

Maternal Role Readiness and Maternal-Infant Bonding among Postpartum Women—In Selected Provincial Hospitals in Fujian Province, China

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Abstract: *Becoming a mother is a momentous occasion in a woman's life, representing a new chapter filled with joy and responsibilities. The process of pregnancy and childbirth is not just a physical experience but also a psychological and emotional journey that demands preparation and readiness. Maternal role readiness is a crucial concept that highlights a woman's emotional and psychological preparedness to take on the challenges and joys of motherhood. This readiness encompasses her confidence, skills, and capacity to meet her child's physical and emotional needs. Age, education, social support, and prior parenting experiences can influence a woman's readiness to become a mother. For first-time mothers, transitioning into their maternal role involves a process of role-function adaptation characterized by developing a strong bond with their infants. Maternal-infant bonding is a fundamental aspect of motherhood, establishing a strong emotional connection between mother and child. This bond typically begins during pregnancy and blossoms after childbirth, nurturing a supportive and caring relationship. The mother's belief in her ability to care for her baby and her positive emotions towards motherhood play vital roles in fostering maternal-infant bonding. Research has demonstrated that maternal-infant solid bonding contributes to positive outcomes for both mother and child, enhancing their overall well-being.*

Keywords: *Maternal Role Readiness, Maternal-infant bonding, Mother, Postpartum*

The study will be a valuable tool for nursing students taking courses in maternal-child health and postpartum care to learn about the factors that affect newborn bonding and how to evaluate and encourage bonding among postpartum moms. The study's findings will be instrumental in creating case studies and situations that nursing students may utilize to learn about postpartum care and preparation for the maternal role. These instructional tools will help nursing students comprehend the significance of breastfeeding and how to improve postpartum women's capacity for motherhood.

A further benefit of the study is that it will give nursing students the knowledge and abilities to create programs supporting maternal role preparedness and bonding based on solid research. The study will broadly impact nursing education since it will encourage better postpartum care procedures and raise the standard of services for maternal-child health care.

1. Introduction

The opportunity to become a mother is something that a woman can ask for. It is considered one of the most critical roles in life. Knowing that a woman's body is capable of bearing a child and at the same time can perceive the maternal role of a future mother is so significant in accepting the responsibility to become a parent (Shrooti et al., 2016).[1] Pregnancy and the concept of childbearing among women have been identified as a public health problem around the world, especially those who face health and social disadvantages, including maternal complications during and after pregnancy (Dordunu et al., 2021).[2] This allows an individual to become prepared for the role she is about to play. The ability to accept that a future mother is about to bear a child and is expected to take care of it is what society expects from all women worldwide. They must undergo role function adaptation to their expected maternal role, and it is also predicted that first-time mothers are capable of developing a good relationship with their infants. They called this maternal role readiness (Naphapunsakul et al., 2020).[3] Maternal readiness refers to a woman's psychological and emotional preparation for the obligations and difficulties of motherhood. It includes her expertise, self-confidence, and ability to meet her child's physical and mental developmental needs. Many factors, including a woman's age, education, social support, and previous parenting experience, can influence her readiness to become a mother (Yang et al. et al., 2020).

Aside from maternal role readiness, expected mothers are projected to experience mother-infant bonding once the child is out of the womb. Maternal-infant bonding is considered a concept that labels the affective ties (emotional and social) between the mother and her child. Usually, this bonding starts during pregnancy while the baby resides in the womb of the expectant mother and will continue to grow even after the child's birth (Bieleininik et al., 2021).[4] Maternal-infant bonding is considered the most prioritized field in maternal and child health. The mother's belief in her capacity to care for her baby after birth can relate to many positive outcomes between mother and child. Some studies discuss the mother's well-behaved emotions and preparedness in her role as a mother to promote maternal-infant bonding (Liu et al., 2022). This mother-infant bonding and preparation for motherhood roles are essential in postpartum care in China.

In Chinese culture, postpartum practices focus on documentation, which is a systematic custom known as "doing the month" (zuoyuezi) or, in other countries, "confinement." During this confinement period, which is one (1) month long, Chinese postpartum mothers are all expected to strictly adhere to the restrictions of proper hygiene, healthy diet, housework, and social activities. They believe these traditions may impact the biological, psychological, and socio-environmental changes during postpartum, together with how the mother plays their role as a parent and their bonding with their child after birth (Guo et al., 2021). This kind of postpartum custom is being given to postpartum Chinese women to fully support them socially through traditional cultural practices that will protect them from any postpartum depression and for the protection of their babies as well (Ding et al., 2020).

