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Research Article

The Effect of Post-Traumatic Stress Disorder on Reproductive Intention in Women of Childbearing Age: A Cross-Sectional Survey

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Abstract

Background: With the aggravation of China's aging population, China's population structure has undergone great changes, China's fertility rate and birth rate decline has always been a concern of the government, and mental health issues are an important part of creating a healthy birth atmosphere. *Objective*: To investigate whether the level of post-traumatic stress disorder (PTSD) affects the reproductive intention of women of reproductive age, and to analyze the influencing factors of reproductive intention of women. *Methods*: This study was a cross-sectional survey design, using convenience sampling method to survey women of childbearing age who were followed up in the postpartum outpatient clinic of a tertiary hospital from August 2023 to March 2024, and the survey instrument included a general information questionnaire, a questionnaire on the willingness to reproduce, and an impact of event scale- Revised, which was statistically analyzed using SPSS 27.0, and a binary logistic regression model was used to analyze the influencing factors of reproduction intention, and P<0.05 was taken as statistically different. *Results*: Reproduction intention of women of childbearing age accounted for 42.9%, and age, education, residence, and PTSD were independent influencing factors of reproduction intention of women of childbearing age. *Conclusion*: The research results show that age, education level, place of residence and PTSD are independent factors influencing women's willingness to have children again. The higher the level of PTSD, the lower the willingness to have children again. Therefore, attention should be paid to women's postpartum mental health problems, and more family and social support should be provided to improve their mental health status, so as to enhance the level of willingness to have children again.

Keywords

Post-Traumatic Stress Disorder, Women of Childbearing Age, Reproductive Intention, Cross-Sectional Survey

1. Introduction

According to the United Nations World Population Prospects 2022 report, between 1950 and 2021, the global total fertility rate declined from 4.86 to 2.32. In addition, the report projects that by 2050, the total number of older persons in the world will be more than twice as high as the total number of children under the age of 5 [1]. China has had a

one-child policy since the 1970s, and it has become the norm in Chinese society for a family to have only one or two children. Since the introduction of this policy, China's fertility rate has continued to decline and has remained below replacement level. The results of China's seventh population census show that the birth rate in 2020 was 0.82 percent, falling below 1 percent for the first time, and the natural growth rate was 0.145 percent, a record low since 1978. The total fertility rate of China's population is only 1.3, well below the standard replacement level of 2.1 [2]. With the aggravation of China's aging and the country's demographic structure changing dramatically, China's declining fertility and birth rates have been a concern for the government. After a sharp drop in annual births from 14.65 million in 2019 to 12 million in 2020, a further drop of 10.62 million in annual births has caused a hot debate in China, where the fertility rate is already at an all-time low. In order to change the status quo of lower fertility rate, the Chinese government launched the comprehensive two-child policy in 2016, allowing all married couples to have two children, and even continued to promote the "comprehensive three-child policy" with little success, in order to better realize people's desire to have children, slow down the trend of population aging, and rationalize the demographic structure of the population. more rationalized [3]. However, the policies have not triggered the expected baby boom; the number of births in 2017, 2018, and 2019 was 17.23 million, 15.23 million, and 14.65 million, respectively. Although the successive introduction of fertility policies has allowed the birth rate to increase in the short term, it has not changed the trend of China's fertility rate continuing to decline. The fact that the effects of fertility policies have frequently fallen short of expectations reflects a very realistic problem: it is not the policies that determine the fertility rate, but people's willingness to have children that determines the fertility rate. A low fertility rate means a low willingness to have children, and the willingness to have children determines reproductive behavior. On the other hand, the concept of fertility in China is gradually changing with the development of society and the changes in the fertility policy. The current concept of fertility is no longer obsessed with the pursuit of more children and more blessings, but pays more attention to having fewer children and better births, and this conceptual change has a direct impact on the number of newborns, and the fertility rate is decreasing continuously. The urgent need for a new population has led to a gradual shift in the study of fertility and fertility intentions.

