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The Formation Mechanism of Irrational Beliefs in Perinatal Period and Its Influence on Maternal and Infant Health

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Abstract: Perinatal period is a critical stage for maternal and infant health, involving three important phases: pregnancy, childbirth, and the postpartum period. During this phase, irrational beliefs can have profound impacts on the diet, behavior, and medical decisions of pregnant women and new mothers. These beliefs often stem from traditional culture, religious beliefs, and social inheritance. This paper systematically analyzes the classification, formation mechanisms, and multidimensional impacts of irrational beliefs during the perinatal period. First, it explores the specific manifestations of irrational beliefs in pregnancy, childbirth, and the postpartum stage, as well as their potential effects on maternal and infant health, particularly in nutrition, choice of delivery methods, and mental health. Second, it examines the formation mechanisms of irrational beliefs, including cultural inheritance, social environment, cognitive distortions, and physiological factors. Finally, it proposes targeted culturally sensitive intervention strategies to enhance maternal health literacy, promote the dissemination of scientific health concepts, and reduce the negative impact of irrational beliefs on maternal and infant health. Through this study, the aim is to provide theoretical support for public health policies and clinical practice, promoting the optimization of maternal and infant health management.

1. Introduction

1.1 Perinatal background and importance

The perinatal period encompasses three critical stages: pregnancy, childbirth, and the postpartum period, which are of great significance to maternal and infant health. During pregnancy, significant physiological changes occur in the mother, and her nutrition, mental state, and lifestyle habits can impact the future health of the fetus. Childbirth involves complex physiological processes, where proper birthing methods and medical interventions are crucial. Postpartum recovery is vital for both maternal and neonatal health as well as parent-child relationships. However, the perinatal period faces numerous challenges, with irrational beliefs widely prevalent, profoundly influencing dietary choices, behavior, and medical decision-making. Some pregnant women, due to traditional beliefs, distrust modern medicine, leading to delayed medical visits and increased risks. In multicultural

societies, traditional customs often conflict with modern medical advice. Traditional customs, rooted in history and religious traditions, carry strong cultural identity but may contradict the scientific health management practices based on clinical trials. Immigrant and minority pregnant women frequently face dual cultural conflicts, making it difficult to make health decisions. How to respect traditional cultural practices while effectively communicating scientific knowledge and building culturally adaptive intervention models remains a significant challenge in public health and clinical practice.

1.2 Research status and review objectives

In recent decades, scholars both domestically and internationally have conducted extensive research on irrational beliefs during the perinatal period. Abroad, much focus has been placed on low-resource regions such as Asia and Africa, where field investigations and qualitative interviews document traditional beliefs about dietary taboos during pregnancy and childbirth rituals, revealing their impact on maternal behavior and health outcomes; domestically, attention has been directed towards the conflict between traditional beliefs and modern health management, using a combination of qualitative and quantitative methods to analyze irrational beliefs, construct classification models, and explore their cultural inheritance, psychological motivations, and social structural factors[1]. However, existing studies have limitations, with most focusing on specific regions or single cultural groups, lacking cross-cultural and cross-regional comprehensive comparisons. Theoretical frameworks often remain at the descriptive level, with insufficient analysis of the mechanisms behind belief formation and its intrinsic connections to physiological and psychological impacts. A single cultural perspective limits the establishment of universal theoretical models, hindering the development of effective intervention strategies and public health policies[2-3]. In light of this, this paper aims to establish a comprehensive research framework, systematically organize belief classifications, delve into the mechanisms of formation, analyze their physiological and psychological impacts on maternal and infant health, and propose culturally adaptive intervention strategies. This is intended to integrate traditional wisdom with modern science, providing scientific evidence and practical references for perinatal health management, thereby optimizing maternal and infant health management[4].

