

Analysis of influencing factors of maternal mental health in Sichuan Province

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Abstract: In this paper, a total of 1942 data were obtained by using the Chinese Health Data Center - "Sichuan Maternal Mental Health Data Set". Through the significance test of SPSS software, the impact of academic qualifications, marital satisfaction and negative social events on maternal mental health was analyzed, and it was concluded that the higher the education, the greater the possibility of adverse mental health of pregnant women. In the cross-impact analysis of the three, educational qualifications had the greatest impact on maternal mental health. Based on the results of this study, it is recommended to provide continuous specialized guidance, psychological comfort, emotional support and physiological help for pregnant women with different educational levels, reduce and eliminate maternal anxiety and fear, enhance maternal self-confidence, and call for and recommend that families and society improve their care and attention to pregnant women: take care of maternal emotions and lives; Establish a mechanism for building and perfecting.

Keywords: Pregnant and pregnant women; Mental health; Degree.

1. Introduction

China is a populous country, and the population problem has always been an overall and long-term important issue for China to solve. The 20th Plenary Session of the Communist Party of China pointed out: Improve the population growth policy, build a family planning support policy system, and invest in production and raising families. Sichuan Province is a province with extremely serious population problems in the whole country: the acceleration of population aging has deepened, and it is pointed out that it ranks third in the country in the population planning of Sichuan Province issued by the Civil Affairs Department of Sichuan Province in 2022; The proportion of the population aged 0-14 with serious declining birthrate ranks 21st in the country. According to the Statistical Bulletin of Sichuan National Economy and Society published by Sichuan Province in 2021, the proportion of people over 65 years old exceeds 17.4%; According to the Statistical Bulletin of Health and Health in Sichuan Province in 2021 published by Sichuan Health and Health Bureau, the total number of births in Sichuan Province in 2021 was 571,000, and the number of children with two or more children accounted for 43.36%. According to estimates, the birth rate in Sichuan in 2021 was about 6.82‰, which was 0.7 thousandths higher than the provincial average of 7.52‰. In 2021, Sichuan Health and Health Bureau pointed out that population problems such as this need to be solved from the root-population fertility, and the factors affecting population fertility include maternal family concept, economic conditions, social atmosphere and national policies. Returning to the original pregnant woman is the core of the population fertility link. Women's physiological and psychological changes and abnormal psychological problems in this special period of pregnancy and childbirth. In recent years, due to China's increasing attention to the mentality of pregnant

women, it is necessary to pay more attention to the mental, psychological and physical conditions of pregnant women in the spirit of the National Women's Program (2011-2020), "Health China 2030" Program Outline on strengthening physical and mental health services and the implementation plan of the pilot work of community mental and psychological service system construction in China. The influence of psychological factors on pregnant women is self-evident. In order to alleviate the population problem in Sichuan Province, maternal health care should be paid more attention.

For pregnant women, this is not only for individual life, but also reflects a degree of social civilization. Good mental state and physical health of pregnant women can improve the mental health of babies, so that pregnant women have good physical health and natural fertility. Pregnant women's psychological factors will not only affect their health, but also increase the risk of obstetric and neonatal complications, thus endangering mother-child relationship, infant health care and psychological adaptability. If the psychological factors of pregnant women cannot be effectively intervened, it will bring great pressure to the female family health system and society, and even cause other serious consequences. At the same time, this paper hopes to play a role in improving the social attention to maternal mental health, responding to the "three children" policy and promoting population growth. Therefore, we think this topic is of research significance.

2. Literature review

2.1. Concept definition

Mental health is a comprehensive concept that refers to efficient and pleasant adaptation to and relationship with each other. Mentally healthy people can adapt to social behavior and temperament with calm emotions and keen intelligence.

There are many kinds of mental health of college students. In 2011, Xia Xiaolin and other scholars thought that the mental health of college students included normal intelligence, emotional health, sound will, complete personality, self-evaluation, appropriate interpersonal relationship, harmonious adaptability, strong psychological behavior and age characteristics of college students. In 2009, the Third International Congress on Mental Health defined mental health as the transformation of an individual's state of mind within the range of physical intelligence and emotion that does not contradict the mental health of others. Professor Cai Zhuoji, chairman of China Mental Health Association, put forward six items of Chinese mental health at the first National Mental Health Management Forum in 2010, namely: 1. Emotional stability and security 2. Know and accept yourself 3. Learn by yourself and live independently 4. Harmonious interpersonal relationship 5. Coordinate roles and functions 6. Adapt to setbacks. In the research of social scientist Chen Yupeng in 2020, superficial mental health refers to the complete and coordinated content of people's basic psychological activities, that is, understanding emotion, will, behavior, personality integrity and coordination, which can adapt to the psychological state of social synchronization.

