International Journal of Women's Health

Dovepress
Taylor & Francis Group

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ORIGINAL RESEARCH

Psychological Experiences of Pregnant Women with Fetal Growth Restriction in China: A Qualitative Study

Xuxing Lin[1], Tingyu Chen[1], Ying Xu[2], Yangyang Mei[1], Lijiao Cai[1], Wenling Zhou[2]

[1]School of Nursing, Fujian Health College, Fuzhou, Fujian, 350101, People's Republic of China; [2]Department of Obstetrics, Fujian Maternity and Child Health Hospital, College of Clinical Medicine for Obstetrics & Gynecology and Pediatrics, Fujian Medical University, Fuzhou, Fujian, 350001, People's Republic of China

Correspondence: Ying Xu, Department of Obstetrics, Fujian Maternity and Child Health Hospital, College of Clinical Medicine for Obstetrics & Gynecology and Pediatrics, Fujian Medical University, No. 18, Daoshan Road, Gulou District, Fuzhou, Fujian, 350001, People's Republic of China, Tel +011-86-15259167291, Email 772746348@qq.com; Xuxing Lin, School of Nursing, Fujian Health College, No. 366, Guankou Village, Jingxi Town, Minhou County, Fuzhou, Fujian, 350101, People's Republic of China, Tel +011-86-13400569568, Email 522861023@qq.com

Purpose: Fetal growth restriction is a global public health concern. This study aimed to explore the psychological experiences of pregnant women with fetal growth restriction to develop evidence-based and effective psychological intervention strategies.

Methods: A qualitative descriptive study was conducted at Fujian Maternity and Child Health Hospital, China, from November 2024 to April 2025. Socio-demographic and clinical characteristic data were collected. Interview questions were developed following a pre-survey with three women and refined through input from three clinical nursing experts. Subsequently, in-depth semi-structured interviews were conducted with 20 pregnant women diagnosed with fetal growth restriction. The interviews were audio-recorded and analyzed using Colaizzi's seven-step method. Themes and sub-themes were identified and examined.

Results: Five major themes emerged: (1) unknown fetal outcomes and generalized anxiety (persistent anxiety over fetal health; catastrophic associations related to fetal outcomes), (2) imbalanced medical information and coping dilemmas (overwhelming information; ineffective coping strategies), (3) maternal responsibility discipline and family conflict (maternal attribution of responsibility; counterproductive family support), (4) medical decision-making dilemmas and trust crisis (conflicts in medical interventions; lack of trust in healthcare providers), and (5) social support and improvement of psychological resilience (empathic peer support; buffered family support; trusted medical support).

Conclusion: Pregnant women with fetal growth restriction may experience a range of psychological responses. Future research needs to further explore the specific biological mechanism between psychological factors and occurrence and development of FGR in pregnant women. At the same time, more personalized and effective psychological intervention programs need to be developed and validated, and integrated into the clinical FGR management, in order to improve the overall health outcomes of FGR pregnant women and their offspring. In addition, future research should also explore the dynamic trajectories of psychological experiences among pregnant women with FGR.

Keywords: fetal growth restriction, psychological experience, pregnant woman, qualitative study

Introduction

Fetal growth restriction (FGR), also known as intrauterine growth restriction (IUGR), occurs when fetuses have weights lower than the 10th percentile for their gestational age.[1,2] It has an estimated prevalence of 5–10% in all pregnancies worldwide,[3] with a higher incidence in developing countries than in developed ones.[4]

FGR is a global public health concern.[5–8] It is associated with increased perinatal mortality and morbidity, long-term health risks,[6,7,9] and adverse neurodevelopmental sequelae,[10] and has a profound impact on the health of newborns and adults. FGR is the second most common cause of perinatal death and one of the important causes of premature birth.[11,12]

Received: 26 May 2025
Accepted: 25 October 2025
Published: 11 November 2025

In addition, FGR fetuses can have a long-term risk of metabolic diseases such as obesity, type 2 diabetes and cardiovascular disease.[13–16]

FGR not only impacts the growth and long-term health of the fetus but also poses a significant challenge to the mental health of pregnant women. Previous research on the psychological impact of FGR on pregnant women was mainly focused on the identification of mental problems, discussion of influence mechanism, and exploration and application of intervention measures. Studies have shown that pregnant women with FGR often experienced significant emotional fluctuations, primarily driven by concerns on fetal health and sense of self-responsibility and self-reproach.[17,18] FGR may cause anxiety, depression, self-reproach and other negative emotions in pregnant women. The mental health of pregnant women not only affects themselves, but also lead to the maternal hormone level reductions and placental dysfunction, with subsequent long-term hypoxia and inadequate nutrition supply to the fetus.[19,20] A study evaluated the relationship between psychological state (including depression, anxiety and stress) and fetal heart rate variability in pregnant women found that adverse emotional state could have a negative impact on fetal autonomic nervous system.[21]

