulty in establishing physical interactions. However, the Taiwanese mothers created alternative channels of contact with their hospitalised infants using emotional connections, while the physical interactions were certainly limited. Despite all the difficulties this group of Taiwanese mothers faced and resolved, they all gradually captured and embraced the parenting role. The finding of this study further indicated that the support the mothers received from the healthcare professionals and the social networks the mothers made helped to create the connections that developed between the mothers and infants, making their journey towards parenthood possible.
*Conclusion:* The theoretical model developed in this study is the first of its kind to contribute to the field of neonatal nursing in Taiwan. This would help Taiwanese women come to terms with becoming mothers of VLBW infants and subsequently enhance their parenting role.


*Keywords:* Grounded theory; Parenting; Preterm infant; Very-low-birth-weight infant; Zuo You Zi

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**What is already known about the topic?**

- The birth of a preterm infant is an acute emotional crisis and creates a stressful situation for parents.
- Prolonged hospital care intrudes upon maternal interactions, and mother–infant bonding.
- Contact with and caring for the infant facilitates mother–infant attachment.

**What this paper adds**

- This research further validates and adds to the developing body of knowledge concerning mothers' parenting experiences in hospital with their VLBW infants in the Taiwanese culture.
- The particular postnatal ritual (Zuo Yue Zi) posed this group of Taiwanese mothers with an additional difficulty in establishing frequency of physical interactions.
- Taiwanese mothers created an alternative channel of contact with their hospitalised, premature infants using emotional connections, while the physical contacts were limited.

## 1. Introduction

Every year about 7% of all babies in Taiwan are born preterm and/or have a low-birth-weight (Teng, 2001) many of which have positive outcomes (Hsieh et al., 2007) due to advances in neonatal care resulting in an increased survival rate. These positive outcomes result in many more premature newborns remaining in hospital for longer periods than previously (Holditch-Davis, 2007). As the number of neonatal intensive care unit (NICU) admissions increase, the parents exposed to prolonged hospitalisation associated with this experience also increases.

Prolonged hospital care intrudes on maternal interactions and mother–infant bonding, especially so in NICUs where mothers and their infants are often separated for long periods of time. Mothers' experiences are completely different from that anticipated when they discovered they were pregnant and began planning for the eventual arrival (Holditch-Davis and Miles, 2000; Jackson et al., 2003; Lupton and Fenwick, 2001). Although larger numbers of mothers are going through this experience, it remains potentially traumatic because of the sudden onset.

Rubin (1967, 1975, 1977) described the maternal role as a complex cognitive and social process which is learned, reciprocal, and interactive. Building on the work of Rubin, Mercer studied mothers of all age groups and experiences and created the practice-oriented theory of maternal role attainment (Mercer, 1981, 1985, 1986). It proposes that the mother–infant attachment process evolves through the mother's increasing awareness of creating a new life during pregnancy to post birth when she begins to recognise the infant's unique characteristics and capabilities. Contact with and caring for the infant facilitates mother–infant attachment, as does the infant's increasing responsiveness to caregiving. However, when infants are born preterm and are hospitalised, the customary mothering role is difficult to realise because the care provided to the newborns is temporarily the responsibility of professional caregivers.

Giving birth is recognised not only as a difficult emotional and physical experience, but also as a developmental or life transition (Mercer, 2004). The transition to motherhood, as a normal developmental crisis, poses significant adjustment problems for most women and is of particular concern to healthcare providers (Bruschweiler Stern, 1998; Cowan and Cowan, 1995; Lee, 1997). Not only is the health and well being of individual mothers at risk during this period, but the well being of their infants and the stability of their families are also threatened (Nelson, 2003). When a preterm birth occurs, the added stress complicates mastery of this developmental crisis, which is further complicated when the infant is admitted to NICU.

Women in Taiwan, moreover, are traditionally required to rest for 1 month after childbirth (called Zuo Yue Zi). The rationale behind the practice of Zuo Yue Zi is the dual cosmic principal of Yin and Yang in Chinese medicine. Findings demonstrate that most Chinese women follow the custom of Zuo Yue Zi and believe that it can improve their health, not only immediately following the birth but also in later life (Cheung, 1997, Holroyd et al., 1997, Wong, 1993). Currently, Taiwanese women follow the indigenous beliefs and practices inherent in 'Zuo Yue Zi' for 1 month following the birth of their infant (Wong, 1993, 1994). During this postnatal period a protective ritual is conducted, which signifies the vulnerability of new mothers and ensures social seclusion and mandated rest, with relatives carrying out necessary tasks (Hung and Chung, 2001). Mothers are not supposed to go out, even to visit their premature infants in hospital. This means that mothers might not be able to visit their preterm infants in hospital or they might visit seldom. Consequently, during this period, it is more difficult for mothers to carry out their new role when their infants are in the hospital.