Gu Hang and Lin Qide put forward the theory of emotional brain mechanism in 2005, which holds that human emotion is closely related to nervous system such as cerebral cortex and limbic system. Women's emotions will become more important during pregnancy and childbirth, thus forming a unique psychological stress response of pregnant women. Mental health of pregnant women due to the role of physical and social factors during pregnancy and childbirth, psychological changes in different states and degrees occur. These psychological changes have affected the physical and mental health of pregnant women and postpartum health to a certain extent.

2.2. Influencing factors of maternal mental health

In 2012, Su Chunrong pointed out that the psychological phenomenon of pregnant women is the result of the interaction between physiological and psychological factors and social factors. He Ying Zhao Chunyan pointed out in 2013 that the psychological changes of pregnant women directly affect the health of mothers and infants. Bennett HAYang Guoqiang and other scholars showed in their respective studies in 2004 and 2006 that pregnant women often have some psychological problems such as anxiety and depression during pregnancy, and a good psychological state is an important guarantee for them to successfully pass the pregnancy and childbirth. Lin Fen proposed in 2013 that ensuring positive psychological reaction can not only make pregnant women in a good state of mind and body, but also effectively prevent the occurrence of physical diseases and make them in a healthy state of physiology. Ye Qingxiao, Fan Kairong and Liao Menglan pointed out in 2007 that there are studies showing that the incidence of psychological abnormalities of pregnant women in China is high. The incidence of psychological abnormalities of pregnant women reported abroad is about 5%, while the incidence of psychological abnormalities of pregnant women in China is 10% ~ 25%. This may be related to poor family economic situation, poor living conditions, disharmonious relationship between husband and wife and related social factors. Carmichael SL et al. Said in a 2007 study that the adverse

effects of psychological stress on health may include internal and immune system disorders, decreased immune ability of the body, and the incidence of diseases such as cancer. A 2006 study by Tsui M H et al. Showed that even in a group of pregnant women with low risk of birth defects (the risk of cleft lip and palate in their offspring), they often experienced fear of pregnancy and childbirth. Gao Mengjuan, Huang Suqin and Li Meilian pointed out in 2005 that it is necessary to adopt better strategies to solve women's psychological needs during pregnancy. There is a certain corresponding relationship between pregnancy psychology, delivery outcome and postpartum depression. There are three factors affecting the mental health of pregnant women: individual, family and society. Among these three factors, the educational background of pregnant women has a significant impact on marital satisfaction and life events have a significant impact on the mental health of pregnant women.

2.2.1. Individual level

At the self-level, the educational background, economic income, pregnancy history, abortion and induction of labor history of pregnant women, the attention of pregnant women to fetal health, whether the personality of pregnant women is introverted and other factors will affect the mental health of pregnant women. Wu Chengxi, Dong Yan and others said in 2010 that when studying the changes of pregnant women's educational background and psychological status, the mental health status of women in the second trimester showed a trend of high in the middle and low at both ends according to age. Pregnant women with low educational background were more likely to have anxiety and psychotic symptoms. Feng Yahui, Yue Hexin and others showed in their research in 2021 that pregnant women with junior high school education or below are less likely to be lonely than pregnant women with college or undergraduate education or master's degree or above. Therefore, this paper selects the educational background of pregnant women to study their mental health.

2.2.2. Family level

At the family level, living conditions, family harmony, mother-in-law and daughter-in-law relationship, husband-wife relationship, son preference, poor care for pregnant women, etc. will affect the mental health of pregnant women. Liu Xiaoli, Liu Liping and Zhong Dongxiu mentioned in 2019 that in 1929, American sociologist Hamilton first proposed in the book *Marriage Research: Marital satisfaction is an important indicator to measure marriage*. Li Lina Chen Ruijun Xu Dongmei pointed out in 2007 that high marital satisfaction can actively cope with maternal anxiety and mental health. In 2007, China's maternal and child health care found that the negative emotions of people with low marriage were significantly more than those with high marriage. According to the previous research, there is a direct or indirect relationship between maternal mental health and marital satisfaction. This paper selects marital satisfaction at the family level to study the influence of family level on maternal mental health.