2. Definition and classification of irrational beliefs

2.1 Conceptualization

2.1.1 Definition of "irrational beliefs"

Perinatal "irrational beliefs" refer to concepts that lack scientific basis but are widely prevalent and difficult to change in specific groups. Their core characteristics include: first, the absence of scientific support, such as the taboos of "cutting hair during pregnancy harming the fetus" and "lying down for a month after childbirth," which modern medicine has shown to have no direct connection with maternal and infant health [5]; second, the transmission of rigidity, reinforced through intergenerational passing and community norms, making it hard for individuals to change even when faced with scientific explanations, as elders emphasize traditional taboos to pregnant women, hindering modern medical interventions; third, their association with the psychology of pregnant women, during the sensitive perinatal period, individuals rely on "established truths" for security, and cognitive dissonance theory and the ABC model can explain how this reliance on untested beliefs reduces anxiety [6]; fourth, they serve a "psychological soothing" function, being unreasonable yet capable of alleviating fear and providing emotional support, with family elders

influencing their intergenerational transmission; fifth, the rigidity also manifests in individuals selectively ignoring or misinterpreting modern medical information, leading to conflicts between traditional customs and modern science, affecting behavioral decisions and causing controversy.

2.1.2 Distinguish irrational beliefs from general cultural practices

Irrational beliefs differ from the essence of general cultural practices. Irrational beliefs contradict empirical science and interfere with healthy behaviors, such as pregnant women avoiding certain foods or activities due to traditional beliefs, leading to malnutrition or delayed medical care, thereby increasing risks for both mother and child. General cultural practices have a dual effect; for example, proper rest can help new mothers recover their strength and strengthen family emotional bonds. Evaluating these two aspects can be done from three dimensions: scientific validity, health impact, and cultural adaptability. Irrational beliefs lack empirical support and blind adherence can expose mothers and infants to increased risks; some cultural practices may have scientific basis, with positive or neutral health impacts. For instance, the belief that "eating cold-natured foods causes uterine coldness" has cultural roots but lacks experimental data, serving both psychological comfort and health risks [7]. Identifying irrational beliefs requires a comprehensive consideration of their scientific validity and role in specific cultural health environments, aiming to weaken unreasonable notions while preserving culture.

2.2 Classification system of irrational beliefs in perinatal period

2.2.1 Classification according to the perinatal stage: pregnancy, delivery and postpartum

Irrational beliefs manifest differently at various stages of the perinatal period. During pregnancy, irrational beliefs focus on dietary and behavioral norms, such as avoiding seafood, raw or cold foods, and spicy dishes, and restricting physical exercise for pregnant women. Although modern medicine has proven that a balanced diet and regular exercise are beneficial, these taboos remain widely prevalent, influencing the lifestyle and health decisions of pregnant women [1]. In labor, beliefs center on the choice of delivery method; some pregnant women, influenced by traditional views, refuse painless delivery or overly rely on natural childbirth, believing that "painful childbirth" demonstrates maternal strength, which may lead to resistance to modern medical interventions, delayed medical care, and increased risks for both mother and baby [7]. Postpartum, beliefs often revolve around postpartum rest and breastfeeding practices, such as advocating strict bed rest and avoiding going out, and the belief that colostrum is unclean and should be discarded, which can result in immune system suppression and psychological distress if enforced excessively. Dietary restrictions and emotional management during the breastfeeding period also affect the nutritional absorption of newborns and the mother's emotional state. The content of beliefs and their impact on health vary at different stages, and categorizing them by stage helps identify and intervene with irrational beliefs more effectively, providing theoretical support for developing culturally sensitive intervention strategies.

2.2.2 Hierarchical division based on cognitive behavior perspective: core beliefs, intermediate beliefs, automatic thinking

From the perspective of cognitive-behavioral theory, irrational beliefs during the perinatal period can be categorized into different levels. Core beliefs are fundamental views individuals have about themselves, others, or the world, such as "the body is fragile during pregnancy" or "pregnancy should follow the experiences of ancestors." These beliefs form early and are reinforced over time, making them stable and widespread, and difficult to change in the short term. Intermediate beliefs

lie between core beliefs and automatic thoughts, serving as rules or assumptions based on core beliefs, like "a pregnant woman's constitution is weak; not adhering to dietary restrictions will harm the fetus," which mediate behavior guidance [8]. Automatic thoughts are quick-to-appear ideas in specific situations, such as "eating ice cream will make the fetus cold," characterized by rapid responses and significant emotional fluctuations, directly impacting immediate behavioral decisions. The hierarchical classification reveals the internal structure and operational mechanisms of irrational beliefs, providing a basis for cognitive-behavioral therapy interventions.

