

Factors Influencing Paternal Role Adaptation among First-time Fathers: A Cross-sectional Study

นิพนธ์ต้นฉบับ

Original Article

เขียวยุย ลี¹, จินตนา วัชรสินธุ์^{2*} และ ตติรัตน์ เดชะศักดิ์ศรี²

¹ นิสิตบัณฑิตศึกษา คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา อ.เมือง จ.ชลบุรี 20131

² คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา อ.เมือง จ.ชลบุรี 20131

* Corresponding author: chintana@buu.ac.th

วารสารไทยเภสัชศาสตร์และวิทยาการสุขภาพ 2566;18(2):158-166.

Xiaorui Li¹, Chintana Wacharasin^{2*} and Tatirat Tachasuksri²

¹ Graduate Student, Burapha University Muang, Chonburi, 20131, Thailand

² Faculty of Nursing, Burapha University, Muang, Chonburi, 20131, Thailand

* Corresponding author: chintana@buu.ac.th

Thai Pharmaceutical and Health Science Journal 2023;18(2):158-166.

บทคัดย่อ

วัตถุประสงค์: เพื่อประเมินระดับการปรับตัวรับบทบาทบิดาในชายที่เป็นบิดาครั้งแรก และทดสอบปัจจัยที่อาจสัมพันธ์กับการปรับตัวรับบทบาทบิดา **วิธีการศึกษา:** การศึกษาภาคตัดขวางนี้มีผู้ร่วมการวิจัย 140 ราย ดำเนินการวิจัยที่คลินิกหลังคลอดของโรงพยาบาลระดับตติยภูมิในเมือง Wenzhou, Zhejiang Province, China โดยใช้แบบสอบถามที่ตอบด้วยตนเองโดยรวบรวมข้อมูลประชากรศาสตร์ และประเมินความสัมพันธ์สมรส ความเครียดของบิดา และการปรับตัวรับบทบาทของบิดา ทั้งหมดเป็นภาษาจีน ทดสอบความสัมพันธ์โดยใช้การทดสอบความถดถอยเชิงเส้นแบบหลายตัวแปร **ผลการศึกษา:** ผู้ร่วมการวิจัยมีระดับการปรับตัวรับบทบาทของบิดาระดับสูง พบว่ามีเพียงความสัมพันธ์สมรส และความเครียดของบิดาที่สัมพันธ์กับการปรับตัวรับบทบาทของบิดาอย่างมีนัยสำคัญ โดยอธิบายความแปรปรวนของการปรับตัวรับบทบาทของบิดาได้ร้อยละ 26.4 **สรุป:** บุคลากรทางการแพทย์ควรช่วยเหลือผู้เป็นบิดาครั้งแรกโดยการให้ความรู้ และให้ทักษะในการดูแลเด็ก ควรส่งเสริมการสร้างความสัมพันธ์สมรสและลดความเครียดของบิดาซึ่งจะช่วยพัฒนาการปรับตัวรับบทบาทของบิดาได้ดีขึ้น

คำสำคัญ: การปรับตัวรับบทบาทของบิดา, จีน, ความสัมพันธ์สมรส, ความเครียดของบิดา

Abstract

Objective: To assess paternal role adaptation of first-time fathers and examine its predictive factors. **Methods:** A cross-sectional survey including 140 participants was conducted at postpartum follow-up clinic of a tertiary hospital in Wenzhou, Zhejiang Province, China. Self-administered questionnaires including the demographic record form, Relationship Assessment Scale, the Chinese version of the Parental Stress Scale, and Paternal Role Adaptation Questionnaire were used. Descriptive statistics and multiple linear regression were used to analyze data. **Results:** Participants had a high level of paternal role adaptation. Only marital relationship and paternal stress significantly explained 26.4% of the variability of paternal role adaptation. **Conclusion:** Health personnel should help first-time fathers gain parenting knowledge and childcare skills. First-time fathers should be encouraged to have good marital relationship and reduce their own stress, which can help improve paternal role adaptation.

Keywords: paternal role adaptation, China, fathers, marital relationship, paternal stress

Editorial note

Manuscript received in original form: August 22, 2022;

Revision notified: September 12, 2022;

Revision completed: September 13, 2022;

Accepted in final form: September 15, 2022;

Published online: June 30, 2023.