2.2.3. Social level

Accompanying a long life at the social level changes the unfair treatment of the work unit. These influencing factors are social life events in essence, so this paper studies the influence of social level on maternal mental health from the perspective of social life events. Sun Shengnan and others showed in the research in 2016 that many pregnant women did not participate in maternal-related health education due to

inconvenient transportation and busy work, and the participation rate of family members was lower, which led to some pregnant women not having a good attitude in the face of related events. Sun, Ke, Gao, Lingling, and others showed in the research in 2011 that good social life events can alleviate the adaptability of pregnant women, reduce their physical and mental symptoms and even improve their immunity; Negative life events are the opposite. This paper selects social life events in the social level to study the influence of social level on pregnant and lying-in women's mental health.

2.3. Literature commentary

Through combing, research and existing literature, it can be found that most scholars believe that the educational level of pregnant women, the satisfaction of family and marriage, and social life events are important factors that affect the mental health of pregnant women. However, there are still some deficiencies in the research: first, the previous studies were conducted from a single perspective, and the influence of one factor; second, the research scope of scholars is too large, and the research on pregnant women in regions such as Sichuan Province will be generalized. This paper selects three factors with higher popularity and greater influence from the three levels of self, family and society—self-education level, family and marriage satisfaction, and social life events to conduct a comparative study on the mental health problems of pregnant and lying-in women. Try to clarify the impact of these three factors on the mental health of pregnant women, including the magnitude of each impact and cross-influence, so as to prevent and treat in advance to help more pregnant women and babies. Based on the above, the following hypotheses are put forward:

Hypothesis 1: Educational background has a significant positive impact on maternal mental health.

Hypothesis 2: Marital satisfaction has no significant positive effect on maternal mental health.

Hypothesis 3: The presence or absence of negative life events has no significant positive impact on maternal mental health.

Hypothesis 4: Educational marital satisfaction, whether negative life events have cross-effects on maternal mental health.

3. Empirical study on influencing factors of pregnant and lying-in women's mental health

3.1. Data source

According to the subject database of mental health science of the whole population, the data covers 1941 pregnant women in Sichuan Province, and the valid samples are 1941. Overall, there are 1438 people with unhealthy psychological status, accounting for 74.09%; There are 197 people with very unhealthy psychological status, accounting for 10.15%; There are 306 people with healthy psychological status, accounting for 15.77%. The sample structure is generally reasonable.

3.2. Variable selection

3.2.1. Explained variable

The explained variable is the mental health status of pregnant and lying-in women in Sichuan Province, which is represented by the three settings of "are you anxious", "are you fearful" and "are you depressed" in the questionnaire of the whole population mental health science subject database,

and "almost none" = 1, "sometimes" = 2, "most of the time" = 3, "often" = 4, observe the distribution of sample data and the actual situation, stipulate that "1~1.67" = healthy, "1.67~2.34" = comparison Unhealthy, "above 2.34" is unhealthy. Therefore, the higher the value, the unhealthier the mind is. Samples with no response and missing observations will be excluded from the regression.

3.2.2. Explaining variable

The problem performance of the core explanatory variable, namely education level, marital satisfaction and negative life events, in the questionnaire of the whole population mental health science subject database. At the self-level, multiple-choice question q109 sets "your educational level" [junior high school and below] = 1 "high school and junior college" = 2 "undergraduate" = 3 "graduate student and above" = 4 at the family level, multiple-choice question q0123abd sets "your marital satisfaction" [dissatisfied] = 1 "satisfied" = 2 at the social level, multiple-choice question q207 "negative life conditions you have experienced" sets "no negative life conditions have occurred" = 0 "negative life conditions have occurred" = 1 samples without answers and missing observations will be eliminated in regression.

3.3. Model results and analysis

3.3.1. Basic description of the variables

Details of the basic information of the survey objectives are shown in Table 1 below. The survey includes age, place of residence, marital satisfaction, educational background and the occurrence of negative life events. Count the number of people in different aspects and stipulate different divisions for different categories. Statistical description of the distribution of each category for further description.