2.2.3 Multi-angle integration: subdivide beliefs by combining cultural, psychological and behavioral perspectives

Perinatal irrational beliefs have complex causes and impacts, requiring an integrated exploration from cultural, psychological, and behavioral dimensions. From a cultural perspective, different regions, religions, and ethnic traditions lead to variations in belief content and expression, such as the emphasis on "hot and cold" balance in Southeast Asia and the preference for natural childbirth in the West. In terms of psychology, irrational beliefs are related to individual emotional states and cognitive processing methods; perinatal fear and anxiety lead individuals to adopt distorted cognitive strategies, forming erroneous intermediate beliefs and automatic thoughts, which can easily trigger psychological disorders[10]. From a behavioral perspective, beliefs ultimately manifest in daily behaviors, such as unreasonable dietary restrictions leading to nutritional imbalances and rejecting modern medical treatments, thus missing opportunities for treatment. Integrating these three dimensions to construct a multidimensional cross-belief classification model can comprehensively understand the mechanisms and processes of belief formation, providing a basis for formulating targeted interventions. This supports health education and intervention policies on the basis of respecting cultural diversity.

3. The formation mechanism of irrational beliefs

3.1 Cultural inheritance and social influence

Cultural inheritance and social environment have a profound influence on the formation of irrational beliefs in perinatal period, which are deeply rooted in specific culture and social structure, and are strengthened and maintained by intergenerational transmission and social interaction. The cognition and behavior of pregnant women in perinatal period are easily influenced by cultural traditions and social expectations.

Family and community are the primary channels for the transmission of irrational beliefs during the perinatal period. In many cultures, elders such as mothers-in-law and mothers have significant influence over pregnant women's diet, behavior, and birthing methods. For example, in some Asian countries, older women set and enforce dietary taboos and behavioral norms during pregnancy[1]. Intergenerational transmission is crucial for the continuation of these beliefs; older generations adhere more strongly to traditional values, influencing younger pregnant women through verbal instruction, behavioral demonstration, and family power dynamics[9]. The theory of authority compliance can explain why pregnant women comply with their elders' advice, even if it contradicts traditional medical recommendations, in order to gain support and recognition.

In a multicultural environment, irrational beliefs from different cultural backgrounds often conflict. For example, immigrant groups may adhere to traditional birthing methods, which contradict modern medical advice, leading to difficulties for pregnant women seeking medical care. However, cross-cultural communication can bring about integration. With frequent exchanges under globalization, pregnant women may adjust their traditional beliefs to adapt to the new healthcare

system. Cultural adaptability is crucial, and healthcare providers need to offer culturally sensitive services[1]. Future research could focus on how immigrant pregnant women adjust their beliefs, communicate, and balance traditional faith with modern medical advice in the new culture.

3.2 Religion, Ritual and Supernatural Belief

Religion, ritual and supernatural beliefs play an important role in the formation of irrational beliefs during perinatal period, providing psychological support and cultural legitimacy. In many cultures, perinatal period is regarded as a sacred or special period, closely linked with religion and supernatural forces.

Religious beliefs profoundly influence perinatal decision-making. Some religions advocate alleviating labor anxiety through prayer or rituals, believing in divine protection for the safety of mother and child. In certain cultures, people believe that wearing specific amulets or performing religious ceremonies can protect pregnant women and fetuses from evil influences. Supernatural explanations such as superstition and fatalism may also lead to unscientific behaviors[7]. For example, some people think that buying baby items during pregnancy will bring bad luck, or believe that the outcome of childbirth is predetermined, thus eliminating the need for prenatal check-ups and medical assistance. This reflects people's tendency to seek alternative explanations when faced with uncertainty and a lack of control. Empirical studies show that the intensity of religious beliefs is associated with irrational beliefs; the stronger the religious belief, the more likely one is to adhere to traditional dietary taboos and birthing customs, as these provide a worldview and behavioral norms that make it easier to accept related irrational beliefs.