There is little literature about neonatal nursing care of preterm infants in Taiwan and no theory exists in Taiwan to help nurses understand mothers' subjective parenting experiences while their infants are in NICUs. There is no previous evidence about mothers' lived experiences that they could use to help design and guide nursing interventions. In Taiwan many nursing interventions to promote parenting are based on research carried out in the Western world based on medical perspectives, which ignore Chinese cultural factors. The importance of research evidence from different countries is underlined by the nature of nursing as a cultural activity: lived experiences differ from country to country. Taiwanese mothers' parenting experiences involving the Chinese custom of Zuo Yue Zi have not yet been addressed adequately. Two important questions need to be asked. First, how do Taiwanese mothers experience the birth of premature infants when practicing Zuo Yue Zi during the

postnatal period? Second, how do neonatal nurses attempt to meet their needs? If healthcare professionals are to address these issues that impact on the life of women, the construction of knowledge from their standpoint is important. The purpose of this study was to examine Taiwanese mothers' perceptions of their parenting experiences during the time of their very-low-birth-weight (VLBW) preterm infant's hospitalisation.

## 2. Methodology

The work of Strauss and Corbin (1990) provided the methodological underpinning that gave structure to this research. Although grounded theory was introduced by Glaser and Strauss in 1967 and Strauss and Corbin (1990) suggested a new way of coding data using a coding paradigm involving phenomena, causal conditions, context, intervening conditions, action/interaction strategies and consequences. It was selected for three main reasons. Firstly, the aim of this study was to explore mothers' parenting experience and the developing relationship between them and their infants, therefore, it is postulated that the approach rooted in the applied methodological area of symbolic interactionism was appropriate for the study. Secondly, it supports the researcher who is attempting to generate theory where a dearth exists. Thirdly, it involves a step-by-step process that can be helpful when the process of data generation and management is complex.

### 2.1. Setting

This study was carried out in a major neonatal care centre in Taiwan. This centre is divided into two: the NICU and the sick baby room (SBR). Premature infants are admitted into the NICU for the beginning of their period of hospitalisation because of their life threatening conditions, requiring more medical intensive care. The infants are transferred to the SBR when their condition is stabilised: they do not require any respiratory support, have no signs of infection, and are consistently gaining weight having reached 1500 g. Both areas are isolation wards and access is limited. There are only two visiting times daily for the family in both areas, in the morning, and in the evening, each visit lasting only 30 min. The basic principles and polices within both areas are the same, therefore, NICU was the term used in this study for both areas in the neonatal care centre.

### 2.2. Field trial

In this study, the data collection involved observation and interviewing the respondents, thus a field trial was undertaken of the interview and observation process simulating the main study. Two mothers with hospitalised VLBW preterm infants were interviewed. The aim was to modify and refine the interview guide before the main study. Moreover, four observations were conducted in the same hospital as the main study to provide opportunities for practice observation in a similar situation. The knowledge and experiences gained in the field were useful as preparatory work.

### 2.3. Participants and sampling

The initial sample for possible interview was composed of mothers of infants whose birth weight was less than 1500 g, who are Taiwanese (born in Taiwan), and who agreed to participate. The exclusion criteria were: single mothers, teenage mothers (aged less than 20), foreign mothers, mothers not physically or mentally fit to be interviewed, multiple births, and infants with a life-limiting illness or with congenital abnormalities. These were excluded because there could be different considerations for those mothers and infants and, in this initial study of this area, it was considered wise to remove additional complexity from an already complex situation.

In all, 26 mothers were interviewed, with ages ranging from 22 to 36 years. Of these, 12 had Caesarean section operations and only nine were first-time mothers. Infants' birth weights ranged from 530 to 1490 g with a mean of 1187 g with gestational ages from 25 to 34 weeks with a mean of 28.35 weeks. The infants remained in hospital for periods of 32–120 days with a mean of 67.88 days and most had more than one major health problem.