Late marriage and late childbearing have played a considerable role in China's fertility decline over the past few decades, and studies have shown that late marriage has had a significant impact on fertility decline, an effect that is reflected in changes in age-specific fertility patterns, increases in the mean age at childbearing, and increases in the average age at childbearing [4]. Against the backdrop of a low overall fertility rate, the two- and three-child willingness rates in Shanghai, China, are 16.2% and 9.4%, respectively [5]. Li

Jianxin et al. found that the lower the level of education, the more serious the gender preference for childbearing, the higher the level of education, the higher the willingness to have a second child, the higher the income level, the higher the willingness to have a second child, and by the traditional concepts of childbearing, the more traditional the women's willingness to have a second child is, the higher the willingness [6]. According to Liao Jingyi's research, the attitude of work leaders and the working environment will affect family fertility, and childbirth will have a certain impact on work. Some married women of childbearing age choose to quit their jobs and become stay-at-home mothers during childbirth, which will reduce the family income. Therefore, only when the family has a good economic foundation, married women of childbearing age have relatively little concern about fertility. The age of the parents also affects the intention to have children, since younger parents can provide some help in raising the child [7].

The age of the couple is one of the most important correlates of willingness to have a second child, and a large number of studies have confirmed that before the age of 35 is the optimal age for women to have children, and that older women can lead to infertility and more pregnancy complications, and that most of the infertility problems faced by women are caused by advanced age [8]. Xiong et al. found that only 13.07% of migrant women had the intention to have a second child, while 67.73% had no intention to have another child. Multifactor analysis found that age, gender and age, reproductive health education, employment status and health insurance were significant influences on fertility intentions [9]. A study found that 32.4% of women had a desire to have another child, and that family type, husband's age, age of the first child, attitudes of the husband and in-laws, the availability of financial support from in-laws, and the influence of friends were independent influences on the desire to have another child [10]. It has also been noted that significant fertility declines in low- and middle-income countries have been driven by socio-economic factors and population stabilization policies [11], Fertility intentions show a downward trend as the level of education and monthly household income increase. Ethnic minorities, remarriages and rural residents are more likely to have children than Han Chinese, first marriages and urban residents [12]. PTSD is a psychiatric disorder that occurs when a mother copes poorly with childbirth, and epidemiological studies have shown that the prevalence of PTSD ranges from 9.4% to 16.3% [13]. Raising two or more children requires more effort, and the physical and mental strain can aggravate PTSD symptoms. However, there is no relevant research on whether postpartum PTSD symptoms affect the willingness to have another child.

As can be seen from the above, domestic scholars have conducted more research on fertility intention, and the above research results have explored the relationship between fertility intention and childbearing behavior and their influenc-

ing factors from different perspectives, and the conclusions of the research have a certain degree of objectivity, which is worth referring to and learning from. Academics have not only analyzed the fertility intentions and behaviors of different groups, but also analyzed the fertility intentions from various dimensions such as family, work and income. At present, the fertility behavior of Chinese people of childbearing age is generally lower than the fertility intention, and the situation of both intention and behavior is "double low". In this case, only bridging the gap between fertility intention and behavior is not enough to achieve moderate fertility, but also need to explore the reasons for the low fertility intention of people of childbearing age, there is no relevant research to explore the effect of PTSD on fertility intention of women of childbearing age. In this context, the present study is of great theoretical and practical significance to explore the effects of PTSD on reproduction intention from the perspective of psychological factors of women in reproductive age, so as to promote the realization of their reproductive intention.

2. Methods

2.1. Participants

In this study, a cross-sectional design method was adopted to investigate the women of childbearing age in the postpartum outpatient follow-up of a tertiary hospital from August 2023 to March 2024. Inclusion criteria: age 20-49 years old; Conscious, normal cognitive function; Informed consent, voluntary participation; Have given birth to 1 child or more. Exclusion criteria: loss of reproductive function.