Table 1. Basic information on the Maternal Mental Health Survey

	category	Number	Proportion (%)
age	17-25 (including critical values.)	254	13.09
	25-35	1531	78.88
	35 and above	156	8.04
	city	1507	77.64
Place of residence	Urban-rural junction	230	11.85
	countryside	204	10.51
Marital satisfaction	satisfied	1927	99.28
	dissatisfied	14	0.72
Degree	Below junior intermediate level	284	14.63
	High school and junior college	793	40.86
	undergraduate	754	38.85
	Graduate degree or above	110	5.67
	Whether there are negative events in life	1665	85.78
	No	276	14.22

3.3.2. Analyze on whether the explanatory variable is significantly correlated with the explained variable

By observing the degree of dispersion of each variable, it is found that there may be a significant correlation between the explanatory variable and the explained variable. Therefore,

SPSS correlation is used to calculate the details of the respective Spearman correlation coefficients as shown in Table 2 below. Through the data display, it is found that at 99% confidence There is a significant correlation between the education level of pregnant women and their mental health. According to the survey results, women with higher education levels will have a more detailed understanding of pregnancy and childbirth operations, and their worries will increase. For example: worry about pain, whether anesthesia will affect the child, whether there will be genetic diseases, postpartum body shape changes, etc. Therefore, women with higher education are more likely to experience anxiety and fear. There is no

evidence that there is a significant relationship between negative life aspects and marital satisfaction on maternal mental health. In terms of negative life, it may be because most people pay more attention to and protect women, which leads to a lower probability of occurrence. After the occurrence, the family handles the incident properly in a timely manner and deepens care and care for pregnant women. In terms of marital satisfaction, it may be because the family is more concerned about women's childbirth. Strengthen care and care for women during pregnancy Pregnant women themselves shift their psychological focus from marriage to children.

Table 2. Table of Spearman correlation coefficients

		correlation			
		Degree	life	marriage	psychology
Spearman	Degree	correlation coefficient	1	-0.01	0.002
		Sig.		0.675	0.975
	life	correlation coefficient	-0.01	1	0.01
		Sig.	0.675		0.728
	marriage	correlation coefficient	0.002	0.01	1
		Sig.	0.975	0.728	
	psychology	correlation coefficient	0.73**	0.054	0.038
		Sig.	0.01	0.168	0.798

Note: *, **, ***means significantly the same at the levels of 10%, 5% and 1%

3.3.3. Educational background and explained variable progress analysis and conclusion

According to the Spearman correlation coefficient, it shows that there is a significant relationship between maternal education and maternal mental health at 99% confidence level.

Further, the Pearson correlation coefficient is calculated by SPSS software. Details are as follows: Table 3. It is found that there is a strong linear correlation between maternal education and maternal mental health at 99% confidence level Negative life level and marital satisfaction have no obvious linear correlation with maternal mental health.

Table 3. Table of Pearson correlation coefficients

		correlation			
		Degree	life	marriage	psychology
Pearson	Degree	Correlation coefficient	1	-0.016	-0.013
		Sig.		0.494	0.58
	life	Correlation coefficient	-0.016	1	0.009
		Sig.	0.494		0.701
	marriage	Correlation coefficient	-0.013	0.009	1
		Sig.	0.58	0.701	
	psychology	Correlation coefficient	0.71**	0.032	0.012
		Sig.	0.01	0.161	0.602

The correlation coefficient matrix is obtained, as shown in Table 4 below. The correlation coefficients between maternal education, marital satisfaction, negative living conditions and mental health status are 0.0710. 0320. 009, showing a positive correlation. With their own education, the probability of mental unhealth during pregnancy and childbirth is greater.

Table 4. Correlation coefficient matrix

		correlation			
		Degree	psychology	life	marriage
Degree	1				
psychology	0.71**	1			
life	-0.016	0.032	1		
marriage	-0.013	0.012	0.009	1	

Using SPSS to carry on the regression linear regression to the mental state, the details are as follows: Table 5 Linear regression table shows that there is a significant linear correlation between one's own educational background and maternal mental health. Combining the data in Table 2, Table

3 and Table 4, the data shows that one's own educational background has the greatest influence on maternal mental health, followed by negative living conditions and the smallest influence on marital satisfaction.

