Factors impacting fertility anxiety among Chinese young women with marital status differences

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ABSTRACT

Background: China's societal and cultural significance placed on female fertility and the changing roles of women can lead to fertility anxiety in both married and unmarried women. This anxiety is shaped by factors such as social media use, intergroup emotions, fertility risk perceptions, and national policies. This study examines the interplay of these factors in understanding fertility anxiety among Chinese women.
Methods: This study surveyed 607 young Chinese women using the Fertility Anxiety Scale developed by Zhang and Zhao. Mplus software was used for latent class analysis of respondents' fertility anxiety. A three-step approach with multinomial logistic regression was used to explore factors influencing fertility anxiety among married and unmarried women.
Results: The latent class analysis supported a two-category model: "high fertility anxiety" (65.70 % married, 53.70 % unmarried) and "low fertility anxiety" (34.30 % married, 46.30 % unmarried). Multinomial logistic regression showed that increased social media usage intensity and perception of health-family risks correlated with higher fertility anxiety in both married and unmarried women. Among unmarried women, intergroup emotions and perceptions of occupational-economic risks also influenced fertility anxiety. Attention to national policies did not significantly impact fertility anxiety among young women.
Conclusion: This study sheds light on the complex interplay of societal and individual factors in shaping fertility anxiety among young Chinese women. It underscores the enduring cultural significance placed on female fertility and the evolving roles of women in modern China. Regardless of their marital status, both married and unmarried women experience fertility anxiety, highlighting the pervasiveness of this concern.

1. Introduction

At present, China's population structure is characterised by ageing and a declining birth rate. The primary reason for the decline in China's birth rate is that the fertility will of the population of reproductive age has conspicuously decreased, such that in effect, fertility behaviour is much lower than the policy expectation.[1] According to data from the seventh national census, the total fertility rate in China was only 1.3 in 2020, and the country faces the risk of dropping to "ultra-low" fertility rates. The decreasing fertility rate and the

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worsening demographic imbalance pose significant risks and challenges to China's economic and social development. These challenges include the ongoing shortage of social labor and the growing burden of elderly care [1,2]. Increasing the fertility rate is considered an important way to solve these problems [3].

Because of their special physiological characteristics, women are naturally endowed with reproductive function. However, many women who have reached reproductive age still have concerns and even anxiety about fertility [4,5]. The concept of anxiety originated from psychology [6,7]. However, more and more sociologists have argued that anxiety reflects not only individuals' psychology but potentially also their responses to social phenomena, known as "individual anxiety" or "social anxiety" [8,9]. In the process of making reproductive decisions, when a women's subjective desire to have a child conflicts with objective obstacles to reproduction, women of reproductive age may experience emotional anxiety, known as "fertility anxiety" [10]. Women of reproductive age may experience fertility anxiety when they have a strong desire to have children but are prevented from doing so by various subjective and objective factors (e.g., Afraid to have children despite wanting to due to various reasons.). Alternatively, in settings such as China, women of reproductive age may have no intention of having children (i.e. do not want to have children) or may be uncertain about whether they will have children, but may still experience conflict between their personal desires and traditional values regarding reproduction. This may also elicit fertility anxiety in the process of deciding whether to have or not to have children.

Many studies have shown that women's fertility anxiety is closely related to factors such as national policies and protection measures [11,12], as well as perceptions of fertility risks [13]. Zhu [14] suggested that perceptions of reproduction-related risks have two dimensions: health risks associated with childbirth or pregnancy and the economic impact of reduced income or job loss due to childbirth. Reproductive behaviour reinforces women's economic and occupational risks, which increases their fertility anxiety. In a questionnaire and interview based study, Qiao [15] found that the impact of fertility risk on women's fertility anxiety has increased. In addition to perceptions of health, economic, and occupational risks, attention should be paid to perceptions of family risks, such as the potential increase in the cost of raising a child, which may reduce the quality of family life, or conflict between parents' child-rearing principles that may lead to family relationship problems. Due to the association between health risk and family risk perceptions, as well as perceptions of occupational risk and economic risk, these types of risk were investigated together in the current study: as health–family risk and occupational–economic risk perceptions.