Traditional rituals, through repetition and symbolic significance, deepen people's identification with specific beliefs [7]. For example, in some cultures, sitting the month involves special dietary and behavioral norms, such as avoiding hair washing, eating raw or cold foods, and resting in bed, reinforcing the notion that postpartum women are physically weak and require special care. Rituals also serve social functions, enhancing group cohesion and security. Participation in shared rituals by new mothers can provide support from family and community, reduce anxiety and fear, while transmitting cultural values and norms to ensure intergenerational continuity. However, the effects of similar rituals vary across different cultures; some customs aid in the recovery of new mothers, while others may be detrimental to health. Future research should focus on the specific impact of ritual content on health outcomes to evaluate their benefits and risks.

3.3 Psychological mechanism and cognitive distortion

The formation of irrational beliefs is closely related to cognitive bias and distortion. Ellis' cognitive behavior model (ABC model), core beliefs, intermediate beliefs, automatic thinking distortion and the influence of physiological factors on cognitive function all play a role in it.

In the ABC model, A (Activating Event) refers to the situation that triggers emotions and behaviors, such as pregnancy or childbirth challenges; B (Belief) is the evaluation and interpretation of A, with common irrational beliefs during the perinatal period including "childbirth is always painful" and "one must be perfect to be a mother"; C (Consequence) is the emotional and behavioral response, where irrational beliefs can lead to negative emotions and maladaptive behaviors. For example, if a pregnant woman believes that "eating cold food during pregnancy causes the fetus to get chilled," she may firmly believe she cannot eat cold food, resulting in restricted diet, nutritional imbalance, and frustration. The ABC model emphasizes the mediating role of cognition, suggesting that by identifying and challenging irrational beliefs, one can alter emotional and behavioral responses and better cope with perinatal challenges.

Core beliefs are fundamental views about oneself, others, and the world; intermediate beliefs

serve as bridges connecting core beliefs and automatic thoughts; automatic thoughts are ideas that arise automatically in specific situations. Common distortion patterns during pregnancy include catastrophic thinking, perfectionistic thinking, and should thinking. For example, the belief "children will get sick if they violate traditional customs" may be underpinned by a core belief of "I am incompetent" and an intermediate belief of "I must follow the rules to protect my child," leading to excessive anxiety in pregnant women. CBT techniques can help pregnant women reassess their belief systems and break the chain of distortions.

Perinatal hormonal fluctuations, sleep deprivation, and high cognitive load can weaken cognitive function and increase the acceptance of irrational beliefs. Hormonal changes affect brain function, sleep deprivation impairs cognition, and high cognitive load reduces cognitive flexibility, making individuals more dependent on existing beliefs. Neuroscience indicates that cognitive load is associated with decision-making biases; when brain resources are insufficient, individuals are more susceptible to irrational beliefs. Future research should incorporate physiological factors into belief formation models, aiming to reduce the impact of irrational beliefs through measures such as improving sleep and reducing cognitive load.

3.4 Information asymmetry and lack of medical knowledge

Information asymmetry and lack of medical knowledge lead to irrational beliefs.

In low-resource areas, the dissemination of medical information is limited. Remote rural or economically underdeveloped regions suffer from insufficient medical facilities and personnel, as well as a lack of health education. Language barriers, educational levels, and technical conditions also affect access to information. In certain cultures, topics related to perinatal care are considered private or taboo, hindering the spread of information and leading to issues such as malnutrition in infants due to incorrect feeding practices.

Health education in medical institutions has limitations; materials lack cultural relevance, and healthcare professionals have insufficient cultural sensitivity. The lack of scientific knowledge makes people more reliant on traditional beliefs, reinforcing irrational convictions. Improvement strategies include developing culturally appropriate promotional materials, utilizing digital platforms to disseminate knowledge, and enhancing training for healthcare professionals in cultural sensitivity.

4. The influence of irrational beliefs

4.1 Maternal and infant health outcomes

4.1.1 Diet and nutrition: malnutrition and growth and development problems caused by taboos

Prenatal women, influenced by culture, religion, or superstition, have many dietary taboos that affect the health of both mother and baby. During pregnancy, different regions have different taboos; for example, in some areas, certain fruits and vegetables are believed to cause miscarriage or fetal malformations. In Southeast Asia, there is a concept of "hot and cold foods," while African tribes restrict high-protein food intake. These taboos lead to deficiencies in key nutrients such as folic acid, iron, and calcium, increasing the risk of anemia and low birth weight during pregnancy. Postpartum, customs like "sitting the month" limit the diet of new mothers, affecting their recovery and the quality of breast milk. Reduced food intake after cesarean sections or tubal ligation surgery can easily result in long-term malnutrition. Additionally, irrational beliefs influence infant feeding practices; early introduction of formula or solid foods by mothers, and parents adding grains to

bottles, can all lead to nutritional imbalances in infants.