In China, even though the Chinese Ministry of Health, together with the 11 other relevant ministries, called to action by releasing the document entitled "Guidance for the transformation and development of nursing services" in 2018, there are still expectant mothers and even postpartum women who did not accept the offer of the government or even follow the postpartum care being given to them. The stipulation of the Chinese government to provide services for postpartum women, including home visitations, has failed to meet the needs of postpartum women (Xiao et al., 2020).

Different studies revealed that women usually experience several bonding disorders right after childbirth, particularly among those with mental health disorders. This may affect the strength of the maternal-infant bonding (Hailemeskel, 2022).[6] On the other hand, the modernization of China influences women's perception and attitude toward "Doing the Month." Some Chinese women still follow the 100-year-old traditional culture, while others believe that it has been outdated and that it is okay to stop doing it. This might cause problems in accepting the role of being a parent and may raise uncertainties in bonding with the newborn child (Zheng et al., 2019).

A common problem in this setting is that new mothers experience difficulties bonding with their infants and preparing to accept motherhood responsibilities (Wuer et al., 2018). For example, a first-time mother in a Chinese provincial hospital may need access to adequate information or help on how to care for her infant. Currently, when Chinese pregnant women are facing childbirth, pregnant women prioritize the experiences of those around them and the Internet. Still, these experiences can only partially be applied as professional experiences. This may make her feel overstressed and unsure how to deal with a particular situation (Hu, Shasha, 2018). As a result, she may feel anxious and frustrated, making it more challenging to develop a strong parent-child relationship with her child (Chen, 2022).

Maternal preparedness and maternal-infant bonding are closely associated (Liu et al., 2018).[8] These elements within Chinese society and culture take on unique characteristics given the particular practices and traditions that govern parenting and child-rearing. For example, the tradition of "Zuo Yue Zi," or the confinement period after birth, is a crucial phase that can significantly impact maternal-infant bonding and the mother's preparation for her new role. The Shanghai Maternal and Child Health Hospital in China offers programs to support new mothers and strengthen the mother-child relationship. Programs include prenatal classes, postnatal support, breastfeeding guidance, and mental health support for postpartum depression or anxiety. Beijing Maternity Hospital will pass on some knowledge about childbirth through daily check-ins, chats, and exchanges between nursing staff and caregivers. These behaviors increase the mother's confidence and readiness, promoting a robust mother-infant relationship. Hospitals such as the Beijing Maternity Hospital and the Shanghai Maternal and Child Health Center are known for their comprehensive maternal health programs. Like mothers worldwide, Chinese mothers strive to build strong parent-child relationships with their newborns.

However, the nature and quality of this parent-child relationship can vary greatly, influenced by factors such as family support, social expectations, and the mother's preparation (Wang et al., 2018). Chinese physicians must demonstrate critical skills when dealing with new mothers. These skills include a thorough knowledge of obstetrics and gynecology, practical communication skills, empathy, patience,

teamwork, problem-solving skills, skilled procedures, and an understanding of breastfeeding. Their ability to provide emotional support and patient-centered care helps promote mothers' psychological and emotional readiness, promoting a better mother-infant relationship. Maternal preparedness can promote maternal-infant bonding by making the mother feel more assured and equipped to meet her child's physical, emotional, and developmental requirements. A mother is more likely to participate in positive caregiving behaviors and respond sensitively to her baby's signs when she is psychologically and emotionally prepared for the demands of parenthood. This can promote the growth of a healthy maternal-infant attachment. Poor maternal preparedness can prevent mothers from connecting with their babies because it makes the mother feel insecure about her ability to care for her child. This may make it challenging to develop a deep emotional bond with the child and result in poor parenting techniques (Wang et al., 2018).