### 2.4. Data collection

The techniques and strategies for gathering information consisted of one-to-one in-depth interviews and participant observation. All data collection was conducted by the first author. An interview guide developed from the field trial was used which contained broad questions; more specific questions and question prompts were developed based on concepts that emerged from analysis and appeared relevant to the generation of theory and the expansion of developing theory (Glaser, 1978; Strauss and Corbin, 1990). Interviews were prearranged, and took place in a quiet room in the hospital before their infants discharge from NICU. A total of 26 interviews were conducted lasting from 35 min to 1 h. All interviews were audiotaped. Notes were made during and immediately after the interview concerning actions and body language of the mother during the interview.

Participant observations were carried out in NICU once a week during visiting times. The aims were to examine the events and interactions between mothers and infants in the hospital setting and to serve as a different type of data. As the concepts that emerged from both sets of data were analysed, more interviews and observations were identified as necessary to verify emerging concepts and to reach theoretical saturation. This combination of research strategies was used to build a wider picture and deepen understanding of the phenomena under scrutiny and also served as part of the validation process.

### 2.5. Data coding and analysis

The constant comparative method (Strauss and Corbin, 1990) was used to generate a systematic, grounded, substantive theory of the mothers' lived experiences. Data collected from interviews and observations were simultaneously analysed and continuously compared with categories that emerged from previous data. The first author performed the data transcriptions and the coding but the other members of the research term also read the interviews. Open, axial, and selective coding were used and the coding paradigm model (Strauss and Corbin, 1990) acted as a guide to link categories and concepts during data analysis. During the whole process, memos and maps describing links between categories was also made.

### 2.6. Ethical considerations

The research was approved by the Medical Research Ethical Committee of the hospital where the research was undertaken. The mothers participated in the study voluntarily and knew that they could interrupt their participation whenever they wanted, and that their identities would not be revealed at any stage. When potential participants were identified, the first author telephoned them and arranged to visit them in the hospital at family visiting time. During the conversation mothers were provided with a clear verbal explanation of the study by the researcher, given a consent form and allowed time to decide if they were willing to take part. Written information was provided to each potential participant, outlining the study, its aims, methods, expectations of participants, and their rights to full information, freedom from coercion, confidentiality of data, and anonymity within the final report. This information made it clear that they had an absolute right to decline to participate or to withdraw at any time.

## 3. Findings

A theoretical model delineating Taiwanese women's journey of becoming a mother to a VLBW preterm infant during the time of their infants' hospitalisation surfaced from the data. In this paper, the paradigm model comprising: (1) causal conditions, (2) context, (3) intervening conditions, (4) action/interaction strategies and (5) consequences (Strauss and Corbin, 1990) is used as a theoretical map to guide presentation of the findings.

### 3.1. A new lived reality (the causal conditions)

The category of 'a new lived reality' emerged as the causal condition which depicted the Taiwanese mothers' experiences of having premature infants. Two sub-categories, the initial crisis and reconstructing the reality, were generated from the data. The birth and subsequent admission of VLBW preterm infants for specialised neonatal care precipitated a crisis for the mothers. All of them said that their first few days of motherhood were highly traumatic and distressing and in stark contrast to the rosy images of joyous early motherhood that pervade popular culture. According to one mother's words, the world suddenly turned '*up-side-down*' [M5]. All the mothers in the study felt unprepared for their infants' admission to the NICU. They described how frightened and shocked they felt. A mother portrayed these experiences:

In the beginning, I felt that it wasn't really happening... I'd been picturing my baby in my head since I found out I was pregnant...wondering is it a boy or a girl, who will he or she look like...I never thought I would have a tiny baby who was nothing like the baby I normally saw and envisaged for me... [M5]

Across time, and according to their infants' progress, the mothers then began to move forward towards the recognition and acceptance of reality. The findings revealed that the initial crisis phase shifted and became integrated into the next phase termed 'reconstructing the reality'. They had to come to terms with, and accept, the discrepancy between their perceived expectations of what it would be like to be mothers of healthy infants and the reality that their infants were VLBW preterm, infants. Hence, they integrated all their fears and doubts and sadness and moved forward towards an acceptance that the premature infants were their babies and their babies needed their mothers. The following narratives are provided:

Reality was slowly dawning on me...I knew I couldn't escape forever... Got to face it eventually...I think I finally realised how much she has been through and I should have been there for her... [M1]

When I had a preterm child... I changed...it changed everything that I used to think was important...I used to think my baby should be beautiful...with big eyes, but now I only want my baby to grow healthily... [M12]

The movement from 'the initial crisis' to 'reconstructing reality' was not a linear process. The findings revealed that all the mothers in the study moved through their journey toward motherhood at different rates and at different times during the 'causal conditions' phase of reaching a new reality of mothering in the NICU. However, the parenting of preterm infants in the NICU was not a simple task; there were still many challenges and difficulties that lay in the path of the mothers' journey.