Journal website: <http://ejournals.swu.ac.th/index.php/pharm/index>

Introduction

Transition to be parenthood is a major event for parents. It is a time to appreciate and celebrate the arrival of a new member of the family that affects all aspects of psychosocial function.¹ In the family life cycle, the birth of a child brings about more profound changes than in any other stage of development, primarily the birth of the first child plays a decisive role in entering a new stage of the life cycle involving the restructure of family system with the consequent redefinition of roles and tasks.²

For men, becoming a father is a major life change. They have to learn new parenting knowledge and skills, adapt to changes in personal identity and financial commitment, manage the pressures in couple relationship, and develop

relationships with children in order to perform the tasks or the role of being fathers.³ Paternal role adaptation can be defined as ability in performing roles and responsibilities, perceiving parental development, stabilization in paternal position and internal satisfaction, and challenges and concerns.⁴ Core of paternal role adaptation process is establishing true competence during pregnancy and the neonatal period.⁵ Steps toward adaptation are preparing to be a parent, trying to manage new situations, reducing psychological stress, and psychological maturing over time.⁶ Being a good father includes provider and protector beyond traditional financial responsibility, handing on the roles for children, and providing effective practical and emotional support for mothers.⁷

Paternal role adaptation of Chinese fathers is mixed between tradition and modern era. Fatherhood is largely shaped and influenced by social changes and cultural background.⁸ In the past, Chinese fathers were the breadwinners and had the duty of dealing with external problems, rarely participated in childcare and housework. However, in recent years, the retention of traditional Chinese patriarchal ideology and the adoption of western parental rearing methods have led to a new mixed paternal model among Chinese fathers. As social culture changes, it sometime is a stressful and challenging event, especially, for first-time fathers due to demands of paternal role adaptation.⁹ ¹⁰ First-time father is defined as a biological father who has lived with the expectant mother during pregnancy and no experience of living with a live birth baby of either his current or any other partner.¹¹

Fatherhood directly affects father's well-being, maternal health, and child's development. For instance, being fathers may change in their sexual function and neuroendocrine system yielding negative health impacts on men.¹² First-time fathers' depression rates were double the national average for men in the same age group who were not fathers.¹³ First-time fathers may experience a greater emotional shock and higher risk of anxiety than fathers already having children.^{14,15} In addition, fathers with failure of paternal role adaptation may have anxiety, depression, and other negative emotions.¹⁶ More than 10% of fathers have maladaptation as a result of experiencing depression and anxiety during the perinatal period.¹⁰ For maternal health, with supportive roles of fathers, mothers tend to have positive attitude toward motherhood and higher life satisfaction, seem to be able to have better care for their child,¹⁷ and reduce maternal parenting stress.¹⁸ Good marital relationship may protect against both maternal¹⁹ and paternal perinatal depression.^{20,21} As stated in the Nurturing Care Framework, fathers are also the most important providers of nurturing care for children.²² Fathers can affect their children directly through quality of their interactions or genetic effects and indirectly through their support to the mother and family environment.²³ With fathers' active involvement in child rearing, early infant neurodevelopment seems to be improved,¹⁸ children seem to do better in early learning and cognitive and social-emotional development, and may have higher self-esteem and life satisfaction, lower rates of depression, fear and self-doubt into adulthood, lower rates

of criminality and substance abuse, it is beneficial for physical and mental health of children.^{24, 25}

Adaptation to the new paternal role fits with the concept of Roy Adaptation Model (RAM).²⁶ Adaptation is dynamic and can be both process and outcome. Roy states that persons are 'biopsychosocial being' having capability of adapting to environmental stimuli.²⁷ For this study, focal stimulus is father having a first baby while adaptation outcome or dependent variable is paternal role adaptation. In addition, from literature review, it has been found that there are several independent variables related to contextual stimuli (planning to be a father,^{4, 14} newborn's gender preference,^{6,28} marital relationship,^{5,29} paternal stress^{6,30}), residual stimulus (education^{4,31}) of RAM may impact paternal role adaptation. The purposes of this study were to examine paternal role adaptation of first-time fathers and its influencing factors among first-time fathers. The hypothesis of this study is education, planning to be a father, newborn's gender preference, marital relationship, and paternal stress could combinedly predict paternal role adaptation among first-time fathers in Wenzhou, China. There were limited studies of the role adaptation of first-time fathers, especially in China that was significant for parents, and their children. Therefore, it was necessary to investigate paternal role adaptation among first-time fathers and its influencing factors. This study was based on RAM and it would provide evidence for establishing effective nursing interventions in order to help first-time fathers improve paternal role adaptation for the sake of their families' well-being.

Methods

A descriptive cross-sectional study was carried out at postpartum follow-up clinic of a tertiary hospital in Wenzhou, Zhejiang Province, China, between June 2021 and August 2021. Both mothers and their infants are cared by obstetric nurses in the hospital for 3-5 days after birth. Fathers also participated in the care for mothers and infants. According to Wenzhou's local customs, more than half of the families hire babysitter to take care of baby and postpartum women for 30-42 days after delivery. These confounding factors might affect the paternal role adaptation. Therefore, this study was conducted at the postpartum follow-up clinic, which could avoid the above confounding factors.