With the boom in the development of online social media, scholars have begun to investigate whether young women's fertility anxiety is influenced by online social media [16]. Social media, as a diverse network application platform, has attracted an increasing number of people who use it frequently. The frequency and time individuals spend on social media are important indicators of social media usage intensity [17]. Liu and Song [18] found through in-depth interviews and online text analysis that the higher the frequency of women's social media use, the more likely it was to strengthen their gender awareness, awaken their independence, and thus increase their willingness to have children and strengthen their fertility anxiety. In addition, online social media are a set of tools for communication and interaction. The information and opinions disseminated through online social media resonate with many people. From a social identity perspective, when individuals identify with a particular group, their group membership can influence their emotions, thoughts, and behaviour [19,20]. This is known as intergroup emotion [21]. Extending the concept of intergroup emotions to women's fertility anxiety, women often evaluate their fertility status and risks by comparing and observing those around them, leading to emotional and behavioural changes. If the people around them hold positive attitudes towards reproduction and fertility, women are likely to feel reassured and confident about reproduction and their fertility anxiety is likely to be relatively low; conversely, if the people around them hold negative attitudes towards reproduction and fertility, women are likely to feel fertility anxiety and pressure [22]. Therefore, this study took social media usage intensity and intergroup emotions as research variables.

Young women have a great potential for fertility and are the main target group for efforts to improve fertility rates [23]. However, married and unmarried women may differ in the factors influencing their fertility anxiety, due to the differences in their marital status [24]. Therefore, when studying fertility anxiety, it is necessary to consider the differences in factors affecting the fertility anxiety of young women with different marital statuses, in order to develop more targeted policies and intervention measures. In this study, latent class analysis was employed to investigate the attributes of fertility anxiety in young Chinese women with varying marital statuses. We observed the effects of factors such as social media usage intensity, intergroup emotions, perceived fertility risks, and national policy attention on their fertility anxiety. The findings provide important policy ideas and directions for alleviating fertility anxiety among young women.

2. Methods

2.1. Participants and procedure

Based on the research objectives, we conducted a survey of 20–35-year-old young women who were either married or unmarried at the time of the survey and did not currently have children (classified as follows: uncertain about having children, afraid to have children despite wanting to, and did not want to have children). The survey design and data analysis excluded those who did not meet these criteria.

First, according to the "Medium and Long-term Youth Development Plan (2016–2025)" issued by the Central Committee of the Communist Party of China and the State Council, the age range of youth is defined as 14–35 years old. According to the Civil Code of the People's Republic of China, Chinese women must have reached 20 years old before they can get married. Based on these metrics, the current study focused on young women between 20 and 35 years old to investigate their fertility anxiety; women who are younger than 20 or older than 35 were not included in the study.

Second, regarding the potential influence of marital status on the fertility anxiety of young women aged 20–35, the four possible

options for defining research subjects in terms of their marital status and whether they have children are as follows: married with children; married without children; unmarried without children; and unmarried with children. Among them, the categories of "married without children" and "unmarried without children" were selected for this survey-based study because women who have children have already exhibited actual fertility behaviour, and their fertility anxiety is either non-existent or relatively low.

Third, this study defined the population of 20–35-year-old young women who are married without children or unmarried without children using a question about their fertility desire: "With the lifting of China's one-child policy to allow couples to have second and third children, when you see people around you having children, do you want to have children?" The answer options were as follows: "Yes, I want to have children"; "I am uncertain about having children"; "I want to have children but am afraid to"; "I do not want to have children"; and "I am unable to have children". Young women who define themselves as wanting to have children have a clear fertility desire and are therefore less likely to have fertility anxiety, while those who define themselves as unable to have children may have physical reasons for this limitation and require separate discussion. Only young women who do not want to have children, are uncertain about having children, and want to have but are afraid to have children are likely to have common factors influencing their fertility anxiety.

This study initially collected surveys anonymously through the online platform QuestionStar in China, employing a form of random sampling. With the university's approval, participants were provided with a hyperlink to the questionnaire containing the measures. Utilizing an online Questionnaire Survey platform, participants then proceeded to fulfill and submit their responses to the measures. Next, the collected questionnaires were screened based on certain criteria and those that did not meet the requirements were excluded, leaving only questionnaire responses that met the criteria (childbearing women aged 20–35 who did not want to have children, were uncertain about having children, or wanted to have but were afraid to have children). In total, 671 survey questionnaires were distributed in this study and 607 valid questionnaire responses were collected, with a valid response rate of 90.46 %. Among them, 396 were from married women without children with an average age of 30.02 and a standard deviation of 2.77, while 211 were from unmarried women without children with an average age of 24.96 and a standard deviation of 2.36.