In Chinese fertility culture, the fetus is considered as the hope of the family's future. The fetal growth and development have attracted great attention from all family members. This cultural perspective has a particular influences on the understanding of FGR, especially in relation to the traditional beliefs about the fetal size and health.[22] The cultural preference for "large fetus" and "fat baby" in China may affect pregnant women's perceptions and acceptance of FGR, while also expose them to greater social pressure and anxiety, including worries about the unhealthy fetus or fear of criticism.[22–24]

There is a current gap in research regarding psychological experiences in pregnant women with FGR. This study utilized a qualitative descriptive approach to conduct an in-depth investigation of the psychological experiences of pregnant women with FGR in an urban hospital in China. The goal was to generate evidence-based insights to support the formulation of targeted psychological interventions.

Materials and Methods

Research Design

This research employed qualitative descriptive design to gain a comprehensive understanding of the psychological experiences of pregnant women with FGR. A qualitative descriptive approach is recognized as an effective method for providing rich, detailed accounts of phenomena or events as perceived by participants.[25]

Participants and Sample

The study population consisted of postpartum women with a diagnosis of FGR during pregnancy and hospitalized at the Fujian Maternity and Child Health Hospital in China. To avoid potential impacts of FGR-related discussions on maternal emotional well-being and fetal development during pregnancy, this study scheduled the interviews during the postpartum period. Meanwhile, to maximize the accuracy and completeness of participants' retrospective accounts of their psychological experiences with FGR during pregnancy, all interviews were conducted within 14 days after delivery.[26,27] The participant inclusion criteria were 1) age $\geq$ 18 years; 2) diagnosis of FGR during pregnancy;[28] 3) ability to understand the research purpose and clearly express their views and thoughts; and 4) voluntary participation in the study. The exclusion criteria were 1) twin pregnancy, 2) previous history of FGR, 3) mental illness, or 4) inability to complete the interview or provide psychological experiences. We specially selected participants with different pregnancy modes, gestational weeks, FGR types and delivery modes to enhance representativeness of the study participants. The interview was continued until data saturation, with no new themes emerging during analysis. A total of 20 interviews were conducted, with each participant interviewed once.

Data Collection

To ensure research rigor, all team members received training in qualitative research methods prior to the study initiation. The lead interviewer was proficient in qualitative research content and techniques. During the research process, a trust relationship was established with the participants, thus ensuring that the parturients could discuss the relevant issues

candidly. For mothers whose newborns were admitted to the NICU, we provided enhanced psychological support by daily updating them on infants' condition and facilitating video visits when possible. Interviews were conducted only after ensuring the participants' emotional stability.

The data collection was completed with the following tools, including a socio-demographic and descriptive characteristics form, semi-structured interview questions, and a recording device.

Socio-Demographic and Descriptive Characteristics Form

The researchers developed a structured form to collect socio-demographic and clinical characteristic information from the study participants. The form included age, gestational age at FGR diagnosis, newborn birth weight, educational level, occupation, average monthly household income, parity, method of conception, pregnancy complications, type of FGR, and mode of delivery.

Semi-Structured Interview Questions

Semi-structured interview questions were designed to explore the psychological experiences of pregnant women with FGR during pregnancy. One-on-one face-to-face interviews were conducted. Owing to the semi-structured format, subquestions were employed to facilitate participants' responses to the core research topics. Based on the objectives of the study, a preliminary interview guide was developed by reviewing relevant literature and incorporating findings from a pre-survey conducted with three women diagnosed with FGR during pregnancy. The initial interview guide was subsequently revised by three clinical nursing experts, all of whom held at least a bachelor's degree and senior professional titles, along with extensive experience in maternal care. The final version of the interview questions was determined following these expert evaluations.

The Following are the Interview Questions

Do you know what fetal growth restriction is?
Please recall your feelings and reactions at that time when you were told to have fetal growth restriction.
Please describe how events like fetal growth restriction affected your psychological state during pregnancy.
How did you cope with the event of fetal growth restriction?
What kind of support and help do you hope to receive regarding fetal growth restriction?

Data Collection Process

Data were collected from November 8, 2024, to April 28, 2025. Potential participants were screened from the hospital electronic medical records after obtaining approval from the ethics committee. Postpartum women were then selected through purposive sampling according to the predefined selection criteria. Both verbal and written informed consent were obtained from each participant.

The researcher first provided a self-introduction and explained the study's purpose and procedures in detail. In-depth, one-on-one interviews were then conducted using semi-structured questions, allowing participants to retrospectively reflect on their experiences from the time of FGR diagnosis until prior to delivery. Interviews were held in the obstetric health promotion classroom, which offered a quiet, private, and uninterrupted environment. The room was well-ventilated and adequately lit, with a table and chairs arranged face-to-face to facilitate communication. Each interview lasted approximately 20 to 40 minutes. The first author conducted all interviews, while the third author recorded field notes. During the study, three pregnant women refused to participate in the interview, one was unwilling to recall her previous painful experience and two declined due to privacy concerns.