Purposive sampling method was used to recruit first-time fathers whose wives gave birth at the tertiary hospital in Wenzhou, China and already 6 - 7 weeks postpartum. Inclusion criteria of participants in this study included: 1) aged 18 years old or older, 2) no severe physical or mental diseases, 3) read and write in Chinese fluently, 4) spouse aged 18 years old or older without severe physical or mental illness, and without health defects related to birthing process of either vagina delivery or cesarean delivery, 5) having singleton baby with gestational age from 37 to less than 42 weeks and birth weight from 2,500 to 4,000 grams, Apgar score at five minutes equal to 8 or greater, and no obvious health defects, 6) no babysitter or nurse helped in taking care mother and child at least one week, and family allowed fathers to participate in raising their child at least one week.

The sample size in this study was calculated by G*Power 3.1 program. Regression was chosen as a statistical test for sample size estimation. With a type I error of 5%, a power of 90%, a medium effect size of 0.15 for a relatively conservative sample size estimation, and the number of independent variables of 5, a sample size of 116 subjects was required. In this study, 20% of sample size (24 subjects) was added to compensate for a possible attrition rate. Therefore, 140 participants were needed in total.

Research instruments

The self-report questionnaire included four parts: demographic record form, Relationship Assessment Scale, the Chinese version of the Parental Stress Scale, and Paternal Role Adaptation Questionnaire. These scales were tested for content validity by three professionals working in the nursing field asked to rate each item on the questionnaire and internal consistency reliability in 30 individuals comparable with the participants as follows.

The first part collected demographic characteristics of the participants and their spouses and obstetrical data including age, education, occupation, religion, financial situation, place of residence, planned or unplanned having a child, newborn's gender preference, baby's feeding type, hired or unhired a babysitter and how long, family type before the baby is born, having relative help raising baby or not and who is it, maternal delivery mode, maternal GA, baby's gender, baby's APGAR score at 5 minutes, and newborn's body weight.

The second part was Relationship Assessment Scale (RAS) developed by Hendrick³² was used for measuring

marital relationship between participants and their partners. Permission to use the tool and translate it into Chinese were obtained from Professor Hendrick. It consists of 7 items with 5-point Likert scale (A = 1, E = 5). Possible total scores range from 7 - 35. Scores of items 4 and 7 need to be reversed. The higher the score indicates the higher the relationship satisfaction. It has Cronbach's alpha as 0.86. The convergent validity of correlation between the RAS and the Dyadic Adjustment Scale reaches .80.³² This study used the Chinese version of RAS translated by experts. The back-translation process was modified as a guide of RAS translation. The Cronbach's alpha coefficient of the scale was 0.80 in the present study.

The third part was the Chinese version of the Parental Stress Scale (PSS) translated into Chinese and revised by Cheung.³³ The original PSS was developed by Berry and Jones to measure parental stress.³⁴ Permission to use the tool was obtained from Professor Cheung. It consists of 17 items with 6-point Likert scale from strongly disagree (1) to strongly agree (6). Scores of seven items (11, 12, 13, 14, 15, 16, 17) are reversed. Possible total scores range from 17 to 102. The higher the score indicates the greater the parental stress. It has Cronbach's alpha coefficient of 0.89. Its convergent validity of the correlation between Chinese Version of PSS and the Index of Parental Attitudes reaches 0.76.³³ The Cronbach's alpha of the scale was 0.88 in the present study.

2.3.4. Paternal Role Adaptation Questionnaire

The fourth part was the Paternal Role Adaptation Questionnaire developed by Geng et al.³⁵ It was used for measuring paternal role adaptation. Permission to use the tool was obtained from Professor Geng. It is in Chinese language and has 24 items of three parts: role identification, the establishment of parent-child attachment and the implementation of caring behavior, eight questions are set for each part and scored at a level of 5 (0 ~ 4 points). Each section has a score of 0 to 32 points. The total score is 0 to 96 points. It asks participants about feelings of being father or frequency of paternal behavior. The higher the score indicates the better the paternal role adaptation. The Cronbach's alpha coefficient of this questionnaire is 0.89.³⁵ The content was valid with a Scale-level content validity index (S-CVI) of 0.97. Internal consistency reliability was acceptable with a Cronbach's alpha coefficient of 0.75. After the original item 7 was deleted, Cronbach's alpha coefficient changed to 0.84. Therefore, researcher used revised version of Paternal Role

Adaptation Questionnaire for this study, which had 23 items of three subscales: role identification (item 1 - 7), the establishment of parent-child attachment (item 8 - 15) and the implementation of caring behavior (item 16 - 23), eight questions were set for parent-child attachment and caring behavior subscales like original version, seven questions were set for role identification subscale because of deleting one item. The levels of paternal role adaptation are defined based on the total score of the total scale as follows: the total score is 0 to 92, which scores of ≤ 30 is a low level, scores of 31 - 62 is a moderate level, and scores of 63-92 is a high level. Role identification subscale has 0-28 scores, which scores ≤ 9 is a low level, 10 - 18 is a moderate level, and 19 - 28 is a high level. Each of parent-child attachment and caring behavior subscales has a score of 0 to 32, which scores ≤ 11 is a low level, 12 - 23 is a moderate level, and 24 - 32 is a high level. In the present study, the overall Cronbach's alpha coefficient of the scale was 0.91, and the Cronbach's alpha coefficient of the subscales ranged from 0.84 to 0.92.