Table 5. Table of linear regression analysis

	β	standard error	Normaliz ation factor	t	Salie nce
Degree	0.045	0.014	0.071	3.145	0.002
marriage	0.04	0.08	0.012	0.521	0.602
life	43	0.03	0.032	1.042	0.161

3.3.4. Analysis on cross influence of mental health factors

The mental health status of the respondents was taken as dependent variable and assigned value: mental health status = 1, poor mental health status = 0, negative life events, marital satisfaction degree were taken as independent variable, and logistic regression was carried out on the influencing factors of pregnant and lying-in women's mental health the results of Horsmer-Lemeshaw test are: $P=0.57 > 0.05$. The binary

Logistic model fits well with the observed values From Table 6, we can see that $\text{Exp}(\beta)$ value indicates the difference of mental health status of pregnant women caused by educational background, marital satisfaction and negative life events, which is an index to measure its treatment effect Therefore, in terms of whether there are negative life events, taking negative life events as the reference category, the impact of no negative health events on mental health is 0.987 times that of negative life events. In terms of marital satisfaction, $\beta = 0.026 > 0$ $\text{Exp}(\beta) = 1.026 > 1$. With the improvement of marital satisfaction, the mental health status of pregnant women is also improving towards health status.

Table 6. Multifactorial logistics analysis of mental health conditions

	β	standard error	Wilder	df	Salience	$\text{Exp}(\beta)$
There are negative events in life	-0.013	0.119	0.012	1	0.913	0.987
Marital atisfaction	0.026	0.028	0.83	1	0.362	1.026
Degree	0.316	0.095	11.021	1	0.001	1.372
c	-0.769	0.08	91.845	1	0	0.463

4. Conclusion and suggestion

4.1. Conclusion

This paper studies the mental health problems of pregnant women in Sichuan Province from the perspective of individual, family and society by using the whole population mental health science subject database Among them, the core explanatory variable is the problem performance of educational background, marital satisfaction and negative life events in the questionnaire of the whole population mental health science subject database Among them, the higher the educational background, the greater the possibility of poor mental health of pregnant women, but pregnant women with different educational levels have different degrees of mental health problems; The high degree of marital satisfaction has an impact on the mental health of pregnant women, but the insignificant marital status has a positive effect on the mental health of pregnant women; There are many reasons for the heavy psychological burden of pregnant women in negative life events, such as tension in interpersonal relationship, great work pressure, worrying about fetal health, worrying about their own health, economic pressure, family illness and poor sleep, etc. In addition, through the cross-influencing factors of the three factors, it can be seen that educational background has the greatest impact on the mental health of pregnant women; Through Spearman correlation coefficient, we can see that there is a significant correlation between educational background and maternal mental health, but there is no evidence to prove that there is a significant correlation between negative life level and marital satisfaction and maternal mental health; Through Pearson correlation coefficient, we can see that there is a strong linear correlation between educational background and maternal mental health, and there is no obvious linear correlation between negative life level and marital satisfaction and maternal mental health; Through multivariate logistics, it can be seen that the mental health status of pregnant women with negative life events is more likely to fluctuate when they are satisfied with marriage.

4.2. Suggestion

According to the conclusion of this study, the following suggestions are put forward: Specialized guidance,

In terms of educational background, pregnant women with high school and below are divided into one category; Bachelor degree and above are divided into one category $\beta = 0.316 > 0$ $\text{Exp}(\beta) = 1.372 > 1$. With the improvement of educational background, the mental health status of pregnant women is also improving, and the mental health status of pregnant women with bachelor degree and above is more likely to be affected, which is 1.372 times higher than that of high school junior college and below Therefore, the mental health status of pregnant women who have negative life events and are satisfied with marriage in undergraduate course is more likely to fluctuate.

psychological comfort, emotional support, physiological help to alleviate and eliminate maternal anxiety and fear, enhance maternal self-confidence, give necessary psychological evaluation to pregnant women with different educational levels, and help them with self-mental health care skills, so that pregnant women can give full play to their initiative and enthusiasm during childbirth to ensure physical and mental health of mothers and infants In 2018, Hunan Province pointed out that family members pay attention to balanced diet and rich species to help pregnant women develop a good life schedule; At the same time, do a good job in stabilizing the mood of family members before delivery, so as to enhance the sense of security of pregnant women; Strengthen nurse-patient communication, reach a consensus on postpartum rehabilitation and parenting, make pregnant women feel the care, support and care of family and friends, fully guarantee the normal life and rest of pregnant women, and reduce the anxiety and uneasiness caused by women's post-hospital changes and concerns about childbirth Enhance the society's investigation of pregnant women and build a full-coverage basic information database for pregnant women Establish a complete social security mechanism for pregnant women, open up a "green channel" for pregnant women, do a good job of investigation and build a full-coverage basic information database for elderly pregnant women.

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