4.1.2 Risk of childbirth: potential complications of refusal of medical intervention and traditional mode of delivery

In low-income countries and regions, many pregnant women tend to prefer traditional birthing methods or refuse medical interventions, which is related to irrational beliefs. Some pregnant women avoid hospital delivery due to fear of the hospital environment, misunderstanding of medical procedures, or distrust of healthcare providers, preferring instead to rely on traditional midwives or family members. The rejection of male doctors also leads to a refusal of modern childbirth care. Refusal of cesarean sections is similarly associated with irrational beliefs; some cultures view cesarean sections as unnatural, an invasion of women's bodies, or a source of shame. Even when medically recommended, pregnant women may insist on natural childbirth, which can result in complications such as difficult labor, postpartum hemorrhage, and neonatal asphyxia. Home births, lacking medical equipment and professionals, cannot promptly address emergencies, endangering the lives of both mother and baby. Studies show that mothers and infants who receive modern childbirth care have better outcomes.

4.2 Mental health problems

4.2.1 Association between postpartum depression, anxiety and obsessive symptoms and irrational beliefs

Prenatal and perinatal women experience significant physical and mental stress, which can be exacerbated by irrational beliefs, increasing the risk of mental health issues. Epidemiological data show that pregnant and postpartum women with irrational beliefs are more prone to depression, anxiety, and obsessive symptoms. For instance, those who adhere to the belief of being a "perfect mother" may feel guilty or self-blame when they fall short of their ideal state, thereby increasing the risk of postpartum depression; those with "catastrophizing thinking" tend to over-worry about their children or their own abilities, leading to anxiety. From the perspective of cognitive-behavioral theory, irrational beliefs can result in negative automatic thoughts, affecting stress coping strategies. Longitudinal studies have shown that specific beliefs can predict depressive symptoms.

4.2.2 The mediating role of negative automation thinking in emotional distress

Beck's theory posits that negative automatic thoughts are one of the core characteristics of depression. Perinatal women are prone to develop negative automatic thoughts due to various challenges, such as "I will definitely not be a good mother," which can lead to emotional distress. Structural equation modeling indicates that automatic thoughts mediate the relationship between beliefs and depression, with irrational beliefs indirectly causing depression by influencing automatic thought patterns. In clinical practice, cognitive behavioral therapy (CBT) is commonly used to help pregnant women identify and challenge negative thinking.

4.3 Social and family influence

Irrational beliefs can easily trigger family conflicts and generational differences in perspectives, especially regarding parenting styles and traditional customs. Discrepancies in child-rearing methods between mothers-in-law and daughters-in-law, as well as differences in attitudes toward traditional customs between spouses, can easily lead to conflicts. Differences in perinatal care concepts across generations also cause conflicts, affecting the psychological support system for

mothers and increasing the risk of depression. Common methods used in family therapy for concept alignment include active communication, seeking consensus, respecting differences, and professional counseling.

Migrant communities and families in multicultural settings face complex issues of belief transmission and adaptation. Migrant women must choose between traditional beliefs and the host country's healthcare system, experiencing cognitive conflicts and psychological stress, which can lead to dual pressures and increase the risk of mental health problems. Conducting belief interventions in a multicultural context is challenging; it requires designing culturally targeted measures, such as inviting community leaders and religious figures to participate.

4.4 Exploration of cognitive and physiological pathways

Irrational beliefs lead to changes in eating habits, affecting the endocrine system and HPA axis of pregnant women. Nutritional deficiencies impact stress responses through the HPA axis, leading to elevated cortisol levels. Long-term nutritional deficiencies and imbalanced diets can cause dysfunction in the HPA axis, triggering health issues. Nutrition, endocrine function, and mood are interconnected; improving diet is crucial for regulating the neuroendocrine system and alleviating emotional stress.