2.2. Measures

1) General information questionnaire

Age, education level, religion, per capita household income, place of residence, number of children.

2) Reproductive intention

Fill in "YES" if you are willing to have another child, fill in "No" if you are not willing to have another child

3) Post-traumatic stress disorder

The Chinese version of impact of event scale-Revised (IES-R), developed by Huang GP et al. [14], is used to assess the level of PTSD of patients, including three dimensions of intrusion, avoidance and high alertness, with a total of 22 items. Cronbach's α coefficient of the scale was 0.96, and Likert 5-level scoring method was used to measure asymptomatic, mild, moderate, severe, and extremely severe suc-

cessively into 0-4 scores, with a total score of 0-88. The higher the score, the more severe the post-traumatic stress reaction was. The Cronbach's α coefficient of IES-R in this study was 0.924.

2.3. Data Collection Methods

The questionnaire survey method was adopted in this study. Three obstetric outpatient nurses who had been uniformly trained distributed questionnaires to women of childbearing age who met the inclusion and exclusion criteria for one-to-one questionnaire survey. Before the investigation, the purpose, significance and notes for filling in the study were explained to the research subjects. After obtaining their informed consent, questionnaires were issued and filled in anonymously; During the investigation, unified guidance was adopted. For those who had difficulty filling out the questionnaire with low education level, the investigator asked them one by one and filled in the questionnaire truthfully according to the oral answers of the patients. After completion, collect the questionnaire and check whether there is any missing or wrong filling. A total of 190 questionnaires were sent out in this study, and 168 valid questionnaires were recovered, with an effective recovery rate of 88.42%.

2.4. Statistical Methods

SPSS 27.0 was used for statistics, and the histogram and P-P chart were combined to test the approximate normal distribution of the data. The measurement data was described by mean ± standard deviation, and the counting data was described by case number and component ratio. The single factor analysis was performed by t test, Chi-square test or Fisher exact probability method, and they were divided into two categories according to whether they were willing to reproduce again. Two logistic regression models were used to analyze the influencing factors of rebreeding intention. $P < 0.05$ was considered statistically significant.

3. Results

3.1. Univariate Analysis of Reproductive Intention

The results showed that age, educational level, place of residence and PTSD were statistically different among women of childbearing age ($P < 0.05$), as shown in Table 1.

Table 1. Univariate analysis of reproductive intention (n=168).

Project	n	No (n=96)	Yes (n=72)	X^2/t	P
age		31.34±4.25	28.56±3.15	-4.670	<0.001
educational level				12.528	0.002
Secondary school and below	57	22 (22.9%)	35 (48.6%)		
University	89	58 (60.4%)	31 (43.1%)		
Master and above	22	16 (16.7%)	6 (8.3%)		
Religion				2.072	0.150
Yes	25	11 (11.5%)	14 (19.4%)		
No	143	85 (88.5%)	58 (80.6%)		
Place of residence				6.222	0.013
Rural	84	40 (41.7%)	44 (61.1%)		
Urban	84	56 (58.3%)	28 (38.9%)		
Number of children				0.062	0.803
1	122	69 (71.9%)	53 (73.6%)		
≥2	46	27 (28.1%)	19 (26.4%)		
Per capita monthly household income				2.033	0.362
<3000	52	27 (31.0%)	25 (34.7%)		
3000-5000	72	40 (42.9%)	32 (44.4%)		
>5000	44	29 (26.2%)	15 (20.8%)		
PTSD		38.78±6.53	33.57±5.48	-5.476	<0.001

3.2. Assignments

Scores were assigned to variables that were statistically significant for a single factor, as detailed in Table 2.

Table 2. Assignments to the variables of the binary logistic regression model incorporating reproductive intention.