Data Analysis

Data collection and analysis were carried out concurrently. The Colaizzi seven-step analysis method was used:[29]

Step 1, Material transcription: Transcribe the recordings into text within 24 hours after the interviews.

Step 2, Material reading: Two researchers thoroughly read the transcribed texts to gain comprehensive insights.

Step 3, Meaning unit extraction: Two researchers identified meaningful units (words, sentences, and paragraphs) relevant to the research objectives. NVivo 12 software was used to assist in organizing, indexing, and managing specific meanings, similarities, and differences.

Step 4, Meaningful unit coding: Two researchers coded the transcribed texts independently. Any disagreement was resolved by revisiting the coding rules and original text and discussing them with a third researcher.

Step 5, Code aggregation: All coded meaningful units were aggregated and organized to form a list of codes.

Step 6, Theme refining: Subcategories and sub-themes were refined through analysis and integration of the relationships between codes, which were further categorized into themes.

Step 7, Theme validation: After all interviews were completed, data were comprehensively analyzed to genuinely reflect the psychological experiences of the participants. Group discussions were held for contentious areas, expert opinions were consulted, and the final themes were determined to reach a consensus.

Rigor

A research team was assembled, comprising three researchers with advanced academic qualifications, extensive qualitative research experience, and three researchers possessing substantial clinical experience in maternal care. The team evaluated the influence of the researchers' academic backgrounds, clinical expertise, and research roles on the study outcomes.

The interview structure was developed based on the anticipated psychological responses of pregnant women diagnosed with FGR during pregnancy. Recognizing the potential for emotional discomfort, interviews were conducted in a supportive and empathetic manner to help participants feel at ease and capable of openly sharing their thoughts and emotions. Participant safety was prioritized through effective communication and empathetic reflection without judgment or suggestive questioning when necessary. Assurance was also provided regarding the secure storage and confidentiality of all research data.

Ethical Issues

This study followed the Declaration of Helsinki. Prior to the commencement of the study, approval was obtained from the Fujian Health College ethics committee (approval number:RT2024-27). After thoroughly explaining the study procedures, including the audio recording of all interviews, informed consent (both verbal and written) was obtained from all 20 pregnant women who voluntarily participated in the study, and it included the publication of anonymized responses and direct quotes.

Results

Our study interviewed 20 pregnant women with FGR during pregnancy. Their mean age was 30.7 ± 4.38 years, ranging from 22 to 35 years. Other socio-demographic and descriptive characteristics are listed in Table 1.

Themes Identified

Five major themes emerged from the qualitative analysis of the interviews, reflecting the psychological experiences of pregnant women diagnosed with FGR.

Theme 1: Unknown Fetal Outcomes and Generalized Anxiety

Persistent Anxiety Over Fetal Health

Due to FGR, pregnant women faced challenges in fetal outcomes and generally experienced high levels of anticipatory anxiety and catastrophic cognition regarding adverse outcomes, such as developmental abnormalities or perinatal mortality. According to their statements, the clinical diagnosis of FGR triggered significant stress responses, manifesting as ongoing concerns about delayed fetal development, preterm birth risks, and organ defects. This anxiety escalated with the severity of the growth delay.

One participant expressed intense fears about potential organ underdevelopment and poor physical health after birth, stating:

> I'm just afraid that something will be wrong with the baby, poor organ development, weak constitution, and difficult to care for. My sister's child was also small, and he often gets sick, requiring long hospital stays whenever he falls ill. (Participant N2)

Table 1 Socio-Demographic and Descriptive Characteristics of Study Participants (n=20)