Protection of human rights

The research proposal was submitted to the Burapha University Ethics Committee on Human Research (G-HS052/2564), Institution Review Board (IRB) of Wenzhou Medical University (WMU) and the second affiliated hospital of WMU (2021-K-49-02). In data collection process, first-time fathers were informed about the study, confidential, and voluntary nature of the study both orally and in writing. They had the right to withdraw from the study at any time and they were assured that their refusal to participate would not affect the services they would receive. The consent form was signed by participants before collecting data. All data were stored in a secure place. Study results were presented as an overview data, not link to any individual. Data were only utilized for the purpose of the research, and it would be destroyed after study results were published.

Data collection procedure

The researcher studied maternal registration records to find first-time mothers having health history that matched inclusion criteria. Then, the researcher directly talked with postpartum mothers and/or fathers at postpartum follow-up clinic to screen whether fathering was their first time and fathers met inclusion criteria. When the first-time fathers met inclusion criteria, the researcher introduced herself to

postpartum mothers and/or fathers. Then, the researcher briefly informed them about the study title, its purposes, its procedures, and human right protection. If fathers wanted to participate in the study voluntarily, they signed consent forms. Participants completed the self-administered questionnaire within 20 minutes approximately. The researcher allowed fathers to raise a question if fathers had, then answered it. When fathers finished doing questionnaires, the researcher checked for data completeness of all items except income that was sensitive issue to expose.

Data analysis

Descriptive statistics including frequency with percentage and men with standard deviation (SD) were used to summarize demographic characteristics and study factor scores of the participants. Influence of independent variables to dependent variable was analyzed by multiple linear regression. Assumptions of multiple linear regression were met. Statistical significance was set a type I error of 5% (or P-value < 0.05). All statistical analyses were performed using the software program SPSS 24.0.

Results

Participants' information included participants' demographics and obstetrical data. A total of 140 samples were recruited for this study. As shown in Table 1, the mean age was 29.97 ± 3.67 years. Majority of participants were employed (63.6%), nuclear family (69.3%), average financial status (82.9%), having relatives help raising a baby (68.6%) and lived in villages (51.4%). Almost half of the father had no religion (48.6%). Family monthly income was 21147.73 ± 5718.48 RMB. Table 2 showed that majority of participants' spouses had vaginal delivery (63.6%) with mean birth weight as $3,242.21 \pm 377.75$ grams and half of them had baby boy (50.7%).

Most of participants planned to be a father (87.9%) and preferred their newborn's gender (91.4%) (Table 3). Participants had education mean of 14.19 ± 2.75 years, marital relationship as 31.69 ± 3.80 scores and paternal stress as 43.42 ± 13.04 scores. Participants had a high level of paternal role adaptation ($M = 74.58$, $SD = 12.30$), which subscales of role identification and parent-child attachment were at high levels. However, caring behavior subscale was at a moderate level.

All factors together explained 26.4% of the variance in the paternal role adaptation ($\text{Adj } R^2 = 0.264$, $F_{(5, 134)} = 10.98$, P-value < 0.001). Only marital relationship ($\beta = 0.35$, P-value < 0.001) and paternal stress ($\beta = -0.30$, P-value < 0.001) significantly explained

Table 1 Descriptive data analysis results of participants' demographics (N = 140).