2.2. Measures

Fertility Anxiety Scale: The study used the Fertility Anxiety Scale developed by Zhang and Zhao [25], which consists of six items. For example, "I worry that I cannot provide a good material condition for my child," and "I worry that having children will impact my career." In the prior study, the internal consistency coefficient for this scale was reported as 0.93. Using a 5-category Likert scoring, the scale attributes higher total scores to indicate elevated levels of fertility anxiety. In this study, the scale exhibited an internal consistency coefficient of 0.89.

Social Media Usage Intensity Scale: This study used the Social Media Usage Scale developed by Zhang and Zhao [25], which consists of five items. For example, "I believe I cannot live without social media," and "If I were to deactivate my most frequently used social media account, it would impact my work and life." In the prior study, the internal consistency coefficient for this scale was noted as 0.88. Utilizing a 5-category Likert scoring, the scale associates elevated total scores with heightened levels of social media usage intensity. In the present study, the internal consistency coefficient for the scale was found to be 0.90.

Intergroup Emotion Scale: This study used the Intergroup Emotion Scale developed by Zhang and Zhao [25], which consists of five items. For example, "I often identify with the emotions of online communities regarding events," and "I am influenced by the emotions of online communities and may take action." In the earlier study, the internal consistency coefficient for this scale was documented as 0.86. The items were evaluated using a 5-category Likert scoring, where increased total scores denoted heightened intergroup emotion. In the present study, the internal consistency coefficient for the scale was found to be 0.89.

Perceived Risk of Fertility Scale: This study utilised the Perceived Risk of Fertility Scale developed by Qiao [15], which consists of eight items divided into two dimensions, namely health–family risks and occupational–economic risks, with internal consistency coefficients of 0.86 and 0.84, respectively. For example, "Physical damage or illness caused by pregnancy and childbirth (such as changes in body shape or postpartum depression)," "The cost of raising children is too high and affects the quality of family life," "Experiencing gender discrimination from employers due to reproductive issues," "A decrease in income during maternity leave or postpartum." The scale uses a 5-category Likert scoring, with higher total scores indicating a higher level of perceived fertility risk. The internal consistency coefficient for the scale in the present study was 0.88. Moreover, the internal consistency coefficients for the health–family risk perception dimension and the occupational–economic risk perception dimension were 0.79 and 0.78, respectively.

We used three self-formulated questions to investigate the level of attention that women pay to relevant policies regarding fertility in the country. There are a total of three questions, as follows: (a). "Do you pay attention to national fertility-related policies (such as fertility policies, women's employment policies, social welfare policies, etc.)?" with response options ranging from 1 (never pay attention) to 5 (pay very close attention). (b). "Have you paid attention to recent changes in the country's fertility policies and their content (from the only one-child policy to the three-child policy)?" with response options ranging from 1 (never pay attention) to 5 (pay very close attention). (c). "Do you think the country's fertility policies have an impact on your personal or family's plans for having children?" with response options ranging from (1 = No Impact, 2 = Slight Impact, 3 = Some Impact, 4 = Significant Impact, 5 = Very Significant Impact). The internal consistency coefficient for this questionnaire is 0.76.

2.3. Data analysis

The data were processed using Mplus 7.4 and SPSS 23.0. Latent class analysis was employed to identify fertility anxiety patterns among married and unmarried women without children, determining the proportions of each class. Young women's fertility anxiety

types were sequentially categorized into one to four classes based on the order of class numbers, and the model fitting estimation of latent classes was conducted. Model adaptation indicators, including log-likelihood (Log(L)), Akaike information criterion (AIC), Bayesian information criterion (BIC), adjusted BIC (aBIC), entropy index, LoMendell-Rubin likelihood ratio (LMR), and bootstrapped likelihood ratio (BLR), were assessed according to the K value. Smaller values of Log(L), AIC, BIC, and aBIC indicated better model fit. The entropy index, ranging from 0 to 1, evaluated classification accuracy, with higher values indicating greater accuracy [26,27].