No.	Age (year)	Gestational Week	Birth Weight (g)	Educational level	Occupation	Monthly Household Income (Yuan)	Gravidity, Parity	Conception Method	Pregnancy-Related Complications	FGR Type	Delivery Mode	Interview Time (Day After Delivery)
N1	28	35^{+6}	1845	Junior college	Housewife	5000 - 10000	G2P2	Natural	Hashimoto's thyroiditis	Early	Cesarean	4th day
N2	34	38^{+1}	2335	Junior college	Housewife	5000 - 10000	G1P1	Natural	Gestational diabetes	Late	Vaginal	3rd day
N3	29	37^{+5}	2435	Junior college	Self - employed	5000 - 10000	G1P1	Natural	Oligohydramnios	Late	Induction of labor	3rd day
N4	35	37^{+4}	2240	Bachelor degree	Self - employed	> 10000	G3P1	Assisted reproduction	Gestational diabetes	Early	Induction of labor	3rd day
N5	29	34	1705	Bachelor degree	Teacher	5000 - 10000	G1P1	Natural	Severe Pre-eclampsia, Gestational diabetes, Intrahepatic cholestasis of pregnancy, Pregnancy-associated uterine leiomyoma	Early	Cesarean	4th day
N6	34	38^{+2}	2280	Bachelor degree	Employee	5000 - 10000	G3P1	Natural	Oligohydramnios, Pregnancy-associated rubella infection	Late	Induction of Labor	3rd day
N7	33	40^{+5}	2295	Postgraduate	Teacher	5000 - 10000	G1P1	Natural	None	Late	Induction of Labor	3rd day
N8	32	40^{+6}	2730	Postgraduate	Self - employed	> 10000	G1P1	Natural	Uterine leiomyoma, Pregnancy-induced hypertension	Late	Vaginal Delivery	3rd day
N9	30	34^{+3}	2160	Junior college	Self - employed	5000 - 10000	G4P1	Assisted reproduction	Thrombophilia, Pregnancy-associated Mediterranean anemia	Early	Induction of Labor	4th day
N10	29	39	2325	Junior college	Teacher	5000 - 10000	G1P1	Natural	Pregnancy-associated Mediterranean anemia, Pregnancy-associated uterine leiomyoma	Late	Cesarean Section	3rd day
N11	29	38^{+5}	2235	Bachelor degree	Employee	> 10000	G1P1	Natural	Oligohydramnios, Pregnancy-associated thrombophilia	Early	Induction of Labor	3rd day
N12	31	37^{+3}	2380	Bachelor degree	Teacher	> 10000	G2P1	Natural	Oligohydramnios	Late	Induction of Labor	3rd day
N13	26	37^{+5}	2250	High school	Self - employed	2000 - 5000	G1P1	Natural	Gestational diabetes	Early	Vaginal Delivery	3rd day
N14	32	39^{+1}	2375	Postgraduate and above	Teacher	5000 - 10000	G2P1	Assisted reproduction	Gestational diabetes, Thrombophilia, Hashimoto's thyroiditis	Early	Vaginal Delivery	3rd day
N15	35	38^{+1}	2135	Junior high school or below	Self - employed	2000 - 50000	G3P2	Natural conception	Oligohydramnios, pregnancy-associated thrombophilia	Early-onset type	Cesarean section	3rd day
N16	22	39^{+1}	2650	Junior high school or below	Housewife	2000 - 50000	G1P1	Natural conception	Oligohydramnios	Early-onset type	Induction of labor	3rd day
N17	32	38	2750	Postgraduate	Teacher	5000 - 100000	G2P2	Natural conception	None	Early-onset type	Cesarean section	3rd day
N18	31	37^{+3}	2990	Postgraduate	Teacher	5000 - 100000	G1P1	Natural conception	Pregnancy-associated hypothyroidism	Late-onset type	Vaginal delivery	3rd day
N19	28	38^{+6}	2500	Postgraduate	Teacher	> 100000	G1P1	Natural conception	Pregnancy-associated hypothyroidism	Early-onset type	Vaginal delivery	3rd day
N20	35	39^{+5}	3200	Postgraduate	Teacher	5000 - 100000	G2P2	Natural conception	None	Early-onset type	Vaginal delivery	4th day

https://doi.org/10.2147/IJWH.S542910

Another participant described feeling overwhelmed by persistent anxiety following the diagnosis of FGR, even reporting symptoms indicative of depression:

> When the doctor initially said the baby was two weeks behind, I still hoped that things would improve. But when they officially diagnosed FGR, I broke down crying right there in the consultation room. I've been crying every day since then. I think I'm becoming depressed. (Participant N17)

Catastrophic Associations Regarding Fetal Outcomes

Due to limited medical knowledge—such as unfamiliarity with abnormal umbilical blood flow or reduced head circumference—and influenced by societal anecdotes, most pregnant women often extrapolated worst-case scenarios. These interpretations led to extreme conclusions, constructing a perceived causal chain from "medical anomalies" to "family collapse", thereby intensifying psychological distress.

One participant worried about her fetus's persistent small head circumference and feared potential intellectual disabilities, which could lead to overwhelming family pressures and even marital breakdown:

> "The fetus has always had a smaller head circumference. I worry if he'll be born mentally impaired. If so, it would destroy our entire family." (Participant N11)

Another participant expressed fear of cerebral palsy due to high umbilical artery resistance during pregnancy:

> My umbilical blood flow resistance is high. I'm afraid insufficient blood supply might cause intrauterine hypoxia, fetal distress, asphyxia, or even cerebral palsy [sigh]. (Participant N17)

Theme 2: Imbalanced Medical Information and Coping Dilemmas

Overwhelming Information

Upon receiving an FGR diagnosis, many pregnant women actively seek information to understand causes and coping strategies through online searches, consultations with healthcare providers, and participation in prenatal support groups. However, the diversity and complexity of sources often resulted in information overload.