This made the researcher choose this topic since, in modern China, some postpartum women are not informed of the parenthood they are about to embrace. They accepted the idea that they would become a mother because they were about to give birth to a child, not knowing the big responsibility of being a mother and the role they needed to play. At the same time, since they do not fully grasp this maternal role, they have a few ideas that being a mother will expect them to provide a bond with their infant. According to Zheng, Watts, and Morell (2019), there are many Chinese first-time mothers who suffers from many parenting problems and needs postnatal care since they are overwhelmed by the new mother's role competence and the lack of idea about how to bond with their infant. In addition, a lot of postpartum women expressed their need to recover physically and be ready mentally and emotionally to face the reality of being a parent and accept wholeheartedly the role they need to play. Many studies have been conducted in China focusing on postpartum care. Still, few concentrated on knowing the perception of postpartum women in maternal-role preparedness that they should have and its relationship to the mother-infant bonding that they are about to experience after childbirth. There are few to no studies in China that focus on determining the relationship between maternal role readiness and mother-infant bonding. This will somehow clarify and provide the answer to the lack of support for postpartum women when it comes to parenthood.[7]

2. Review of related literature

This chapter provides an overview of previous literature on maternal role readiness. The chapter evaluates the sources providing insight into maternal role readiness. Notably, this chapter includes information from the research and ensures a remarkable consideration of maternal role readiness. Current research handles extensive elements of maternal role readiness, providing insight into the best therapies to enhance the management of challenges coming with maternal role readiness. The literature review also identifies gaps for further research, creating the proper chance and approach to encourage further research securely.

2.1 Maternal Role Readiness

Maternal role readiness is an important concept that has been the focus of a significant amount of research and literature on maternal health and parenting. This concept refers to a woman's psychological and emotional preparedness to take on the responsibilities of motherhood. It encompasses a range of factors, including a woman's knowledge about childbirth and child-rearing, emotional stability, social support, and readiness to make lifestyle changes.

Maternal role readiness is a woman's psychological and emotional readiness to take on the role of mother. It encompasses her parental confidence, knowledge, beliefs, and feelings about motherhood (Mercer, 2004).[9] Research on maternal role readiness has been undertaken. For example, Mercer and Walker (2006) conducted a study among first-time moms to investigate the idea of maternal role attainment, which is connected to maternal role preparedness. According to the study's findings, maternal role achievement is related to the mother's contentment with the transition to parenthood and the quality of the mother-infant bond.[10] Quelopana and colleagues (2017) investigated the association between maternal role readiness and postpartum women's mental health in another study. Higher levels of maternal role preparedness were connected with lower levels of anxiety and sadness among postpartum women, according to the survey.[11]

Tang and Zhao (2019) highlight that maternal role readiness has been a beacon of interest to scholars in both Western and Chinese literature. In the West, this topic revolves around how mothers adapt to their caregiver roles by acquiring essential competencies for nurturing infants. On the other hand, eastern

schools of thought center on preparing women to become befitting mothers, emphasizing family values such as piety towards eldership and filial loyalty.

Within the literature of Western origin, Kim et al. (2015) write that an individual's ability to adapt and learn about their maternal role is a process that typically takes place during what is known as the postpartum period. This transition involves different facets, such as obtaining knowledge about infant care practices and forging stronger bonds with one's offspring while also acclimating oneself in managing any shifts within familial dynamics or emotional states like anxiety and distress. Furthermore, studies have indicated that social support structures and self-efficacy contribute to maternal role readiness attainment.[12]

Within Chinese literature, there is frequent discussion regarding maternal preparedness, Confucian ethics, and reverence toward one's parents. To exemplify this notion, mothers are anticipated to prioritize their newborns' necessities and those of their families before their own needs. Kim and Lee (2018) discovered that elements encompassing maternal readiness may consist of complaisantly fulfilling cultural understandings surrounding motherly duties and acclimatizing oneself to evolving roles within familial dynamics while simultaneously managing professional obligations alongside homemaking responsibilities.[13]

In contemporary research on maternal role readiness, there has been a concentrated effort towards comprehending the manifold factors contributing to its attainment. These determinants include an emphasis placed upon social nourishment and self-efficacy of mothers themselves, their affiliation with their infants, and their traditional societal practices and values. According to Kuo et al. (2017), an instance may be taken from studies conducted within Chinese borders where it was concluded that ample support provided through friends and family positively correlated with greater preparedness for motherhood. In contrast, other experiments across reckonable Western states posited enhanced confidence regarding oneself following childbirth, bolstering one's maternal acumen.[14]