3. Results

3.1. Latent classes of fertility anxiety among married women without children

Commencing with a one-class initial model, this study conducted a stepwise analysis by incrementally increasing the number of classes to identify the model that best suited the data. The findings revealed a consistent decrease in the values of Log(L), AIC, BIC, and aBIC as the number of classes increased. Notably, when there were two latent classes, both LMRp and BLRTp values surpassed the significance threshold (p < 0.001), signifying superior performance of the two-class model compared to the one-class model. However, upon introducing three classes, the entropy value did not exhibit greater precision than that of the two-class solution, and neither LMRp nor BLRTp reached significance. Consequently, the two-class solution was deemed the most effective. With the two-class model, the entropy index stood at 0.886, indicating a commendable level of classification accuracy, as presented in Table 1. .

Moreover, distinct disparities were observed between the two latent classes across six items of the Fertility Anxiety Scale (refer to Fig. 1). Notably, scores for all items in Class 1 (C1) were higher compared to those in Class 2 (C2), with scores for each item predominantly clustered around 0.7. Consequently, C1 was designated as the "High Fertility Anxiety Type," encompassing 65.70 % of the total subjects. In contrast, C2 exhibited low scores for all items, distributed around 0.2, earning it the label "Low Fertility Anxiety Type," representing approximately 34.30 % of the total subjects.

3.2. Factors influencing the latent classes of fertility anxiety among married women without children

This study employed the robust three-step approach (R3STEP) to conduct multinomial logistic regression analysis. The two latent classes of married women's fertility anxiety were the dependent variable. The independent variables were policy attention, intensity of social media use, intergroup emotion, perception of health–family risk, and perception of occupational–economic risk. Based on the research needs, "low fertility anxiety" was used as the reference group. The results indicated that policy attention, intergroup emotions, and perceived occupational–economic risk did not have a statistically significant predictive effect on married women's fertility anxiety. Social media usage intensity predicted high fertility anxiety in married women. For every one-point increase in social media usage intensity, the likelihood of belonging to the "high fertility anxiety" group increased by 11.63 % [$(e^{0.11}-1) \times 100 = 11.63$ %] among married women. Married women with a one-point increase in the health–family risk perception dimension had a 37.71 % [$(e^{0.32}-1) \times 100 = 37.71$ %] higher probability of belonging to the "high fertility anxiety" group. See Table 3.

3.3. Latent classes of fertility anxiety among unmarried women without children

The analysis began with a one-class initial model and iteratively increased the number of classes to identify the optimal fit for the data. The findings revealed a consistent decrease in Log(L), AIC, BIC, and aBIC values with an increasing number of classes. Notably, with two latent classes, both LMRp and BLRTp values reached significance (p < 0.001), indicating superior performance compared to the one-class model. In the case of three latent classes, the LMRp value did not significantly surpass that of the two-class model, suggesting the superiority of the latter. With four latent classes, neither LMRp nor BLRTp reached significance. Consequently, the two-class model emerged as the most fitting. With a two-class model, the entropy index was 0.933, signifying robust classification accuracy. In summary, this study identified the two-latent-class model as the most fitting, as detailed in Table 4.

Table 5 illustrates that the average probability (column) of unmarried women without children (rows) belonging to each respective class ranged from 97.8 % to 98.7 %. This suggests that the classification into two latent classes was reliable.

Furthermore, notable distinctions were observed between the two latent classes across six items of the Fertility Anxiety Scale (refer to Fig. 2). Specifically, scores for all items in Class 1 (C1) were higher compared to those in Class 2 (C2), with scores for each item predominantly clustered around 0.5. Consequently, C1 was characterized as the "High Fertility Anxiety Type," representing 53.70 % of the total subjects. In contrast, C2 exhibited low scores for all items, distributed around 0.3, earning it the label "Low Fertility Anxiety Type," encompassing approximately 46.30 % of the total subjects.
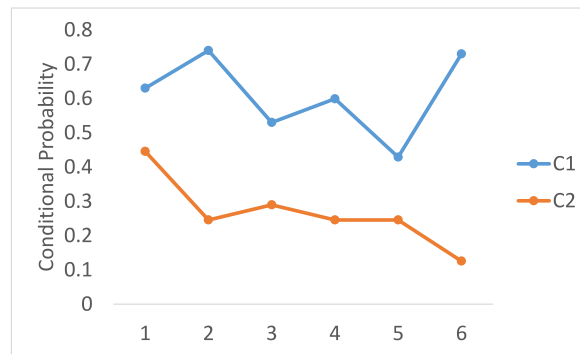
Table 1
Analysis of indicators in the latent class model for fertility anxiety among married women without children.