One participant recalled feeling terrified after extensively researching FGR-related complications:

> After learning my baby was two months behind, I frantically searched for answers. Why is this happening? What can I do? The more I read, the more scared I became. (Participant N20)

Another participant described being overwhelmed by negative content described in the relevant website:

> I looked up FGR on websites, like CNKI, Baidu, and Xiaohongshu, reading guidelines and watching videos. Then, there was endless related content. Now, I feel like I've become an 'expert,' even self-teaching how to interpret fetal heart rate graphs! (Participant N17)

Ineffective Coping Strategies

The vast majority of pregnant women engaged in compensatory behaviors, such as forced eating or frequent snacking, in an attempt to regain a sense of control over fetal growth. However, when their efforts failed to produce measurable improvements, certain pregnant women experienced a decline in self-efficacy, which often led to behavioral withdrawal and internal conflicts.

One participant expressed frustration following unsuccessful dietary compensation:

> All that extra food was for nothing. I forced myself to eat things I didn't like, increasing my food intake significantly, but the baby ended up growing even smaller. It made me very upset, so I stopped trying anymore. (Participant N13)

Another participant voiced similar sentiments:

> "I ate excessively, yet all the weight gain went to me instead of the baby. It felt pointless. Why bother eating at all?" (Participant N19)

Theme 3: Maternal Responsibility Discipline and Family Conflict

Maternal Attribution of Responsibility

Under traditional Chinese reproductive culture, a considerable number of families often oversimplify the complex etiology of FGR by attributing it solely to the dietary habits of pregnant women. It is a common belief that a small fetus is caused by insufficient food intake by the mother. This reproductive culture leads to moral scrutiny, manifested through close monitoring of meals and public criticism, reinforcing the cognitive fallacy that "eating equals fulfilling responsibility". This situation is particularly prominent in families living with the elderly.

One participant recalled feeling unjustly judged by older family members:

> Elders keep saying my baby is small because I don't eat enough, implying I'm deliberately picky. But I actually eat quite a bit. It's frustrating to hear those accusations. (Participant N2)

Another participant described the pressure imposed by her mother-in-law:

> My mother-in-law blames me for controlling my weight during pregnancy, telling others I'm not eating properly. A large part of my stress comes from her constant criticism. (Participant N19)

Counterproductive Family Support

When dietary adjustments or medical treatments failed to improve FGR, some pregnant women (7/20) experienced heightened frustration and negative emotions, which could escalate into family disputes.

One participant described arguments with her husband over inadequate food intake:

> My husband gets anxious about whether the baby is getting enough nutrients. He prepares meals daily, but I struggle with severe nausea and can barely eat. His frustration turns into anger, and we argue frequently, making me feel terrible. (Participant N7)

Another participant noted tension stemming from perceived maternal inadequacy:

> My husband criticizes me for having a small belly and worries constantly. His emotional fluctuations sometimes lead to silent wars, further straining our relationship. (Participant N11)

Theme 4: Medical Decision-Making Dilemmas and Trust Crisis

Conflicts in Medical Interventions

When the invasive procedures recommended by healthcare providers exceeded pregnant women's risk tolerance, it often triggered strong resistive reactions. Some pregnant women (8/20) acted defensively, including questioning the necessity of medical examinations and asserting autonomy over gestational timelines.

One participant refused amniocentesis, although it was recommended at gestational week 24:

> As soon as the doctor mentioned the baby was small, they immediately suggested amniocentesis to rule out chromosomal issues. We thought the likelihood of chromosomal problems was low, and the procedure itself carries risks like infection or miscarriage. We weren't willing to take that chance. (Participant N6)

Another participant resisted induction at 37 weeks:

> I wanted to carry the baby longer since he was so small. When the doctor insisted on inducing labor, I refused. I believed the baby needed more time to grow inside. (Participant N16)

Lack of Trust in Healthcare Providers

The reductionist logic of biomedicine (standardized nutrition formulas, packaged testing protocols) often clashed with individualized experiences of some pregnant women (6/20), leading to dual skepticism about both the scientific validity and humanistic aspects of medical care.

One participant criticized generic nutritional advice received at a specialized clinic:

> At the nutrition clinic, they only slightly adjusted my height and weight parameters. Their recommendations were identical to those given to other pregnant women, ignoring my unique dietary habits and needs. It wasn't helpful at all. (Participant N8)

Another participant rejected medication due to fears of side effects:

> The doctor recommended using heparin to improve FGR, but the drug's leaflet mentioned potential risks like heart disease. I was too worried about harming the baby and could not accept this treatment. (Participant N15)

Theme 5: Social Support and Improvement of Psychological Resilience

Although FGR imposes obvious psychological pressure and negative experience on pregnant women, the interviews revealed that some pregnant women developed protective psychological responses through effective social support and positive coping strategies, which significantly alleviated the negative impact from FGR.