Characteristics	Father		Mother	
	N	%	N	%
Age (years)	Range = 18 - 43, M = 29.97, SD = 3.67		Range = 19 - 40, M = 28.24, SD = 3.38	
< 20	1	0.7	1	0.7
20 – 30	62	44.3	101	72.1
31 – 40	75	53.6	38	27.1
> 40	2	1.4	-	-
Education (years)	Range = 9 – 21, M = 14.19, SD = 2.75		Range = 9 – 19, M = 14.48, SD = 2.60	
9 (Junior high school)	20	14.3	15	10.7
12 (Senior high school)	25	17.9	24	17.1
15 (Junior college)	39	27.9	45	32.1
16 (Undergraduate)	48	34.3	45	32.1
19 (Postgraduate)	7	5.0	11	7.9
21 (Doctoral degree)	1	0.7	-	-
Employment				
Self-employed	48	34.3	32	22.9
Employed	89	63.6	77	55.0
Unemployed	3	2.1	31	22.1
Religion				
Buddhism	57	40.7	54	38.6
Christianity	12	8.6	16	11.4
Catholicism	2	1.4	2	1.4
Taoism	1	0.7	1	0.7
No religion	68	48.6	67	47.9
Family type				
Nuclear	97	69.3	-	-
Extended	43	30.7	-	-
Place of residence				
Village	72	51.4	-	-
City	68	48.6	-	-
Family monthly income (RMB)	Range = 1000 - 750000, M = 21147.73, SD = 5718.48			
< 10,000	34	24.3	-	-
10,000 – 20,000	58	41.4	-	-
20,001 – 30,000	24	17.1	-	-
> 30,000	16	11.4	-	-
No data available	8	5.7	-	-
Financial situation				
Good	5	3.6	-	-
Average	116	82.9	-	-
Poor	19	13.6	-	-
Baby's feeding type				
Exclusive breastfeeding	49	35.0	-	-
Formula milk feeding	24	17.1	-	-
Both breast milk and formula milk	67	47.9	-	-
Having relative help raising a baby				
No	44	31.4	-	-
Yes	96	68.6	-	-
Hiring a babysitter				
No	69	49.3	-	-
Yes	71	50.7	-	-

Table 2 Descriptive data analysis results of obstetrical data (N = 140).

Obstetrical characteristics	N	%
Maternal gestational age (week, Range=37-41, M=39.38, SD=1.15)		
37 – 39	73	52.1
≥ 40	67	47.9
Maternal delivery mode		
Vaginal delivery	89	63.6
Cesarean section	51	36.4
Baby's gender		
Male	71	50.7
Female	69	49.3
Newborn's APGAR score at 5 minutes	140	100.0
Newborn's body weight (g, Range=2520-3990, M=3242.21, SD=377.75)		
< 3,000	39	27.9
3,000 - 3,500	64	45.7
> 3,500	37	26.4

Table 3 Scores and levels of study factors (N = 140).

Variables	N	%	Range		mean	SD	Level
			Possible	Actual			
Education (years)	-	-	-	9-21	14.19	2.75	-
Planning to be a father							
Yes	123	87.9	-	-	-	-	-
No	17	12.1	-	-	-	-	-
Newborn's gender preference							
Yes	128	91.4	-	-	-	-	-
No	12	8.6	-	-	-	-	-
Marital relationship	-	-	7-35	16-35	31.69	3.80	-
Paternal stress	-	-	17-102	17-89	43.42	13.04	-
Paternal role adaptation			0-92	37-92	74.58	12.30	High
Role identification			0-28	5-28	24.85	3.45	High
Parent-child attachment			0-32	14-32	27.20	4.99	High
Caring behavior			0-32	10-32	22.53	5.82	Moderate

paternal role adaptation. However, education, planning to be a father and newborn's gender preference had no significance association with paternal role adaptation (Table 4).

Table 4 Standard multiple linear regression analysis predicting factors of paternal role adaptation (N = 140).

Model	B	SE	β	t	P-value	VIF
(Constant)	54.74	12.55		4.36	< .001	
Education	-.31	.34	-.07	-.93	.356	1.06
Planning to be a father	-.89	2.85	-.02	-.31	.754	1.09
Newborn's gender preference	1.28	3.27	.03	.39	.695	1.05
Marital relationship	1.14	.26	.35	4.35	< .001	1.25
Paternal stress	-.28	.08	-.30	-3.74	< .001	1.23

R² = 0.291, Adjusted R² = 0.264, F_(5, 134) = 10.98, P-value < 0.001.

Discussions and Conclusion

This study described paternal role adaptation and explored if education, planning to be a father, newborn's gender preference, marital relationship, and paternal stress could be predictive factors on paternal role adaptation among first-time fathers in Wenzhou, China.

In this study, participants had high level of paternal role adaptation, which corresponds to the findings of previous study.⁵ The reasons may be as follows. Firstly, gender equality has been gradually advocated in workplace and family life in China, which improves the whole society's understanding of the importance of paternal role which as a woman can't replace, and the awareness and ability of fathers to participate in family life. The awakening of Chinese women' self-consciousness and professional consciousness has prompted them to step out of their families and assume social and professional roles. In the family, women no longer only take care of the husband and children at home, but also have their own careers. Men are no longer just "breadwinners", but also take care of the child. Secondly, paternity leave has been

explored and implemented in China. Paternity leave has the advantage of freeing men from the constraints of work and give them the opportunity to transition to and adapt to fatherhood and participate in family life. Throughout China's domestic situation, although the paternity leave system has not yet formed a unified national law, there are provisions on paternity leave in local laws and regulations of different lengths and different names, such as paternity leave and nursing leave. Most provinces currently offer 15 days of paternity leave, as does Wenzhou in Zhejiang Province.