Project	Assignment
Educational level	0=Secondary school and below; 1=University; 2=Master's degree and above
Place of residence	Rural = 0; Urban = 1
Age	Original value to be brought in
PTSD	Original value brought in

3.3. Binary Logistic Regression Analysis of Reproductive Age Women's Willingness of Reproductive Intention

The statistically significant single factors of age, education level, place of residence, and PTSD were included in the binary logistic regression analysis to explore the independent influencing factors of reproductive age women's willingness of reproductive intention, as detailed in Table 3.

Table 3. Binary logistic regression analysis of reproduction intention.

independent variable	Beta	Wald X^2	P	OR	95%CI
Constant	-0.028	0.015	0.164	--	--
Age	-0.042	24.423	<0.01	0.874	0.763~0.968
Educational level	2.043	2.342	0.019	2.943	0.621~13.813
Place of residence	0.629	12.743	<0.01	1.973	1.264~2.346
PTSD	-0.152	6.273	<0.05	0.873	0.546~0.996

4. Discussion

At present, many countries in the world show a trend of decreasing the number of newborns year by year and increasing and decreasing the population size. With the implementation of the national comprehensive three-child policy, the fertility intention of women of childbearing age has become the focus of social attention. The birth policy and active response to aging complement each other. The introduction of the three-child policy conforms to The Times and is a major decision to effectively respond to the aging of young children and promote the long-term balanced development of the population [2]. As an important index to predict fertility rate, fertility intention has been widely concerned by academic circles. The existing researches mainly focus on the measurement and application of fertility intention, the change of fertility intention and its influencing factors, and the relationship between fertility intention and fertility rate. Among them, the influencing factors of fertility intention mainly focus on macro and micro factors such as social economy, population characteristics and related policies, and relatively ignore the psychological factors. In fact, as an important subjective variable, people's fertility will be deeply affected by their psychological characteristics and tendencies [15]. In this context, the effects of PTSD on reproductive intention of women of childbearing age discussed in this study have important theoretical significance, and can provide references for the promotion of reproductive intention and policy formulation.

The results of this study show that 42.9% of women of childbearing age have a high willingness to have another child, which is higher than the 20.84% in other studies [16], On the one hand, it may be due to the good sample size of the survey in this study, which does not accurately reflect the level of reproduction intention of women of reproductive age, and on the other hand, it may be that the age of the survey in this study is lower than that of other studies, and the older the age, the lower the reproduction intention. The present study showed that age, education level, place of residence, and PTSD were the influencing factors of reproduction intention among women of childbearing age. The lower age

group was more willing to have a second child compared to the higher age group, which may be related to the higher risk of perinatal disorders and adverse outcomes of offspring pregnancies at higher gestational ages [17]. Women of childbearing age who have higher education level, post-natal job changes and pregnancy complications are more likely not to have a third child. The higher the education level of women, the higher the proportion of unmarried infertile women will increase. With the higher the education level, the reproductive intention of women at childbearing age will also decrease significantly. The reason may be that women with higher education pay more attention to the quality of children rather than the number of children, resulting in women at childbearing age with higher education level, the lower the reproductive intention [18, 19]. It has also been found that the higher the frequency of Internet use, the lower the fertility intentions of women, which may be due to the fact that the Internet serves as a unique medium to influence and change the values and cultural orientations of individuals, thus affecting their behavioral decisions, and that more and more women are reluctant to take on the roles of childbearing and child-rearing, and that their traditional attitudes towards their roles have changed [20, 21]. The results of this study show that women of childbearing age who live in rural areas are more willing to have children than urban women, which may be due to the fact that women of childbearing age who live in urban areas take into account the cost of education, the time and effort required to care for children, and the stress of educating them [22].