Empathic Peer Support

As individuals with similar experiences can face same challenges, they commonly create a unique emotional "resonance" and become an important source of emotional support. Some pregnant women actively seek peer support during the waiting period of antenatal examination, which might find relief from psychological pressure and obtain great coping confidence by sharing experiences, exchanging coping strategies and mutual encouragement with other women in the similar situations.

> While waiting for blood sampling or fetal heart rate monitoring, I took the initiative to find a companion in the same situation. I was lucky to meet a pregnant woman with the same expected date of delivery and the same fetal condition as me. We made an appointment for prenatal examination, exchanged various prenatal examination results together, and encouraged each other. Then, the prenatal examination became a very happy appointment.(Participant N1)

> Through the WeChat group for fetal growth restriction (a chat APP) established by the hospital director, I took the initiative to add a Baoma who also had increased umbilical blood flow resistance during pregnancy. She told me how healthy the child was born, which made me feel at ease. I also sign up an App for pregnant mothers. I talked with everyone about diet and yoga every day. I felt good for my baby and became optimistic.(Participant N4)

Buffered Family Support

During the interview, some pregnant women said that, although there were occasional disagreements on diet and other issues, their families generally gave strong care and support, which became an important emotional support for coping with FGR and improved their confidence and sense of security in facing the pregnancy challenges.

> Every time I do color Doppler ultrasound, I am very nervous. I am afraid that my child grows slowly. My husband always accompanies me. When my child grows up, he is very happy. If he doesn't grow up, he will comfort me and give me great emotional support.(Participant N3)

> My husband said that we are not tall. It is normal for our children to be small. Don't worry too much. Just take good care of them when they are born. He also prepared funds, saying that even if the children came out early and entered the incubator, they would have no financial burden. Let me feel more at ease.(Participant N9)

> When I was just diagnosed, my husband was worried because I ate little. But when he saw that I tried hard to eat even without desired outcome, his attitude changed completely - he didn't continue to blame me, but becomes more considerate. Sometimes when my mother-in-law advised me to eat more, he would take the initiative to help me out and let me really feel his consideration and understanding.(Participant N18)

Trusted Medical Support

Although decision-making conflicts or communication challenges may arise during the diagnosis and treatment, some pregnant women (5/20) reported that, through the ongoing professional guidance, emotional support, and multi-channel communication from medical staff, they were able to gradually alleviate their concerns and shift from doubt to trust toward the medical team.

> The director of the department took the initiative to build a patient group for us, so that pregnant mothers facing the same situation can support and communicate with each other. We can consult medical staff on WeChat (a messaging application) at any time, and conduct online consultation through the WeDoctor (An online medical consultation platform). This timely and multi-channel support makes me deeply believe that the medical team is trustworthy.(Participant N12)

> I make an appointment with the same ultrasound doctor every time. She checked carefully and told me that she had examined many pregnant women with similar conditions and finally delivered smoothly. This kind of continuous professional service and experience sharing have created deep trust in me.(Participant N16)

> At first, I hesitated on taking medication, but the doctor's professional explanation reassured me. After using heparin for two weeks, the fetal weight increased significantly, which restored my confidence and realized the importance of medical support. (Participant N18)

Discussion

In this study, we explored the psychological experiences of pregnant women diagnosed with FGR using a qualitative descriptive research design. The findings revealed that these women encountered complex and multifaceted psychological challenges during pregnancy. The themes and sub-themes are discussed below.

Theme 1: Psychological Mechanisms of Fetal Outcome Uncertainty and Anxiety

This study highlighted the distinct psychological stress patterns experienced by pregnant women with FGR. Their anxiety was characterized by a "dual uncertainty": an immediate emotional reaction to abnormal clinical indicators and a catastrophic anticipation of adverse developmental outcomes. This form of anxiety appeared to be closely associated with individual psychological resilience, previous experiences, the availability of family support, and the social pressure to achieve cultural desire of a healthy fetus (eg, the "fat baby").[30,31]

Chinese traditional fertility culture is deeply influenced by Confucianism, emphasizing "more children and more happiness" and the continuation of family blood. This concept makes birth as the core position in the family. Fetus is considered as the hope of the family's future.[22] In this context, the growth and development of the fetus always receive a high priority. When the diagnosis exceeded prior expectations, participants frequently exhibited strong emotional reactions. These reactions extended beyond individual distress, often provoking pessimistic projections regarding the family's future stability and well-being.[32,33] From a neurobiological standpoint, sustained anxiety may contribute to the overactivation of the hypothalamic–pituitary–adrenal axis. This activation can, through glucocorticoid-mediated pathways, exacerbate placental insufficiency, thereby forming a psychophysiological vicious cycle.[34,35]

These findings suggest that clinical interventions for women with FGR should not be confined to physiological management alone. Instead, they must also integrate targeted psychological support. A "psychological-medical dual-track intervention mechanism" should be established, wherein fetal development is monitored concurrently with systematic assessments of the pregnant woman's catastrophic cognitive and emotional patterns. Developing visual decision-making tools to communicate fetal growth risks may help correct probabilistic cognitive distortions. In addition, structured psychological counseling and family-centered coaching can foster adaptive coping strategies and reduce the psychological burden experienced by women with FGR.