However, the results of this study also showed that the caring behavior of father was at a medium level and needed to be improved. This result echoes the findings of previous studies.^{36, 37} The reasons may be that fathers have limited ability to participate in parenting, especially for first-time fathers who don't have any experience to be parent. There is lack of parenting knowledge for fathers in China.³⁸ Therefore, health personnel should try to improve the father's parenting knowledge and skills in order to help them establish confidence in parenting and improve father's caring behavior.

Father's education did not significantly influence paternal role adaptation. This result was contrary to previous studies,^{4, 39, 40} which revealed that increasing in father's educational level improved paternal role adaptation. Fathers with higher education had a positive impact on fathers' ability to care for their children,³⁹ be more active participation in nurturing their children⁴⁰ and perform the paternal roles and responsibilities and perceive the parental development.⁴ China Children's Center conducted a survey on the role of parents in the family upbringing of 0-6 year old children in China and found that fathers with low education levels were less prepared for roles.³¹ The reasons for the result in this study might due to the policy of nine-year compulsory education and every father received education at least 9 years and more than half of them received high education, and all of them had certain basis for education, which did not have enough impact on the paternal role adaptation.

Planning to be a father did not significantly influence paternal role adaptation. This result was contrary to previous studies.^{4, 14} Fathers without a plan to become a father, they might lack the psychological preparation for pregnancy and raising children, resulting in increased pressure and promoting the occurrence of anxiety, depression and other adverse psychological problems, which cause the difficulty to adapt to paternal role.¹⁴ Also Eskandari et al. carried out a cross-

sectional study investigating 572 first-time fathers and found that planning to be a father was a related factor of paternal role adaptation.⁴ The reasons for the result might be that majority of fathers in this study (87.9%) had plan to be a father, even if other fathers did not plan to become a father, they had already experienced a psychological buffer period of more than a month, which did not have enough impact on the paternal role adaptation.

Newborn's gender preference did not significantly influence paternal role adaptation. This result was consistency with previous studies.^{14, 41} Newborn's gender did not have significant effect on role adaptation of the first-time fathers¹⁴ and father's caring behaviors.⁴¹ In contrast, some researchers found adherence to gender stereotypes was one of obstacles to the path of paternal role adaptation⁶ and there was a significant relationship between newborn's gender preference and paternal role adaptation.⁴ In this study, 91.4% participants preferred their newborn's gender and newborn's gender preference was no longer an issue that affected paternal role adaptation. The reasons for the result might due to modern China, the era of "valuing men over women" has gone, most families no longer concern whether the sex of their child is male or female. Also, a one-child policy is no longer had but a three-child policy. Now Chinese families are paying less attention to the gender of their firstborn. Although some families still hope to have a boy, they have a second or third chance to have a boy.

Marital relationship positively influenced paternal role adaptation. This result was consistency with previous researches.^{4, 5} A man's adaptation to the transition to parenthood could be assessed by the way he looked at his marriage relationship.⁴² Zeng et al. carried out a cross-sectional study investigating 472 first-time fathers and found that marital satisfaction of first-time fathers was statistically and positively correlated with paternal role adaptation.⁵ The reasons for the result might due to an important personal support system, especially in the process of transition to parenthood which is a critical time and a potentially stressful event for marital relationship. If couples have close relationship, it can not only positively affect physical health, mental health, and subjective well-being of both parties, but also create a peaceful family environment that allows parents to focus on their parenting duties so as to improve paternal role adaptation. Therefore, health personnel should inform

newborn parents of the importance of supporting each other and encourage them to create a good relationship as a couple.

Paternal stress negatively influenced paternal role adaptation. This result was consistency with a phenomenological qualitative study in 15 first-time fathers and found that stress influenced paternal role adaptation.⁶ The reasons for the result might be that having a first baby is a huge event in father's life with happiness and challenge in taking care child and wife, or in financial terms. Paternal stress is not only because of childrearing, but also due to their social and environmental circumstances, responsibilities, and everyday life. However, fathers often lack information, role models, or guidelines to help them make the transition to fatherhood, especially for first-time fathers, which will cause more stresses for parenting, and these stresses will be difficulties and obstacles in adapting to the role of fathers. Therefore, if target audiences of parenting knowledge, and psychological counseling are changed from women to both woman and man, health personnel can provide some services such as guiding fathers how to take care baby and postpartum woman better, and whenever fathers meet problem, they can be seen and concerned, these aspects will reduce paternal stress which plays an important role in contributing to improve paternal role adaptation among first-time fathers.