A study found that 26.5% of pregnant women who were willing to give birth were distressed, while 47.1% of pregnant women who were not willing to give birth were distressed, indicating that the willingness of pregnant women to give birth is an important factor affecting their mental health [23]. The results of this study show that women of childbearing age have PTSD after giving birth, and the higher the level of PTSD, the lower the willingness to have another child, which may be due to the fact that mothers will independently take on the work of childrearing, to adapt to the new mode of life, such as breastfeeding, sleep disruption at night, crying babies, etc., compared with the usual, the normal pattern of life and work of mothers in this stage of

the change, the maternal physical and mental stress increased significantly which leads to the occurrence of PTSD level [13]. Understanding and intervening in the mental health of pregnant women can help improve pregnancy outcomes [24], This suggests that addressing maternal mental health is also an important part of creating a positive birth climate. Therefore, giving mothers more family support after childbirth can reduce the level of PTSD and thus increase the willingness to have another child.

5. Conclusion

The research results show that age, education level, place of residence and PTSD are independent factors influencing women's willingness of reproductive intention. The higher the level of PTSD, the lower the willingness of reproductive intention. Therefore, attention should be paid to women's postpartum mental health problems, and more family and social support should be provided to improve their mental health status, so as to enhance the level of willingness to have children again.

6. Limitation

Due to the limitation of manpower and material resources, the sample size of this study is small, so it is suggested to conduct a large sample survey in the next step.

Abbreviations

PTSD   Post-Traumatic Stress Disorder
IES-R   Chinese Version of Impact of Event Scale-Revised

Funding

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author.

Conflicts of Interest

All authors disclosed no relevant relationships.

References

[1] Yang Y, He R, Zhang N, et al. Second-Child Fertility Intentions among Urban Women in China: A Systematic Review and Meta-Analysis [J]. Int J Environ Res Public Health, 2023, 20(4). https://doi.org/10.3390/ijerph20043744

[2] Li D, Li LP. Public Opinion effect and Enlightenment of the introduction of three-child Policy: An analysis of Network Big Data based on NLP [J]. Chinese Youth Research, 2021(10): 46-53. https://doi.org/10.19633/j.cnki.11-2579/d.2021.0148

[3] Wang GZ, Hu YL. The low fertility rate in China from the Seventh Population Census [J]. Population Journal, 2022, 44(06): 1-14. https://doi.org/10.16405/j.cnki.1004-129X.2022.06.001

[4] Yang S, Jiang Q, S ánchez-Barricarte JJ. China's fertility change: an analysis with multiple measures [J]. Popul Health Metr, 2022, 20(1): 12. https://doi.org/10.1186/s12963-022-00290-7

[5] Zhu C, Yan L, Wang Y, et al. Fertility Intention and Related Factors for Having a Second or Third Child Among Childbearing Couples in Shanghai, China [J]. Front Public Health, 2022, 10: 879672. https://doi.org/10.3389/fpubh.2022.879672

[6] Li JX, Li N. Feasibility of liberalizing the Current Family Planning Policy in China: A Survey of fertility ideals and fertility intentions of different policy groups in Jiangsu Province [J]. Exploration and Controversy, 2012(07): 6-10.

[7] Liao JY, Zhou T. Reproductive punishment in female career Development [J]. Journal of University of Electronic Science and Technology of China, 2019, 49(01): 139-154. https://doi.org/10.12178/1001-0548.2019187

[8] Cheng PJ, Duan T. China's new two-child policy: maternity care in the new multiparous era [J]. BJOG, 2016, 123 Suppl 3: 7-9. https://doi.org/10.1111/1471-0528.14290

[9] Xiong Y, Jiao G, Zheng J, et al. Fertility Intention and Influencing Factors for Having a Second Child among Floating Women of Childbearing Age [J]. Int J Environ Res Public Health, 2022, 19(24). https://doi.org/10.3390/ijerph192416531

[10] Wang T, Wang C, Zhou Y, et al. Fertility intentions for a second child among urban working women with one child in Hunan Province, China: a cross-sectional study [J]. Public Health, 2019, 173: 21-28. https://doi.org/10.1016/j.puhe.2019.05.006