Theme 2: Cognitive Regulation Pathways in Information Ecosystem Imbalance

This study revealed that information-seeking behaviors among FGR women could have a typical "double-edged sword effect." While attempting to establish cognitive frameworks through digital health information, these women often fell

into decision paralysis due to overwhelming information with variable qualities. Therefore, the establishment of authoritative, user-friendly health education platforms is crucial. Such platforms should be led by professional medical institutions or academic organizations, providing scientific and systematic information on FGR, including etiology, diagnosis, treatment, nutrition, prognosis, and care.[36,37]

Furthermore, healthcare providers should enhance communication with FGR women, offering personalized guidance to meet their specific informational needs and reduce psychological distress caused by information imbalance.[38] A "tiered information supply system" is recommended: basic information (medical facts) provided by artificial intelligence-powered question-and-answer systems, intermediate information (personalized plans such as diet, exercise, and medication) generated through shared decision-making between pregnant woman and clinicians, and advanced information (psychological coping strategies) customized by multidisciplinary teams. Strengthening doctor-patient communication and encouraging healthcare professionals to provide more detailed and personalized guidance can effectively address information imbalances and alleviate psychological distress.[39]

Theme 3: Reconstructive Strategies for Family Support Systems

The study revealed a significant "responsibility attribution bias" within family interactions, reflecting the persistence—and alienation—of traditional fertility culture's "maternal-centric" perspective within the context of modern medical care. In Chinese society, the deeply rooted cultural desire for "fat baby" still holds a special significance, which representing a symbol of health, good fortune, and family prosperity. This cultural desire creates substantial pressure on pregnant women to deliver larger-sized infants, since fetal size is often considered as an equivalent to maternal competence and responsibility. The emotional distress experienced by women with FGR in their efforts to promote fetal growth, compounded by internal family conflicts, illustrated the complex interplay between psychological and familial environments. When the clinical reality of a smaller fetus contradicts the cultural expectation of a "fat baby", mothers frequently become subjects of moral scrutiny and blame. Pregnant women's self-regulatory behaviors often became focal points in family dynamics, with intergenerational differences in reproductive beliefs and barriers to spousal communication emerging as dual sources of psychological pressure.[40,41] Under this traditional belief, the family members (especially the elderly) may closely watch the mother's diet, criticizing her for insufficient food intake, reinforcing the misconception that "eating equates to fulfilling responsibility", while ignoring the complex and multi-factorial causes of FGR.

Support and understanding from family members play a critical role in safeguarding the mental health of pregnant women. This study showed that the full understanding and support from family members to FGR pregnant women could effectively improve their confidence in facing the challenges of pregnancy. Medical institutions and social organizations should be aware of this cultural pressure and guide families to scientifically understand the multi-factor causes of FGR, and disregard the misbelief of "judging health by body shape". Interventions such as workshops and informational sessions can equip family members with effective communication techniques and stress management skills. These programs can promote family cohesion and reshape responsibility attribution models, thereby enhancing the coping capacity of pregnant women.[42]

In addition, pregnant women should be encouraged to communicate their emotions and needs openly with family members, actively seeking emotional and practical support. This approach can foster a collaborative response to challenges and facilitate the establishment of a "pregnant woman-spouse-elder" triadic support alliance, contributing to a more stable and supportive psychosocial environment.

Theme 4: Collaborative Governance Models for Doctor-Patient Decision Conflicts

The medical decision-making dilemmas revealed in this study essentially reflected the conflict between the standardized biomedical diagnostic and treatment paradigm and the subjective requirements from FGR women. This conflict stemmed from differing perceptions of "risk" between healthcare providers and patients. Chinese culture and traditional concepts have exerted various influences on fetal development, especially on the cognition and management of fetal health and related medical practices. These effects are reflected in the social understanding of fetal health and the norms of pregnancy behavior. Some people may have misunderstanding and simply attribute FGR to maternal malnutrition, while ignoring its complex etiology, leading to negative feeling such as self-blame and guilty.[22,43–45]