Class	K	Log(L)	AIC	BIC	aBIC	Entropy	LMR	BLRT	Class Probability/%
1	36	−8746.077	17564.154	17707.485	17593.257	–	–	–	–
2	49	−2922.629	5943.258	6138.347	5982.869	0.886	<0.001	<0.001	65.40/34.60
3	74	−2793.929	5735.857	6030.482	5795.679	0.842	0.75	0.75	34.85/44.19/20.96

As illustrated in Table 2, the average probability (column) of married women without children (rows) belonging to each respective class ranged from 95.0 % to 97.8 %. This suggests that the categorization of the data into two latent classes was dependable.

Table 2
Average attribution probability (column) for each latent class among subjects (rows) of married women without children.

Class	C1	C2
C1	0.978	0.022
C2	0.050	0.950

Fig. 1. Answers of two latent classes in married women without children' fertility anxiety scale.

Table 3
Logistic regression analysis of influencing factors of fertility anxiety of married women without children (n = 396).

Independent Variable	Partial Regression Coefficient			
	High Fertility Anxiety Type			
	β/Coef	SE	t	P
policy attention	0.37	0.28	1.32	0.157
intensity of social media use	0.11	0.05	2.20	0.028*
intergroup emotions	0.09	0.05	1.80	0.085
perception of health and family risks	0.32	0.16	2.00	0.036*
perception of occupational and economic risks	0.10	0.14	0.71	0.452

Table 4
Analysis of indicators in the latent class model for fertility anxiety among unmarried women without children.

Class	K	Log(L)	AIC	BIC	aBIC	Entropy	LMR	BLRT	Class Probability/%
1	36	−4743.313	9558.626	9679.293	9565.223	–	–	–	–
2	49	−1563.191	3224.381	3388.622	3233.360	0.933	<0.001	<0.001	53.55/46.45
3	74	−1502.427	3152.854	3400.892	3166.414	0.943	<0.05	<0.001	51.19/7.58/41.23
4	99	−1452.465	3102.930	3434.764	3121.071	0.926	0.76	0.76	4.75/42.65/18.48/34.12

Table 5
Average attribution probability (column) for each latent class among subjects (rows) of unmarried women without children.

Class	C1	C2
C1	0.987	0.013
C2	0.022	0.978

3.4. Factors influencing the latent classes of fertility anxiety among unmarried women without children

This study employed the robust three-step (R3STEP) method for multinomial logistic regression analysis, using the two latent profiles of unmarried women's fertility anxiety as dependent variables and policy attention, intensity of social media use, intergroup emotion, health–family risk perception, and occupational–economic risk perception as independent variables. Based on the research needs, "low fertility anxiety" was used as the reference group. The results showed that social media usage intensity, interpersonal emotion, perceived health and family risks, and perceived occupational and economic risks had significant predictive effects on
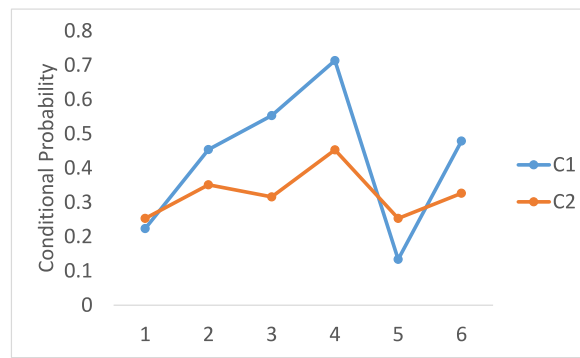
Fig. 2. Answers of two latent classes in unmarried women without children' fertility anxiety scale.