### 3.2. Barriers to parenting (the context)

Findings demonstrated that all of the mothers experienced degrees of difficulty in establishing meaningful, positive parent–infant relationships during their infants' hospitalisation. The major category that emerged from the

data as the context was named 'barriers to parenting', representing the challenges the mothers faced in performing their maternal role when their premature, VLBW infants were in a NICU. Four sets of factors identified as barriers were generated from the data indicating their influence on the parenting experience.

### 3.2.1. Environmental conditions

Environmental stimuli arising from the physical and psychosocial environment of the NICU have been identified with several aspects impacting on the mothers' parenting experience. Findings showed that the initial sight of the life-support equipment was shocking. The technological environment created a fearful atmosphere, and the medical equipment attached to their infants caused the mothers further physical separation. The mothers indicated that they were so afraid of the equipment that it took them a long time to be able to participate in their infants' care. In turn, this hampered them from establishing positive mother–infant interactions:

When I walked into this big room with all the incubators and all the other critically-ill little babies, I couldn't focus on just mine. There were so many machines sending out loud beeps. As I walked closer to the corner where they kept my baby, I nearly collapsed. He had so many lines and tubes attached to his tiny body. . .it was terrible. . .I just wanted to run away. . . [M2]

These Taiwanese mothers perceived that the information deficits from nurses were intrinsically related to the barriers associated with the NICU environment. The mothers indicated that they were dependent on the nurses to keep them informed about what they could and could not do with their infants. A narrative exemplar highlighted this:

No one told me what I could do for my baby, you know. . .they [the nurses] should at least have told me what to do and given me some instructions. . . [M2]

A further barrier that separated the mothers and infants was restricted visiting. According to the hospital's policy, the parents could only see their infants for 30 min twice a day, and any extra access time required further permission, even if the mothers were still in the maternity ward. Many mothers would have liked to visit their infants more often and others said that they sometimes found it difficult to get to the hospital at the fixed times.

### 3.2.2. Maternal factors

Mothers described some obstacles that related to themselves and further hindered the development of their relationship with their infants. For the mothers who had no prior experience of parenting premature infants, one of the greatest challenges was a gap in knowledge. This deficit arose as one of the maternal barriers to parenting preterm infants in the NICU because most of the mothers just did not know what to do and/or how to mother their tiny, ill infants in such circumstances. These findings are illustrated below:

I didn't know what to do; I was just standing there and staring at her [her infant]. . .I had no idea what to do at all. . . [M1]

Poor maternal health delayed some of the mothers' first contact with their infants for many hours, or even several days after the birth, especially after a high-risk pregnancy and/or a caesarean section. The following narrative depicts these findings:

I didn't get to see her before she was transferred to the NICU. She was rushed to the NICU by the team and I was still under anaesthesia. I was alone in the recovery room when I woke up. . . [M7]

The mothers also felt they were in a no-win situation because, on the one hand, they could not give enough time to their preterm infants and, on the other hand, they could not devote enough time to their other children. The conflicting roles and responsibilities resulted in the mothers finding it difficult to visit or spend enough time with their hospitalised infants.

### 3.2.3. The infant

The evidence demonstrated that these mothers of VLBW infants did not conform to the expectations associated with mothers of full-term, healthy infants. As soon as the mothers were able to see their infants, many identified their physical appearance and behaviours as stressful to observe and they were concerned in case their initial reactions would influence later mother–infant interactions. Most of the mothers said they were startled by their infants' size and form, and they were hesitant to touch them:

When I saw my daughter the first time, she was in an incubator. . . covered with monitors and lines; and had a tube in her mouth. She moved her hands and legs a little bit. I didn't know what to do; I was just standing there transfixed. . . [M1]

The infants' behaviours also emerged as barriers to parenting preventing the mothers from interacting with their infants. Some of the mothers expressed that they did not understand their infants' behaviours and therefore did not how to interact with them. Even when physical interactions were allowed, some mothers hesitated to care for such fragile infants because they were frightened of causing them more harm:

I did not hold my baby until his condition was very stable. . .When I did hold him he wasn't on a ventilator and most of his lines were removed. . .I felt it was safe to hold him then. . .I was concerned I might damage his brain if I touched him before this. . . [M18]