Psychoneuroimmunological studies have shown that cognition, emotion, and the immune system are closely interconnected. Chronic stress suppresses immune cell activity, reduces the immune system's defensive capabilities, triggers inflammatory responses, and increases the risk of chronic diseases. Perinatal women's cognitive styles are associated with cytokine levels; cognitive distortions may affect immune system function and increase the risk of depression. It is necessary to pay attention to both psychological and physiological indicators for comprehensive intervention.

5. Intervention and response strategies

5.1 Culture-sensitive interventions

To enhance the effectiveness of maternal and family education programs, projects can be designed and implemented based on the Health Belief Model, with a focus on "cognitive inoculation." Educational programs grounded in the Health Belief Model should closely align with the cultural background of the target population, covering topics such as perinatal health knowledge, scientific dietary advice, identification of irrational beliefs, and family involvement. By providing comprehensive health information, correcting unreasonable dietary taboos, helping pregnant women identify and correct irrational beliefs, and encouraging family participation, these efforts aim to strengthen support systems, promote open dialogue within families, and break down generational barriers. The "cognitive inoculation" program is designed to preemptively build individual resistance to negative information, reducing the adverse effects of irrational beliefs. In implementation, it involves first identifying irrational beliefs that negatively impact maternal health in specific cultural contexts, developing easily understandable and persuasive communication materials, and disseminating them through various channels such as community health centers and prenatal schools. Additionally, interactive workshops and community activities are organized to foster a supportive environment for healthy behaviors and encourage open and honest communication among family members, collectively addressing the challenges posed by irrational beliefs and providing scientific support and guidance for pregnant women and their families.

5.2 Integration of clinical practice and application of screening tools

The promotion and application of interdisciplinary collaboration models and standardized screening scales are crucial strategies for identifying and intervening in irrational beliefs among pregnant women. Interdisciplinary teams, through deep cooperation between midwives and mental health experts, establish mechanisms such as regular meetings, shared case discussions, joint training, and referral processes to achieve knowledge complementarity and resource integration, providing comprehensive care that supports both physical and psychological well-being of pregnant women. At the same time, leveraging the objective assessment capabilities of standardized screening tools (such as PRBQ-8, EPDS) can systematically identify irrational beliefs and depression risks in pregnant women. Clinical implementation requires efforts in three areas: first, enhancing the training of healthcare professionals to improve their understanding of irrational beliefs and proficiency in using these tools; second, integrating screening into routine prenatal check-ups to optimize operational convenience; third, developing digital screening platforms to lower implementation barriers. Combining these efforts forms a closed-loop management system of "collaborative identification-precise assessment-timely intervention," ultimately enhancing the accessibility and effectiveness of mental health services during pregnancy and childbirth.

5.3 Cognitive Behavioral Therapy (CBT) and metacognitive training

For irrational beliefs in pregnant women, cognitive behavioral therapy (CBT) and metacognitive strategies can provide effective interventions. CBT helps pregnant women identify and challenge their irrational beliefs through cognitive restructuring, combined with behavioral experiments to verify their validity, thereby correcting cognitive biases. At the same time, metacognitive strategies enhance their awareness of their own thought patterns, including mindfulness observation (identifying the connection between thoughts and emotions), cognitive disengagement (distinguishing thoughts from facts), mindfulness meditation (reducing excessive worry), and cognitive reappraisal (adjusting problem perspectives). These methods work together to help pregnant women break negative thought loops, alleviate anxiety and depression, and promote healthier psychological adaptation.

5.4 Digitalization and technology-assisted intervention

Digital technology offers innovative approaches for the intervention of irrational beliefs during the perinatal period. Mobile health apps provide personalized psychological support and behavioral guidance to pregnant women through features such as health knowledge bases, self-assessment tools, online consultations, and social interactions. Virtual reality (VR) scenario training systems simulate childbirth and parenting scenarios to help pregnant women adapt in advance and alleviate anxiety. Additionally, self-assessment and early intervention systems based on digital platforms can integrate standardized screening scales to automatically generate personalized feedback reports, identify irrational beliefs, and provide targeted intervention plans, such as self-learning resources, online consultations, and community support. The system also regularly tracks and evaluates, dynamically adjusting intervention strategies to achieve continuous and convenient mental health management. These technological means collectively form an efficient and accessible new model for the intervention of irrational beliefs.