Per the statistical records of China's National Bureau, Oluwadare and Adeleke (2019) suggest that there were roughly 90.5 million individuals with maternal status within the last year alone; such a figure approximates about 6.5% of China's overall populace count for that same time frame. Note that this tally encompasses all females spanning reproductive ages, including those who have yet to give birth and even those non-gestating women.[15]

2.2 Factors that Affect Maternal Role Readiness

The notion of maternal readiness entails intricate and multifaceted components that are impacted by a plethora of factors. Among these critical factors, four key aspects have been noted as prospective elements influencing the mother's preparedness for her role: age, previous successful deliveries or parity status, educational accomplishments level attained, and type of delivery method utilized in prior childbirth instances.

Erbas and Karcioglu (2017) write that an individual's age significantly impacts their readiness for the maternal role. Mothers of lesser ages may have increased difficulty adjusting to motherhood as they may possess less life experience and fewer methods to cope with the new challenge. Conversely, those more advanced might encounter physical and emotional difficulties stemming from aging but boast more excellent expertise from years of living life (Gao et al., 2015). Scientific inquiry proves a positive correlation between an elevated maternal age and one's capability of meeting expectations associated with maternity duties -- this implies older mothers are better equipped to handle such responsibilities gracefully than younger ones would be able to manage.[16-17]

2.3 Tools that Measure Maternal Role Readiness

Several tools have been developed to measure maternal role readiness. These tools are designed to assess various aspects of a woman's readiness to take on the role of a mother, such as her knowledge, skills, and attitudes toward motherhood. These tools are essential in assessing a woman's preparedness to take on the role of a mother and identifying potential areas where support and intervention may be needed. By using these tools, healthcare providers can better support women's transition to motherhood and improve maternal and child health outcomes.

3. Research methodology

This chapter presents the research method, the study's subjects, the process of gathering data, the research instruments, and the statistical treatment of the data gathered.

3.1 Research Design

A descriptive-correlational research design was utilized in this study to determine the relationship between maternal role readiness and maternal-infant bonding among postpartum women in selected provincial hospitals and health centers in Fujian Province, China. Descriptive research design” helps define the attitudes, opinions or behaviors observed or measured that answer your research questions (Bhandari, 2023). The goal is to obtain data through questionnaires, quantify and formalize them, and explore the research questions using statistical methods to produce statistically significant results.

Consequently, descriptive-correlational design aims to describe the relationship among variables rather than to infer cause-and-effect relationships (Lappe, 2000).[18] It helps explain a phenomenon related to another situation where the researcher has no control over the independent variables. These variables are believed to cause or influence the dependent or outcome variable, which in this study is the perceived maternal role and the maternal-infant bonding. Furthermore, Quantitative researchers typically start with a hypothesis and then collect data to determine whether there is empirical evidence to support the hypothesis, thereby accepting or rejecting the hypothesis (Chang, 2022).

3.2 Research Locale

The survey will be conducted at the Fujian Provincial Hospital and the Fujian Maternal and Child Health Center in Fujian Province, China. These two study sites were chosen for a variety of reasons. Fujian Provincial Hospital is a sizable tertiary hospital in Fujian Province with a well-established obstetrics and gynecology department that is well-equipped to handle many deliveries (Lin et al.) The hospital also serves a wide range of populations, including urban and rural populations, resulting in a broader sample. Fuzhou, the capital of Fujian Province, is home to the Fujian Provincial Hospital. This hospital is an important referral center for patients from across the province, with a total of 4,000 beds, 500 of which are dedicated to obstetrics (Wang et al., 2020).[19] The Obstetrics and Gynecology Department of the hospital delivers 42 births per day or approximately 15,000 per year. The Fujian Maternal and Child Health Hospital is an essential medical institution in Fujian Province specializing in women's and children's health.

4. Presentation, analysis, and interpretation of data

In this chapter, the researcher presents the survey results according to the order in which the questions were set and presents the analysis and conclusions of the survey.

For this survey, the researcher sampled 400 pregnant women who had given birth at the study site. A questionnaire was administered after the respondents' consent and indication of voluntary participation in the survey. The results of the data analysis of the following content were obtained from the respondents' actual output when filling out the questionnaire.