Although this study mainly revealed the challenges and difficulties in the interaction with the medical system, the data analysis also showed that, in some situations, clear communication and professional guidance could effectively build trust. For example, extra time spent to explain the underlying causes of FGR by medical staff could relieve anxiety in pregnant women. The establishment of trust is feasible, but highly depended on the quality of communication and personalization of medical services. However, the mismatch between the standardized, fast-paced prenatal care mode of medical institutions and patients' strong demand for personalized, emotionally supportive services suggested that, even with satisfactory medical intentions, its positive impact of care is often weakened by insufficient systematic communication. According to the transactional model of stress and coping, healthcare institutions should consider optimizing prenatal examination processes, reducing unnecessary testing frequency while improving the accuracy and clarity of explanations, thereby alleviating the psychological burden on pregnant women.[46,47] For patients exhibiting resistance, their preferences should be fully respected, and in-depth communication should be conducted to explain the necessity and safety of each test. Group-based care could be a practical model to ensure patient participation and satisfaction in medical decision-making.[48]

This study found that, through online and offline multi-channel timely communication, medical staff could share successful cases and pay attention to humanistic care to effectively alleviate the confusion and doubts of pregnant women, enhance their confidence in diagnosis and treatment, and reduce the decision-making conflict between physicians and patients. We recommend implementing a "participatory care" model, fostering multi-dimensional roles and relationships such as peer support, nurse-patient partnerships, and growth facilitators. This approach will enhance the social support system for FGR women, balancing "medical safety" and "psychological comfort".[49,50]

Theme 5: Build a Peer Assistance Platform

As an important form of social support, peer support has long been regarded as an important part of the support system for individuals facing adversity.[51,52] Our study found that some FGR pregnant women actively seek peer support when confronted with fetal health concerns, leading to positive behavior adjustment, consistent with the report from Zhang et al.[51] Medical staff should facilitate the development of a standardized peer support platform by selecting volunteers with sufficient time, energy, and willingness for peer support work, and providing them with systematic training in FGR-related knowledge, emotion management skills, peer support activities, and responsibilities. Through face-to-face communication or online mutual assistance platform, these volunteers can offer a safe and supportive environment for pregnant women and guide them to discuss various related topics, such as access to social resources, emotional expression, and FGR coping strategies. These interventions can improve pregnant women's self-efficacy and psychological resilience, enhance their sense of psychological satisfaction and security, and reduce negative psychology such as anxiety.[53]

Limitations

In this study, we explored the psychological experiences of pregnant women diagnosed with FGR. However, reviewing pregnancy experience through postpartum interviews might not fully capture the dynamic evolution of psychological state across gestational weeks, medical consultation, and examination results. Future studies should adopt a longitudinal design to conduct multiple interviews with pregnant women at different timepoints after the diagnosis of FGR (such as at the time of diagnosis, late pregnancy, and before delivery), which will provide more accurate descriptions on their psychological adaptation trajectory. Furthermore, pregnancy is a complex process influenced by a range of biopsychosocial factors. The psychological experiences of pregnant women may also be affected by additional circumstances, such as financial strain or other complications during pregnancy. Future qualitative research can further explore how these factors jointly shape the unique psychological experience of FGR pregnant women, which can facilitate the development of more culturally sensitive and individualized psychological support strategies.

Conclusion

This qualitative study revealed the intricate psychological landscape experienced by pregnant women with FGR, constructing a five-dimensional, interactive model encompassing cognition, information, family, medical care, and peer support. This model advances beyond traditional, single-dimensional attribution frameworks and emphasizes the

critical role of maternal mental health in fetal growth and development. The findings highlight the urgent need for establishing integrated support systems, enhancing doctor–patient communication, and optimizing medical services.

Future research can explore the dynamic trajectory of FGR pregnant women's psychological experience, and quantify the relationship between maternal psychological states and FGR outcomes while exploring the development of more effective psychological intervention strategies. With the progression of telemedicine and artificial intelligence, personalized and intelligent health management platforms may offer real-time information and psychological support tailored to pregnant women's needs. Such innovations can potentially improve maternal mental health and promote healthy fetal development.

Additionally, interdisciplinary collaboration—merging insights from psychology, obstetrics and gynecology, and public health—should be encouraged. Integrating psychological assessment into routine fetal medicine care, establishing joint obstetrics–psychiatry outpatient clinics, and promoting a bio–psycho–social model of integrated care will offer a more holistic solution to the challenges posed by FGR. These efforts will contribute significantly to advancing women's health and perinatal care.

Ethics Approval and Consent to Participate

The study was approved by Fujian Health College in China (approval number: RT2024-27). Verbal and written consent was obtained from every study participant.

Consent for Publication

Verbal and written consent was obtained from every study participant to anonymously publish the study results.

Funding

This work was supported by Fujian Health College's Middle-aged and Young Scientific Research Project (Science and Technology Category), Project Number: MWY2025-1-06. This work also was supported by Startup Fund for scientific research of Fujian Medical University, Project Number: 2022QH1180.

Disclosure

The authors report no conflicts of interest in this work.

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