This study has several limitations. Firstly, this study was conducted at only one hospital in Wenzhou, so the results limited the generalization of the findings. Future research should be conducted with participants from the broader geographical area, and a bigger sample size to generalize the study results. Secondly, there was a selection bias in the data collection process of this study because researcher collected data in hospital and not all fathers accompanied their wife and baby to the postpartum follow-up clinic because hospital epidemic prevention and control requirements would limit the number of accompany or the father's own thought. It might be that the fathers who accompanied their wife to the hospital had already attached great importance to paternal role, while other fathers who didn't accompany their wife and might not adapt paternal role so well have not been exposed to researcher. Therefore, future research should be extended to communities so that the samples collected will be more representative.

In conclusion, this study revealed high level of paternal role adaptation among first-time fathers in Wenzhou, China. However, the caring behavior was at a moderate level and

needed to be improved. This study results showed that marital relationships could positively predict paternal role adaptation and paternal stress could negatively predict paternal role adaptation. These would fill the gap and provide background evidence for establishing effective nursing interventions aiming to help first-time fathers improve paternal role adaptation.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of competing interest

There is no conflict of interest in this study.

Acknowledgements

The authors appreciate Assistant Professor Dr. Wantana Supasrimanont for her guidance during research process and Mrs. Chunmei Zhang, Vice Dean of School of Nursing Wenzhou Medical University for her help during IRB approval at the hospital. We also would like to thank all the research participants for their kind assistance.

References

1. Ledenfors A, Berterö C. First-time fathers' experiences of normal childbirth. *Midwifery* 2016;40:26-31.
2. das Neves Carvalho JM, Ribeiro Fonseca Gaspar MF, Ramos Cardoso AM. Challenges of motherhood in the voice of primiparous mothers: Initial difficulties. *Invest Educ Enferm* 2017;35(3):285-294.
3. Rominov H, Pilkington PD, Giallo R, Whelan TA. A systematic review of interventions targeting paternal mental health in the perinatal period. *Infant Ment Health J* 2016;37(3):289-301.
4. Eskandari N, Simbar M, Vedadhir A, Baghestani A, Momenyan S. Related factors to paternal adaptation: A cross-sectional study for first-time fathers. *Iran J Nurs Midwifery Res* 2019; 24(1):18-24.
5. Zeng XY, Pan F, Hua Q, Zhou S. Correlation study between quality of spousal intimacy and role adaptation of neonates' fathers. *Chinese J Modern Nurs* 2019;25(10):1250-1254.
6. Eskandari N, Simbar M, Vedadhir A, Baghestani AR. Paternal adaptation in first-time fathers: A phenomenological study. *J Reprod Infant Psychol* 2017;35(1):53-64.