*3.2.4. Cultural barriers*

The Chinese postpartum custom of Zuo Yue Zi unsurprisingly rose as a barrier to parenting. All the mothers declared that they followed this cultural practice with most visiting their infants only once or twice a week during the first month postnatal:

I visited my baby only once a week during the period of Zuo Yue Zi... I lived with my parents during that month. I wanted to go to hospital more often ...but they thought I should have a proper rest and get my strength back...Espe-Especially, as I had a caesarean operation. [M5]

Only seven of the mothers in the present study employed kangaroo care (skin-to-skin contact), and four began in the early weeks of the cultural practice of Zuo Yue Zi when their infants' conditions permitted. However, those mothers felt that they were actually risking their own health by not following the cultural practice to the full. One mother provides an example:

I know that coming every day for the kangaroo care for my baby would be bad for my health. I will probably suffer from back pain or other problems, because I didn't practice my Zuo Yue Zi fully, but, I feel that's fine...I'd rather be with my baby and hold her in my arms...[M7]

The health beliefs of Taiwanese women are still steeped in Chinese philosophy and Chinese medicine as well as the principle of Yin and Yang. Consequently, all the mothers followed this cultural ritual postnatally, even though it prevented them visiting their infants in hospital for the first month of their life. While the mothers were constrained by this practice, the fathers visited their infants regularly during this time period.

*3.3. Support systems (intervening conditions)*

The category of 'support systems' emerged as an intervening condition which enabled these mothers to manage the difficulties and challenges they encountered within the context of becoming mothers of premature infants in the NICU. Four major sources of support were generated from the data: health professionals; family members; other parents in the NICU; religious or spiritual beliefs.

*3.3.1. Support from health professionals*

Overall, the evidence demonstrated that nurses and doctors provided a great deal of support. Specifically, the medical staff provided information on the infants' conditions and treatment while nurses provided explanations to the mothers and offered emotional support. The social worker functioned as an additional source of informational support usually related to finances and fees. The mothers indicated that among all of the healthcare professionals, the nurses held the vital role of supporter in helping and coaching mothers to provide care for their infants. One mother's narrative highlights these findings:

They [the nurses] are friendly and they talked me through holding my baby for the first time. This meant a lot to me, so I didn't panic...I was so worried that I might hurt my baby...they [the nurses] calmed me down...it made the whole thing much easier...[M20]

The mothers demonstrated that the support they received from healthcare professionals was essential as it allowed them to make the transition to mothering and performing the parenting role in the NICU.

*3.3.2. Support from family members*

All the mothers identified their husbands as their most important support particularly during the cultural ritual practices that the women followed after giving birth.

During the first month, the time I was in the doing 'the month period', my husband visited our baby after work everyday...then he reported everything to me...he knew I was worried...so sometimes he phoned me immediately he walked out of the NICU... [M18]

Most mothers in the study also cited their mothers and mothers-in-law as valuable sources of support during this period of time. One mother [M21] said:

My mother helped me with everything...my parents-in-law were also great...they visited the baby at hospital regularly, and always asked me not to worry...

The evidence showed that the grandparents had a great input in providing support for the Taiwanese mothers whose infants were hospitalised.

*3.3.3. Support from other parents in the NICU*

All the mothers communicated that they received strong social support from the other mothers of infants in the NICU. The mothers were supported by other parents as follows: they helped them to experience a sense of unity; they listened to one another and shared the same struggles, fears and anxieties; and they felt that other parents could 'fully' understand what they were going through. One mother made a clear statement about her views:

Most people cannot understand our experience, only those who have watched their child in the NICU can understand what it's like... they are the people who would understand fully... [M19]

The findings indicate that this type of support is unique. The mothers share the same language, view point, and day-to-day experiences, which they found invaluable.

*3.3.4. Support from religious or spiritual beliefs*

Findings illustrated that the mothers gained support from their religion or spiritual beliefs saying that this provided

'comfort' and instilled 'hope' during this difficult time. The mothers described how they sought and received spiritual help from both these sources with some of the mothers reporting that they placed great faith in their God or used prayer. Many placed trust in their beliefs.

I had put my faith in God... I'm praying to God so often and it really helps me go through this time... [M13].