unmarried women's fertility anxiety. However, policy attention did not have a significant predictive effect on the category of fertility anxiety among unmarried women. Compared with the "low fertility anxiety" group, unmarried women were 49.18 % [(e$^{0.40}$–1) × 100 = 49.18 %] more likely to belong to the "high fertility anxiety" group with every one-point increase in social media usage intensity. Unmarried women had a 15.03 % [(e$^{0.14}$–1) × 100 = 15.03 %] higher likelihood of belonging to the "high fertility anxiety" type for every one-point increase in the intergroup emotion dimension. Unmarried women had a 40.49 % [(e$^{0.34}$–1) × 100 = 40.49 %] higher likelihood of belonging to the "high fertility anxiety type" for every one-point increase in their perception of health and family risks. For unmarried women, each one-point increase in their perception of occupational–economic risks was associated with a 46.23 % [(e$^{0.38}$–1) × 100 = 46.23 %] increase in the likelihood of belonging to the "high fertility anxiety" group. See Table 6.

4. Discussion

The results of this study regarding latent classes indicated that married young women without children were more likely to experience fertility anxiety than unmarried young women without children. Specifically, the number of married women without children with high fertility anxiety was 1.9 times higher than that of married women without children in the "low fertility anxiety" group. However, the difference between the number of unmarried women without children who had high fertility anxiety and those who had low fertility anxiety was only 7.4 %. A possible reasons for this is that women who are married but do not have children may be more concerned about their fertility, as they perceive themselves to face greater time pressure. In traditional Chinese culture, women are regarded as playing an important role in continuing the family line, and both their families and society have certain expectations of them and place pressure on them to complete their reproductive plans within a suitable timeframe [28–30]. This may lead them to regard fertility as more important, thereby increasing their fertility anxiety. In contrast, unmarried women without children may be more focused on their career development and personal growth, hoping to achieve more in their professional lives. Therefore, at this stage, they may not prioritise reproduction as their primary task, resulting in less anxiety about fertility [31]. Additionally, unmarried women without children may not be ready for marriage, making them even more likely to focus on personal interests and hobbies [32,33].

This study's multinomial logistic regression analysis found that for both married and unmarried women without children, the intensity of social media use had an impact on the occurrence of high fertility anxiety. Specifically, for every one-point increase in the intensity of social media use, the occurrence rate of high fertility anxiety increased. Indeed, the increasing popularity and usage of social media may have contributed to this phenomenon, as social media give women easier access to various types of information, including information related to fertility. If individuals are frequently exposed to a large amount of persuasive external information, their attitudes are likely to be influenced by this information, especially in the absence of personal experience [25,34]. If young women are exposed to negative, pessimistic, or discouraging information about fertility, this information may elicit new fertility anxiety or strengthen existing fertility anxiety. Although both married and unmarried women without children were affected by the intensity of social media use, the degree of influence differed between the two groups. Unmarried women without children were more affected by

Table 6
Logistic regression analysis of influencing factors of fertility anxiety of unmarried women without children (n = 211).

Independent Variable	Partial Regression Coefficient			
	High Fertility Anxiety Type			
	β/Coef	SE	t	P
policy attention	0.09	0.16	0.56	0.582
intensity of social media use	0.40	0.18	2.22	0.026*
intergroup emotions	0.14	0.07	2.00	0.041*
perception of health and family risks	0.34	0.17	2.00	0.044*
perception of occupational and economic risks	0.38	0.16	2.37	0.038*

the intensity of social media use, with every one-point increase leading to a 49.18 % increase in the occurrence of high fertility anxiety among unmarried women without children, compared with an increase of only 11.63 % for married women without children. This may be because unmarried women without children use social media more frequently and intensively than do married women without children, indicating that they may be more susceptible to the influence of social media and exposed to more fertility-related information and stories. These messages and stories may have an impact on their fertility beliefs and attitudes. If they see other women on the Internet facing difficulties with fertility or the burden of child-rearing, this will deepen their worries and anxiety about future fertility [35,36].

Our multinomial logistic regression analysis revealed that both married and unmarried women without children were affected by their perception of health and family risks in relation to high fertility anxiety. Specifically, a one-point increase in women's perception of health and family risks led to an increase in the likelihood of high fertility anxiety. Due to the complexity of the online environment, the information available is of varying quality. Graphic videos of the childbirth process and misinformation regarding the probability of pregnancy and childbirth complications can be found on social media [37], which can affect women's perceptions of the severity of health risks associated with pregnancy and childbirth, leading to excessive worry about health problems during and after pregnancy [38]. Regarding family risk perception, unmarried women may be seeking partners with whom to build families, so they may worry about the quality of family life after marriage and the possibility of not finding an ideal partner who supports having children. For married women, although they already have the support of a spouse, they may be concerned that the cost of raising children will increase the burden on the family and reduce the quality of family life [39,40].