6. Future research directions

6.1 Cross-cultural comparison and quantitative research

Comparison of Irrational Belief Prevalence and Characteristics in Multinational and Multicultural Contexts: There are differences in the prevalence and characteristics of irrational beliefs during pregnancy across different countries and cultural backgrounds. Maternal mortality rates are higher in Asian regions, where cultural factors significantly influence maternal health beliefs, behaviors, and outcomes, such as concealing pregnancy to avoid negative impacts from supernatural forces in some cultures. Current research focuses on specific areas or groups, lacking broad cross-cultural comparisons. Future studies should adopt rigorous methodologies, use standardized assessment tools (such as the Pregnancy-Related Beliefs Questionnaire PRBQ), employ multi-level sampling, fully consider cultural differences, and combine qualitative and quantitative methods to gain a deeper understanding of the content and impact of irrational beliefs.

"Core" cognitive distortions: A quantitative analysis of commonalities and regional specificities. "Core" cognitive distortions are deep-seated patterns that influence the understanding and response to perinatal events, manifesting differently across regions. For example, in some areas, pregnant women overly worry about the impact of diet on fetal health, while in others, new mothers overemphasize maternal responsibility. Future research should develop or use validated scales to measure "core" cognitive distortions, employ statistical methods (such as factor analysis and cluster analysis) to identify commonalities and differences, and use regression analysis and structural equation modeling to analyze their relationship with maternal behaviors and choices, in order to develop more effective intervention measures.

6.2 Longitudinal tracking and dynamic evolution

The Evolution and Long-term Impact of Beliefs from Prenatal to Postnatal Stages: Longitudinal studies are crucial for understanding the dynamic evolution of irrational beliefs during the perinatal period. Prospective cohort studies (recruited in early pregnancy, with regular data collection) and retrospective studies (recruited postpartum, with inquiries about beliefs during pregnancy and childbirth) can be used. Future research should employ reliable and valid measurement tools to minimize sample attrition, adopt appropriate statistical methods (such as mixed-effects models, growth curve models, etc.) to analyze data, focus on the long-term effects of belief changes on maternal and infant health, and provide evidence for intervention measures.

Key Turning Points (such as weaning) and the Relationship Between Belief Changes and Intervention Effects: Critical turning points in the perinatal period (pregnancy, childbirth, weaning, etc.) can lead to changes in beliefs. Taking weaning as an example, mothers need to stop or reduce breastfeeding, and their emotional responses are influenced by their beliefs about breastfeeding. Future research could explore the impact of interventions aimed at changing breastfeeding beliefs (such as providing scientific knowledge, developing weaning plans, offering emotional support) on mothers' emotions and mother-child relationships during weaning, as well as the effectiveness of interventions at other critical turning points (such as beliefs about delivery methods during childbirth and dietary beliefs during pregnancy). This should also control for confounding factors such as socioeconomic status, education level, and cultural background.

6.3 Exploration of neurocognition and biomarkers

Fmri and other neuroimaging techniques study the activation patterns of brain regions related to beliefs: Neuroimaging techniques (such as fMRI) can investigate the neural mechanisms underlying

irrational beliefs. Future research could use fMRI to observe the brain activation patterns in pregnant women or postpartum women when they complete perinatal belief-related tasks, identifying brain regions associated with specific beliefs (such as the prefrontal cortex, amygdala, and hippocampus), to explore the neural mechanisms of perinatal irrational beliefs and their relationship with maternal and infant health.

Establishing a biopsychosocial integration model to explore the physiological transmission mechanisms of cognitive distortions: Future research should establish a biopsychosocial integration model, integrating multidisciplinary knowledge to investigate the physiological transmission mechanisms of cognitive distortions. For example, changes in dietary habits can trigger endocrine and HPA axis activation, while cognitive distortions influence emotions and immune function through physiological mechanisms. Research can combine biological and psychological data to understand how cognitive distortions affect emotions and immune function through physiological mechanisms, providing a theoretical foundation for intervention measures.