7. Darwin Z, Galdas P, Hinchliff S, et al. Fathers' views and experiences of their own mental health during pregnancy and the first postnatal year: A qualitative interview study of men participating in the UK Born and Bred in Yorkshire (BaBY) cohort. *BMC Preg Childbirth* 2017;17(1):45. (doi: 10.1186/s12884-017-1229-4)
8. Shorey S, Ang L. Experiences, needs, and perceptions of paternal involvement during the first year after their infants' birth: A meta-synthesis. *PLoS One* 2019;14(1):e0210388. (doi: 10.1371/journal.pone.0210388)
9. Carlson J, Edleson JL, Kimball E. First-time fathers' experiences of and desires for formal support: A multiple lens perspective. *Fathering* 2014;12(3):242-261.
10. O'Brien AP, McNeil KA, Fletcher R, et al. New fathers' perinatal depression and anxiety-treatment options: An integrative review. *Am J Mens Health* 2017;11(4):863-876.
11. Chandler S, Field PA. Becoming a father. First-time fathers' experience of labor and delivery. *J Nurs Midwifery* 1997; 42(1):17-24.
12. Gray PB, Crittenden AN. Father Darwin: Effects of children on men, viewed from an evolutionary perspective. *Fathering* 2014; 12(2):121-142.
13. Baldwin S, Malone M, Sandall J, Bick D. A qualitative exploratory study of UK first-time fathers' experiences, mental health and wellbeing needs during their transition to fatherhood. *BMJ Open* 2019;9(9):e030792. (doi: 10.1136/bmjopen-2019-030792)
14. Cui ZQ, Sun F. Mental health status and related influence factors in the spouses of primipara. *Chinese J Modern Nurs* 2017;23(34):4349-4353.
15. Mahmoodi H, Golboni F, Nadrian H, Zareipour M, Shirzadi S, Gheshlagh RG. Mother-father differences in postnatal psychological distress and its determinants in Iran. *Open Access Maced J Med Sci* 2017;5(1):91-96.
16. Rosenthal DG, Learned N, Liu YH, Weitzman M. Characteristics of fathers with depressive symptoms. *Matern Child Health J* 2013;17(1):119-128.
17. Lee HY, Edwards RC, Hans SL. Young first-time mothers' parenting of infants: The role of depression and social support. *Matern Child Health J* 2020;24(5):575-586.
18. Kim M, Kang SK, Yee B, Shim SY, Chung M. Paternal involvement and early infant neurodevelopment: The mediation role of maternal parenting stress. *BMC Pediatr* 2016;16(1):212. (doi: 10.1186/s12887-016-0747-y)
19. Shi P, Ren H, Li H, Dai Q. Maternal depression and suicide at immediate prenatal and early postpartum periods and psychosocial risk factors. *Psychiatry Res* 2018;261:298-306.
20. Goldstein Z, Rosen B, Howlett A, Anderson M, Herman D. Interventions for paternal perinatal depression: A systematic review. *J Affect Disord* 2020;265:505-510.
21. Wang D, Li YL, Qiu D, Xiao SY. Factors influencing paternal postpartum depression: A systematic review and meta-analysis. *J Affect Disord* 2021;293:51-63.
22. World Health Organization. Nurturing care for early childhood development: A framework for helping children survive and thrive to transform health and human potential. Geneva. WHO, 2018.
23. Stein A, Pearson RM, Goodman SH, et al. Effects of perinatal mental disorders on the fetus and child. *Lancet* 2014; 384(9956):1800-1819.
24. Henry JB, Julion WA, Bounds DT, Sumo J. Fatherhood matters: An integrative review of fatherhood intervention research. *J Sch Nurs* 2020;36(1):19-32.
25. Ruti L, Nikki VDG, Margaret G, Michael K, Gary B. State of the world's fathers: A MenCare advocacy publication. Washington D.C. 2015.
26. Roy SC, Andrews HA. The Roy adaptation model. 3rd ed. Upper Saddle River. Prentice Hall, 2008.
27. Roy SC. Introduction to nursing: An adaptation model. 2nd ed. Englewood Cliffs, NJ. Prentice Hall. 1984.
28. Li LM, Yang JG, li YZ. Investigation and analysis of the status quo of son preference in Wenzhou. *Intelligence* 2018;(24):210. (doi: 10.3969/j.issn.1673-0208.2018.24.184) (in Chinese)
29. Parfitt Y, Ayers S. Transition to parenthood and mental health in first-time parents. *Infant Ment Health J* 2014;35(3):263-273.
30. Cronin S, Becher E, Christians KS, Debb S. Parents and stress: Understanding experiences, context, and responses. St. Paul, MN. University of Minnesota Extension, Children, Youth and Family Consortium, 2015.
31. China Children's Center. A survey on the role of parents in the family upbringing of 0 - 6 years old children in China. 2017. (Accessed on Jan.15, 2021, at https://www.ccc.org.cn/art/2017/11/28/art_8_19482.html)
32. Hendrick SS. A generic measure of relationship satisfaction. *J Marriage Fam* 1988;50(1):93-98.
33. Cheung SK. Psychometric properties of the Chinese version of the Parental Stress Scale. *Psychologia* 2000;43:253-261.
34. Berry JO, Jones WH. The parental stress scale: Initial psychometric evidence. *J Soc Person Relation* 1995;12(3):463-472.
35. Geng XW, Lu H, Liu Y. A survey on the role adaptation of family after childbirth. *J Nurs Sci* 2006;21(4):4-7.
36. Zhang SS, Hu Y, Zhang QF. A survey on parenting attitudes of newborn parents. *Chinese Nurs Res* 2014;28(02):177-179.

37. Xing SX. The influence of the duration of infantile fathers' participation in family education on their early childhood neuropsychological development. Shanxi. Shanxi Medical University, 2016. (doi: 10.7666/d.D01089027) (in Chinese)
38. Huang RT. Viewing the culture of "confinement in childbirth" from the Internet parenting forum - taking sina.com as an example. *J News Res* 2020;11(3):226-227. (in Chinese)
39. Madhavan S, Richter L, Norris S, Hosegood V. Fathers' financial support of children in a low income community in South Africa. *J Fam Econ Issues* 2014;35(4):452-463.
40. Cabrera NJ, Hofferth SL, Chae S. Patterns and predictors of father-infant engagement across race/ethnic groups. *Early Child Res Q* 2011;26(3):365-375.
41. Redshaw M, Henderson J. Fathers' engagement in pregnancy and childbirth: Evidence from a national survey. *BMC Preg Childbirth* 2013;13:70. (doi: 10.1186/1471-2393-13-70)
42. Pinto TM, Samorinha C, Tendais I, Nunes-Costa R, Figueiredo B. Paternal Adjustment and Paternal Attitudes Questionnaire: Antenatal and postnatal Portuguese versions. *Assessment* 2017;24(6):820-830.
76. Hui A, Back L, Ludwig S, et al. Lifestyle intervention on diet and exercise reduced excessive gestational weight gain in pregnant women under a randomised controlled trial. *Br J Obstet Gynecol* 2012;119(1):70-77.