The multinomial logistic regression analysis in this study also revealed that intergroup emotions and occupational–economic risk perception only had a significant impact on the high fertility anxiety of unmarried women without children. This may be because unmarried women are usually more susceptible to the influence of those around them. Currently, on the Internet, a value system popular among some young women indicates that not marrying or having children guarantees a peaceful life [41]. If they identify with this intergroup value system, unmarried women may be more afraid and anxious about fertility. Looking at the issue from the perspective of occupational and economic risk perception, unmarried women may be more concerned about their own career development and economic situation. Women are both the bearers of fertility and participants in social production activities. However, the reality is that the professional energy of many women who have already given birth is greatly dispersed by their families, leading to many issues of employment gender discrimination and career development, resulting in an overall reduction in economic income [42]. Therefore, unmarried women may be worried that having children after marriage will have a negative impact on their future career development, leading to a high level of fertility anxiety. This may also be why fertility anxiety has become an important factor encouraging some young women to constantly postpone their first marriage [43].

It is worth noting that the attention that women paid to relevant national policies did not have a significant impact on their fertility anxiety. Even the implementation of policies allowing for second and third children and the provision of more opportunities and support for fertility cannot directly resolve women's fertility anxiety [11]. In reality, there are other complex factors that can influence women's fertility decisions, as previously mentioned. Therefore, whether women pay attention to policy changes may not fundamentally eliminate their fertility anxiety. In addition, the implementation of national policies may require a certain amount of time, and policy formulation needs to take into account changes in public awareness, cultural traditions, and other factors to achieve better results.

5. Conclusions and limitations

In terms of fertility anxiety, married and unmarried women can be classified into two potential categories, namely "high fertility anxiety" and "low fertility anxiety". This study showed that among Chinese young women, the proportion of married women in the high fertility anxiety group was larger than that of unmarried women, and fewer unmarried than married women had fertility anxiety. Married and unmarried women were both influenced by the intensity of social media use and health–family risk perception, with each one-point increase in score corresponding to an increase in the proportion of individuals with a high level of fertility anxiety. In addition, unmarried women were influenced by intergroup emotions and occupational–economic risk perception, meaning that for each additional point in these factors, the likelihood of belonging to the "high fertility anxiety" group was higher. In particular, we found that attention to national policies had no significant effect on the fertility anxiety of young women.

The study may have some limitations. First, due to time and cost constraints, the sample used in the questionnaire survey was relatively small, which may have limited the explanatory power of the research. Second, in the multinomial logistic regression model, this study only used a subset of research variables, which may not fully explain the mechanisms underlying the effect of fertility anxiety among young women. Future research could explore other related variables, such as perceived cost and attitudes towards fertility. Third, the primary aim of this study is to identify factors related to fertility anxiety among women with varying marital statuses, which holds significant value in understanding and addressing this crucial social issue. However, it's important to note that the latent class analysis and robust three-step multinomial logistic regression analysis used in this study are primarily employed to reveal correlations between variables rather than establishing causation. Therefore, it is recommended that future research adopts more in-depth study designs to further investigate causal relationships, such as longitudinal studies or randomized controlled trials. Finally, while this study primarily focuses on quantitative analysis, qualitative research remains uncovered. Future research should consider incorporating qualitative analysis to delve deeper into the emotional and psychological processes of fertility anxiety, achieving a more comprehensive understanding. This will help unveil richer and more nuanced dimensions of fertility anxiety, thereby providing more precise intervention and support strategies.

Ethics statement

This study was reviewed and approved by Ethics Committee of Guangzhou University, with the approval number: GZU20230211. Written informed consent was obtained from all participants.

Data availability statement

Data will be made available on request.

CRediT authorship contribution statement

Yiqing He: Writing – original draft, Methodology, Formal analysis, Conceptualization. **Noor Eshah Tom Abdul Wahab:** Writing – review & editing, Formal analysis. **Haslina Muhamad:** Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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