I prayed and asked our ancestors to bless and protect my son. I believe they watch over their descendants...I really believe... [M21]

### 3.4. Creating connections (action/interactional strategies)

In this study, the action/interaction strategies identified were represented in the key category, 'creating connections', which illustrates the behaviours that this group of Taiwanese mothers used to carry out their parental role and establish relationships with their premature, hospitalised infants under challenging circumstances. Within the category 'creating connections' two strategies were generated: creating emotional connections and establishing physical interactions. These strategies enabled mother–infant emotional relationships to be established and developed even when the mothers could not be present. This group of mothers faced considerable challenges combined with numerous barriers, which they had to resolve during the parenting process of their premature infants in the NICU. Apart from the general barriers to parenting in any NICU setting, the particular cultural postnatal ritual posed this group of Taiwanese mothers with an additional difficulty in establishing frequency of physical interactions during the first month of their infants' lives. However, the findings revealed that this did not mean that the Taiwanese mothers were disconnected from their infants for a month. Indeed, the findings showed that the Taiwanese mothers created alternative channels of contact with their hospitalised, premature infants using emotional connections, while the physical interactions were certainly limited.

#### 3.4.1. Establishing physical interactions

Findings showed that this group of mothers had to postpone the initial period of interactions with their hospitalised infants due to their low birth weight and medical conditions as well as the mothers' lack of confidence in their own abilities. However, as their infants' conditions stabilised, this group of mothers began to search for ways to establish physical contact with their infants. Through maternal descriptions and observations, data revealed that creating physical connections was a step-by-step, gradual process. Initially, the mothers were hesitant to touch their infants even when the nurses encouraged them to do so.

Initially, I didn't touch my baby very often... I was too afraid that I might hurt her...you know...she was so tiny, not even 900 grams...so, I touched her carefully, and not very often at the beginning... [M4]

However, as the infants' conditions stabilised, and with the presence, support, and guidance of nurses; the mothers became more confident in touching and later holding their children.

I felt much more comfortable to touch him when his condition got better...it made it much easier to interact with him, you know...the feeling of being afraid of hurting him eased...and I knew he was fine and there were always nurses around ...so...it was much easier... [M14]

Thus, they slowly established physical contact with their infants and finally were able to participate in caregiving activities. In addition, the mothers perceived that physical interactions were important strategies, which helped them to establish mother–infant relationships and carry out a meaningful parental role.

It helped me to feel closer to my baby when earlier I dreamed that this would not be possible [M12].

However, physical interactions were limited either because of the postnatal cultural rite or distant geographical location.

#### 3.4.2. Creating emotional connections

The findings pointed out that those mothers described two strategies to create emotional connections with their infants: creating a sense of knowing and creating a sense of doing. This was particularly important during the period of Zuo Yue Zi when physical interactions with their infants were limited. Creating a sense of knowing their infants and understanding their problems emerged as important ways for the mothers to maintain and sustain their maternal role. One mother said '*being a mother is* "*knowing your child*"' (M13). Creating a sense of knowing meant that the mothers had to learn as much as they could about their infants' medical conditions, the monitoring equipment, and the treatments and therapies their infants were being given. It also included knowing the unique characteristics of their infants, which helped the mothers to perceive their infants as complete and unique individuals. Two mothers indicated that that they had searched for books on premature infants. All the mothers expressed clearly their desire to gain a deeper understanding about the phenomenon of prematurity and its affects on their infants. Creating a sense of knowing helped the mothers feel 'closer' emotionally to their premature hospitalised infants.

In addition the mothers described their strong need to feel they were able to do something for their infants, especially when they were unable to visit them frequently in the hospital. The mothers felt that creating a sense of doing for their infants during these critical times further helped to make emotional connections with them. All 26 of the Taiwanese mothers' sense of doing were created by

providing their breast milk for their premature infants and bringing in some personal belongings to the NICU for the infants. For example, several of them made audiotapes at home for their infants and asked the NICU nurses to play them for them. In addition, most sent in some personal belongings for their infants such as toys, clothes, mittens and pacifiers. The mothers said that this made them feel useful as they knew they were contributing to their infants' recovery. The evidence revealed that these actions meant a lot to the mothers, especially when the nurses used these personal items for the infants. It later emerged from the data that many of the mothers said that these actions helped them to feel connected emotionally with their infants:

I made tapes when I missed him. . .I wanted him to get to know my voice and me. I talked to him on the audio-tape. . .It made me feel that I was with him. . .I also sent some music for him. . .the nurses said that he was quiet when they played him the tapes. . .[M17]

The findings showed that the mothers used a variety of strategies to help them form connections with their infants when they could not visit them in hospital. As time passed and the infants' health status improved the mothers began to touch their infants, then nurse them and after that carry out most of the caregiving activities.