[11] Bhan N, Johns N E, Chatterji S, et al. Validation of the Fertility Norms Scale and Association with Fertility Intention and Contraceptive Use in India [J]. Stud Fam Plann, 2023, 54(1): 39-61. https://doi.org/10.1111/sifp.12227

[12] Yan Z, Hui L, Wenbin J, et al. Third birth intention of the childbearing-age population in mainland China and socio-demographic differences: a cross-sectional survey [J]. BMC Public Health, 2021, 21(1): 2280. https://doi.org/10.1186/s12889-021-12338-8

[13] Wang MF, Du J, Zheng WK. Longitudinal study on trajectory and influencing factors of postpartum post-traumatic stress disorder [J]. Nursing Research, 2023, 37(04): 584-589. https://doi.org/10.12102/j.issn.1009-6493.2023.04.004

[14] Huang GP, Zhang YL, Xiang H, et al. Reliability and Validity analysis of the Event Impact Scale-Revised (IES-R) in Female prisoners [J]. Chinese Journal of Mental Health, 2006(01): 28-31.

[15] Song J, Hu B. Fertility motivation and desire in Chinese people of childbearing age [J]. Population and economy, 2022, (06): 1-16. https://doi.org/10.3969/j.issn.1000-4149.2022.00.052

[16] Dou J, Li YT, Liu XH, et al. Analysis on the influencing factors of childbearing intention of 988 professional women in a Top Three hospital in Hefei [J]. Journal of Practical Preventive Medicine, 2024, 31(09): 1057-1062. https://doi.org/10.3969/j.issn.1006-3110.2024.09.008

[17] Wu RX, Gong JJ, Jiang JW, et al. Relationship between maternal age and adverse pregnancy outcomes [J]. Journal of Guangdong Medicine, 2019, 41(12): 1276-1279. https://doi.org/10.13820/j.cnki.gdyx.20200849

[18] Shang L, Huang LY, Kou LL, et al. Based on the fertility intention of women of childbearing age and its influencing factors in five provinces and cities of China [J]. China Research on Maternal and Child Health, 2019, 30(09): 1064-1069. https://doi.org/10.3969/j.issn.1673-5293.2019.09.005

[19] Zhang XX, Li Q, Gao ZQ. New thinking on employment discrimination of professional women caused by the universal two-child policy [J]. Journal of Shanxi University (Philosophy and Social Sciences Edition), 2018, 41(05): 105-113. https://doi.org/10.13451/j.cnki.shanxi.univ(phil.soc.).2018.05.014

[20] Liu P, Cao J, Nie W, et al. The Influence of Internet Usage Frequency on Women's Fertility Intentions-The Mediating Effects of Gender Role Attitudes [J]. Int J Environ Res Public Health, 2021, 18(9). https://doi.org/10.3390/ijerph18094784

[21] Billari FC, Giuntella O, Stella L. Does broadband Internet affect fertility? [J]. Popul Stud (Camb), 2019, 73(3): 297-316. https://doi.org/10.1080/00324728.2019.1584327

[22] Zhang Y, Yuan H, Jin YQ, et al. The relationship between childbearing intention and childbearing cost and utility of women of childbearing age in Jiading District of Shanghai under the universal three-child policy [J]. Journal of Practical Preventive Medicine, 2019, 30(01): 62-65. https://doi.org/10.3969/j.issn.1006-3110.2023.01.015

[23] Lu XL, Jiang CX, Wang L, et al. Study on fertility intention and mental health status of pregnant women with two children aged 30 and above in small and medium-sized cities of Anhui Province under the background of universal two-child policy [J]. Chinese Journal of General Medicine, 2020, 23(11): 1406-1410. https://doi.org/10.12114/j.issn.1007-9572.2019.00.512

[24] You ZP, He YJ, Huang XH, et al. Relationship between psychological intervention and pregnancy outcome in elderly pregnant women [J]. Chinese Modern Medical Journal, 2015, 53(16): 47-49.