Research Question 1: What are the characteristics of postpartum women in terms of:

- 1) age
- 2) number of pregnancies
- 3) mode of delivery
- 4) highest level of education
- 5) occupation

Table 1 Characteristics of postpartum women

Characteristics	Variables	Results	Total
	Age	Mean=25.593	400
	21-23	SD 2.874	
	24-26	Range 21-30	
	27-30		
Number of pregnancies including the current one			
	1	278 (69.5%)	400
	2	122 (30.50)	(100%)
Mode of delivery			
	Emergency caesarean section	37 (9.25%)	400 (100%)
	Natural spontaneous birth	229 (57.25%)	
	Planned caesarean section	134 (33.5%)	
Highest level of education			
	Bachelor and above	58 (14.5%)	400 (100%)
	College	147 (36.75%)	
	High school	149 (37.25%)	
	Junior high school	46 (11.5%)	
Occupation			
	Businessman	85 (21.25%)	400 (100%)
	Corporate Employee	117 (29.25%)	
	Doctors	39 (9.75%)	
	Full Time Mother	92 (23%)	
	Teachers	41 (10.25%)	
	Government employee	26 (6.5%)	

The post-partum women surveyed were concentrated in the 21-30 age group, with a mean age of 25.593 years and a standard deviation of 2.874, indicating that most were young mothers. This is also consistent with another figure from the inspection team, which shows that 69.5 percent of the women who gave birth were pregnant for the first time, meaning that most belonged to the young group of first-time mothers.

In terms of mode of delivery, the highest percentage of births was natural, 57.25 percent, which may be related to the young age of the mothers. Practice has shown that young mothers have wider pelvises and better physical conditions, making them suitable for natural delivery. Those who opted for planned cesarean section accounted for 33.5%, either because of their health condition or for conservative reasons. Lastly, 9.25% of deliveries were emergency cesarean deliveries, mainly during labor and delivery due to various unforeseen circumstances that necessitated a cesarean delivery.

In terms of educational level, the proportion of women with high school and college education was high, accounting for a total of 74%, which is in line with the overall distribution of educational level of young women of childbearing age in China. However, the proportion of women with a bachelor's degree or higher in this sample was similar, at 14.5%. This may be related to the regional distribution of the survey sample and the regional economic development situation.

In terms of occupational composition, employees of enterprises and public institutions accounted for nearly 30% of the total. In addition, 23% were unemployed, mainly full-time homemakers. Other occupations, such as businessmen, doctors, and teachers, also account for a relatively high proportion. This fully reflects the increase in women's participation in society.

A study by Sun Guihua, Lin Suqing, and Xu Mei (2019) further analyzed the clinical characteristics and pregnancy outcomes of older mothers in different age groups. It showed that younger mothers may face more economic and career development challenges than slightly older, more economically and emotionally stable mothers, which has a significant impact on their adjustment to motherhood.[21]

In addition, Ma Xiaoyu (2020) stated that there were significant differences between older menstruating mothers and primiparous mothers in terms of mode of delivery, pregnancy complications, and outcomes. The study by Duan Weifang et al. (2020),[22] on the other hand, focused on the relationship between the age of senior, pregnant women and perinatal outcomes, and all of these studies suggest that the age of the mother may have an indirect effect on the quality of the mother-infant relationship. Thus, these age distribution data reflect the basic profile of postpartum women and provide

researchers with perspectives for exploring possible differences in the role of mothers and preparation for the mother-infant relationship.[5]

The data obtained from the 'Birth Situation' survey enabled the researchers to analyze in greater depth the context in which these postpartum women gave birth. These data, which include the infant's age, the history of labor and delivery, the number of pregnancies, the number of miscarriages, and the mode of delivery, provide a comprehensive picture of maternal preparedness and the mother-infant relationship.

According to Sun Panpan, Jiang Lifang, and Joonhee Zhang et al. (2021), primiparous women may lack experience in childcare, which may affect their readiness for motherhood and mother-infant bonding. Women with multiple births have more experience but also face more excellent family and parenting pressures.[23]

Finally, regarding the mode of delivery, 57.25% of the women had a natural delivery, 33.5% had a planned cesarean section, and 9.25% had an emergency cesarean section. A study by Yuan, Xue, and Zhang, Xin (2021) pointed out that the mode of delivery may affect the mother's physical recovery and psychological state, which in turn affects the mother-infant relationship. For example, cesarean delivery may result in slower physical recovery, which may affect maternal psychological status and mother-infant interaction.[24]

The "other personal information background" data provided by the survey provides a richer dimension for researchers to analyze postpartum women's preparation for motherhood and the mother-infant relationship further. These data included information on educational attainment and occupation.