### 3.5. Loving relationships (consequences)

The consequences in the paradigm model are the results that happen from the action/interaction strategies taken. They may become part of the conditions that affect the next set of actions/interactions that occurs (Strauss and Corbin, 1990). To be more precise, the consequences in a study are not a static happening including merely the positive and negative elements, but rather can be situated on different positions of the consequences dimensional continuum.

Findings demonstrated that the consequences were differing levels of positive outcomes. The findings about context comprised the barriers to parenting which the mothers encountered, and the intervening conditions consisted of the support the mothers received, and all impinged on the consequences. These mothers were waiting eagerly to establish close relationships with their infants hence they participated in many action/interaction strategies to help them maintain emotional and physical connections with their infants. Thus, the consequences generated from the action/interaction strategies were generally positive, although for some of the mothers inadequate support held them back from reaching the positive consequences as quickly as others. The mothers embraced the maternal identity, and the mothers established a loving relationship with their infants:

Compared with before, now I'm feeling a lot more confident in taking care of my baby. . .I've been practicing. . .it's good, because I feel that I know all the little things to do that make me a mother. [M4]

She's in hospital nearly four months now, at first I didn't feel that she belonged to me. . . it was kind of not real. . .but, gradually we began to know each other. . . the feeling of "she's my daughter" is getting stronger and stronger. . . Now, I always felt the bond between us. . .even when I got home and she stayed. [M13]

The consequences relating to the mothers establishing a loving relationship with their infants emerged at different times for the mothers depending on the barriers to parenting which they encountered. Consequently, for some of them, the formation of the relationship bond was delayed. However, close mother–infant interactions were established for all of the mothers in this study by the time of interview. The loving relationship was evidenced by their positive maternal feelings towards the infants and becoming acquainted with their infants. Prior to their infants being discharged from hospital, all of the mothers expressed that they had developed a good understanding of their infants, and that this was important to them. These consequences emerged at different points on the dimensional continuum, for example, inadequate support resulted in a slowing-up of the parenting process. Overall, this group of Taiwanese mothers ultimately embraced their maternal identity and strengthened the mother–infant relationship. At the other end of the consequences continuum, the findings demonstrated that no purely negative consequences emerged from the data.

## 4. Discussion

Our findings illustrated a comprehensive conceptual model demonstrating how a group of Taiwanese mothers journeyed toward becoming mothers to their VLBW premature infants in a hospital setting. The findings from the current study support other research indicated that the preterm birth, together with the admission of their infants to a NICU, presented mothers with a novel situation as well as an unexpected crisis (Calam et al., 1999; Padden and Glenn, 1997). The birth of VLBW preterm infants poses considerable challenges for all mothers (Fenwick et al., 2001; Flacking et al., 2006, 2007). Furthermore, in Taiwan, women are traditionally required to practise the cultural ritual (Zuo Yue Zi) compounding these challenges (Chu, 1993; Wong, 1993; Hung and Chung, 2001).

Cultural values can be viewed as a desirable or preferred way of acting and knowing something that has been reinforced by social structure and, ultimately, governs one's decisions (Leininger, 1985). When cultural factors are not considered patients and/or their families might not comply with prescribed intervention regimes (Anderson, 1990; Sydnor-Greenberg and Dokken, 2000). For example, research has demonstrated that skin-to-skin, kangaroo care in NICUs encourages positive parenting (Anderson et al., 2004; Gale and VandenBerg, 1998). However, as indicated earlier, most of the mothers did not employ kangaroo care because of the

constraints imposed by Zuo Yue Zi and the potential risk to their own health. The particular cultural postnatal ritual posed this group of Taiwanese mothers with an additional difficulty in establishing frequency of physical interactions. However, the findings showed that the Taiwanese mothers created alternative channels of contact with their hospitalised, premature infants using emotional connections, while the physical interactions were certainly limited. As in previous research (Anderson et al., 2004; Brandon, 2003; Eichel, 2001), all of the Taiwanese mothers said that the physical interactions with their preterm infants were important to them, but they indicated that the emotional connections were also crucial and meaningful for them.

Our findings revealed that the mothers created emotional connections through creating a sense of knowing and a sense of doing and that these were essential for the Taiwanese mothers who had hospitalised, premature infants within the milieu of the NICU and the background of Zuo Yue Zi. The mothers communicated that they wanted to be informed on the special insights and knowledge possessed by the nurses about their infants. The mothers longed to parent their infants as reported in the literature (Lupton and Fenwick, 2001; Redshaw, 1997). Moreover, the importance of the mothers' ability to 'create a sense of doing' support Zabielski (1994) who demonstrated that the importance of being able to do something for their infants was strikingly apparent in the accounts of preterm mothers. This was especially so for the mothers who were not able to be with their infants performing the skin-to-skin care or breast-feeding physically. The mothers in this study expressed their breast milk and left personal belongings with their infants, making them feel they were helping their infants and displaying a sense of doing in such circumstances. Identifying additional ways of achieving this would facilitate mother–infant interactions and also promote a sense of parental competence in caring for their premature infants and promoting their optimal growth and development.