6.4 Family system expansion and male role perspective

Exploring the mediating role of fathers, partners, and other family members in belief transmission: Family systems play a crucial role in the formation and transmission of irrational beliefs during the perinatal period. Future research should explore the roles of fathers, partners, and other family members in belief transmission, such as how fathers 'or partners' beliefs influence pregnant women's choices regarding childbirth methods, and how grandparents' beliefs impact mothers 'and infants' feeding practices. Particular attention should be given to investigating the role of men in belief transmission and its effects on maternal mental health and behavior.

Research on the Conflict and Adaptation of Traditional Beliefs and Scientific Cognition in Immigrant Groups: Immigrant groups face conflicts between traditional beliefs and scientific cognition in new environments. Future research should focus on the conflict and integration between these two aspects, such as how immigrant groups adjust their beliefs to adapt to new environmental health information, and how they balance traditional customs with modern medical advice. Cross-cultural research methods can be used to compare the beliefs of immigrant groups with those of their home countries, understanding the intergenerational transmission and changes in beliefs across different generations of immigrants, providing a basis for developing culturally sensitive intervention measures.

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References

[1] Withers Mellissa, Kharazmi Nina, Lim Esther. Traditional beliefs and practices in pregnancy, childbirth and postpartum: A review of the evidence from Asian countries[J]. Midwifery, 2017, 56. 158-170. doi:10.1016/j. midw.2017.10.019.

[2] Diego-Cordero Roc ó, Rivilla-Garcia Estefan ú, Diaz-Jimenez Desire é, et al. The role of cultural beliefs on eating patterns and food practices among pregnant women: a systematic review[J]. Nutrition Reviews, 2021, 79(9): 945-963. doi:10.1093/nutrit/nuaa119.

[3] Higginbottom Gina, Vallianatos Helen, Shankar Janki, et al. Immigrant women's food choices in pregnancy: perspectives from women of Chinese origin in Canada[J]. Ethnicity & Health, 2017, 23(5): 521-541. doi:10.1080/13557858.2017.1281384.

[4] Bottemanne Hugo, Charron Morgane, Joly Lucie. Perinatal beliefs: Neurocognitive mechanisms and cultural

specificities[J]. Gynecologie, obstetrique, fertilite & senologie, 2022, 50(7-8): 542-552. doi: 10.1016/j.gofs.2022.03.001.
[5] Moujahid Chaimae, Turman Jack, Amahdar Loubna. Common Traditions, Practices, and Beliefs Related to Safe Motherhood and Newborn Health in Morocco[J]. Healthcare, 2023, 11(5).doi:10.3390/healthcare11050769.
[6] Ahuja Alka, Duggal Mona, Liu Jane, et al. A qualitative study to understand sociocultural beliefs around perinatal and neonatal health in rural areas of Mohali, Punjab, India[J]. Frontiers in global women's health., 2023, 4. 1147762. doi:10.3389/fgwh.2023.1147762.
[7] Raman Shanti, Nicholls Rachel, Ritchie Jan, et al. How natural is the supernatural? Synthesis of the qualitative literature from low and middle income countries on cultural practices and traditional beliefs influencing the perinatal period[J]. Midwifery, 2016, 39. 87-97. doi:10.1016/j.midw.2016.05.005.
[8] Raman Shanti, Napier-Raman Sharanya, Pinzón-Segura Mar ía. Exploring cultural influences in perinatal and early childhood nutrition[J]. Revista de salud publica. Bogota, 2024, 26(3): 115569. doi:10.15446/rsap.V26n3.115569.
[9] Leach Dawn, Marino Claudia, Nikčević Ana. An evaluation of the contribution of maladaptive attitudes specific to motherhood and metacognitions in perinatal depression[J]. Psychiatry Research, 2019, 274. 159-166. doi:10.1016/j.psychres.2019.02.012.
[10] Fonseca Ana, Canavarro Maria. Cognitive correlates of women's postpartum depression risk and symptoms: the contribution of dysfunctional beliefs and negative thoughts[J]. Journal of Mental Health, 2019, 29(6): 614-622. doi:10.1080/09638237.2019.1581331.