In terms of educational attainment, the data showed that 37.25% of postpartum women had a high school education, 36.75% had a college degree, and 14.5% had a bachelor's degree or higher. Lin Xuemei, Yang Jianhui, and Chen Peishan et al. (2022) argued that the level of education may affect the mother's ability to acquire information.[25]

Moreover, parenting concepts, which in turn affect the preparation for the role of motherhood and the development of the mother-infant relationship.

Finally, in terms of occupational distribution, the data showed that 29.25% of postpartum women were company employees, 21.25% were business people, and 23% had no occupation. Mothers' occupations significantly impact their schedules, economic status, and social identity, all of which may affect the preparation for the role of the mother and the development of the mother-infant relationship.

Taking these data together, the researchers can see that the personal background information of postpartum women plays a vital role in mother role preparation and the mother-infant relationship. Factors such as the experience of depression during pregnancy, the sex and health status of the infant, and the mother's level of education and occupation all affect mother-infant interactions and the mother-infant relationship in different ways. Understanding this background information is critical to providing targeted support and interventions to help postpartum women better prepare for motherhood and promote a healthy mother-infant relationship.

5. Summary, conclusions, and recommendations

This chapter makes a final summary of the findings of the study by analyzing the data outputs and the results of the data outputs in the previous chapter, makes a final conclusion of the study, and makes recommendations and related measures based on the issues identified in the study.

5.1 Summary of Findings

The mean age of the study participants was between 21 and 30 years old, indicating that most were young. In terms of delivery, the highest percentage of births was natural, while the majority of the women who answered the survey were first-time mothers. In terms of educational level, the proportion of women in high school and college was high. At the same time, enterprises and public institution employees led the survey compared to unemployed and full-time mothers.

The level of maternal role readiness among postpartum women across the three dimensions indicated that mothers are highly ready in their daily caregiving behaviors. At the same time, most mothers could transition smoothly to the new role of motherhood and were actively involved in caring for their babies. According to the criteria for interpreting the results of the scores, it can be seen that the mean

values of all three dimensions are above 3 points, close to the maximum value of 4 points on the scale.

Most mothers often show positive emotions such as happiness, joy, and touch when interacting with their babies. The overall mean score of 3.20 with a standard deviation of 0.59 is also interpreted as "sometimes" and close to the "often" level. This indicates that the mothers in this group had established good emotional bonding and interaction with their babies. However, there is still room for improvement, especially in self-parenting skills.

Most demographic characteristics resulted in no significant difference in the motherhood readiness scores of the sample of postpartum women investigated, except for the number of pregnancies, which rejected the null hypothesis. This suggests that although maternal circumstances vary from person to person, the process of preparing for the role of motherhood is relatively consistent. However, women with different numbers of pregnancies may have varied levels of readiness or preparation for motherhood.

There was a moderate positive correlation between the maternal role identity scores and the nursing behavior scores. At the same time, there is a moderate positive correlation between maternal role identity and parent-child attachment. The study's results found a significant positive association between maternal adaptation to the role of mother and their subsequent infant caregiving behaviors and mother-infant attachment relationship.

5.2 Conclusions

The study found that, overall, the postpartum women surveyed successfully adapted to motherhood, displaying positive cognitive attitudes and behavioral patterns. Specifically, they had welcoming and positive attitudes toward motherhood, took the initiative in caring for their infants, and were willing to discuss relevant topics with others. Parent-child attachment was also well established, with mothers consciously maintaining physical contact, eye contact, and other interactions with their infants. At the same time, postpartum women demonstrated appropriate parenting skills and could perform daily care tasks such as feeding their infants and purchasing baby supplies. These results provide a good foundation for a healthy mother-infant relationship. However, a certain percentage of postpartum women experience depression during or after pregnancy, which can negatively affect the mother-infant relationship. In addition, some postpartum women show varying degrees of anxiety regarding childcare. These complex groups need specialized psychological support and assistance, which shows that individualized care is still needed if necessary, such as psychological support and guidance in learning to be a new parent.

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