In the current study the mothers valued several sources of support that helped them to manage the difficulties and challenges they encountered. However, healthcare professionals have a particularly important role to play in supporting parents during their children's hospitalisation (Burns and McCollum, 2002; Fenwick et al., 2000; McGrath, 2001). These mothers perceived that their interactions with the nurses were key factors in their experiences in neonatal care, the nursing staff held an important position in helping mothers press forward in their parenting experiences. On the other hand, inadequate support from nursing staff and lack of communication acted as barriers to parenting. The importance mothers placed on the nurse–mother relationship confirms the triadic nature of the mother–infant–nurse interaction (Bialoskurski et al., 1999; Fenwick et al., 2000; McFadyen, 1998). The mothers in this study were waiting eagerly to establish close relationships with their infants and they participated in many strategies to ensure that they would maintain connections with them. Thus, the consequences that were generated from the strategies were positive, although, for some of the mothers, inadequate support held them back from reaching the positive consequences as quickly as other mothers did. This finding did not agree with some earlier findings carried out in the Western world which suggests that mothers of premature infants often feel alienated from their infants during their NICU stay (Eckerman and Oehler, 1996; Jackson et al., 2003), and lower levels of maternal engagement appear to persist after their infants have recovered and returned home (Minde, 2000). The mothers in this study also said that their first few days of motherhood were highly traumatic and distressing. However, our findings illustrated that mothers maintained connections with their hospitalised infants and they took actions to reclaim their parental role and initiate and develop close relationships with their infants. It is possible that the different cultural context that applied in Taiwan in which these mothers were carrying out a socially defined ritual eliminated the guilt and isolation reported in some earlier studies. In addition, these mothers worked at establishing connections with their infants, although this was not easy. It was also clear that the support they received during their infants' hospitalisation was a key factor in helping the mothers to adjust and move forward to becoming fully fledged mothers with close bonds with their VLBW premature infants.

Indigenous healing and caring practices cannot be removed from their social, structural and cultural contexts. All nursing environments have to deal with a changing world, even in their own native culture. Willis (1999) suggests effective nursing interventions that respect cultural preferences and motivations are more likely to promote desired health behaviour and positive health states. However, the process of moving from West to East or from East to West is a particularly dramatic leap. When involved in this situation, nurses need to retain an accurate picture of their own and their clients' traditional health beliefs. This will help to prevent the nursing care being undermined by misunderstandings about cultural values (Shih, 1996).

## 5. Limitations of the study

The data collected was drawn from only one hospital in this present study. In addition, the sample was restricted to those who did not have additional social, cultural or medical circumstances to consider. These groups need additional research building on the work presented here. The reality and truth of the conceptual model was established, as the process of theoretical sampling and constant comparative analysis continued until data saturation occurred.

## 6. Conclusions

The theoretical model developed in this study is the first of its kind to contribute to the field of neonatal nursing in

Taiwan. This present study extends our understanding of Taiwanese mothers' experiences of parenting their VLBW preterm infants in the hospital setting. The findings from this study provide insight into and raise awareness of Taiwanese mothers' perceptions of their experiences during the maternal transition. The conceptual model could significantly enhance the quality of care delivered by minimising the barriers, enriching the support systems available to help in making connections with their infant, and finally come to terms with being mothers and advance in the parenting role. Finally, it seems obvious to suggest that there is an urgent need for healthcare professionals to be sensitive to and acquainted with the philosophy and religion that guides clients' moral and ethical beliefs and values as well as their health and illness behaviours. Holistic care occurs when culture is recognised not as a barrier to health care, but as a bridge (Locsin, 2000). By striving to understand people's traditional values, healthcare professionals might better appreciate their clients' perceptions of self, health and illness. The outcomes of such comprehension could facilitate professionals to design and implement more eclectic, meaningful, holistic and individualised care pathways.

## Conflict of interest statement

This work is from a self-founded doctoral study. No existed or potential conflict of interest has been identified.

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## Ethical approval

The ethical considerations of this study were approved by China Medical University Hospital.

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