ISSN 2616-5791 Vol. 6, Issue 7: 60-65, DOI: 10.25236/AJMHS.2025.060709

Research Progress of Fertility Anxiety in Patients with Ovarian Cysts in Childbearing Period

Deng Haixia[1,a], Zhang Yanhong[1,b], Hao Yuying[1,c,*]

[1]School of Nursing, Shaanxi University of Traditional Chinese Medicine, Xianyang, China
[a]17693390728@163.com, [b]15926179009@163.com, [c]hyy8908@163.com
[*]Corresponding author

Abstract: *With the rising incidence of ovarian cysts and with the implementation of China's three-child policy, many young female patients of childbearing age affected by ovarian cysts express a desire to conceive. However, for them, the prospect of childbirth may impose significant psychological pressure, thereby influencing their treatment decisions and their overall quality of life. This article presents a comprehensive review of research advancements on fertility anxiety, including its definition, characteristics, prevalence, influencing factors, and potential intervention strategies. The objectives are to enhance clinical medical professionals' awareness of fertility anxiety in childbearing-age patients with ovarian cysts and to provide a theoretical foundation for future interventions targeting fertility anxiety in this population, ultimately contributing to improving their quality of life.*

Keywords: *Reproductive Age Period; Ovarian Cysts; Fertility Anxiety; Overview*

1. Introduction

Ovarian cysts during the reproductive years represent a prevalent type of tumor within the female reproductive system and constitute a common gynecological condition[1]. Characterized by fluid- or solid-filled structures on or within the ovary, these cysts may occur at any age but are most frequent during reproductive years[2]. Many patients retain a strong desire to conceive despite this diagnosis. Women with ovarian cysts often report chronic lower abdominal pain, menstrual irregularities, and hormonal imbalances. Larger cysts may cause peritoneal irritation, leading to abdominal discomfort and pelvic adhesions, which can result in infertility[3].With the implementation of national policies encouraging families to have three children, individuals may face heightened concerns about their reproductive health, child well-being, and caregiving capacity[4]. Fertility anxiety—defined as excessive worry about fertility and child-rearing due to reproductive uncertainties and insufficient health information among those with unfulfilled family planning goals—encompasses apprehensions regarding personal health, child health, partner relationships, and acceptance of pregnancy or infertility challenges[5]. As a negative emotional state, it not only reduces women's conception willingness but also impairs prognosis and quality of life by disrupting immune and neuroendocrine functions.This article reviews the concept of fertility anxiety, its assessment methods, influencing factors, and intervention strategies for reproductive-age women with ovarian cysts, aiming to offer a foundation for developing effective interventions.

2. The concept of fertility anxiety

Research on fertility concerns originated in 1999 when Schover et al[6]. investigated fertility issues among 283 cancer patients, revealing their reproductive difficulties. In 2005, Wenzel et al. first proposed the concept of fertility concerns in cancer patients, defining it as anxiety regarding personal health and fertility. Their study primarily focused on lymphoma and gynecological oncology patients. Gorman et al[7]. expanded this concept in 2013 to include concerns about spousal knowledge, infertility acceptance, and child-related issues, while extending the research population to thyroid cancer, breast cancer, and other groups. In 2016, Qiao Tingting et al[8]. synthesized global literature to define fertility concerns as worries about fertility and child-rearing among cancer patients, encompassing anxieties related to fertility potential, personal health, child health, and childcare.

ISSN 2616-5791 Vol. 6, Issue 7: 60-65, DOI: 10.25236/AJMHS.2025.060709

3. An assessment tool for fertility worries

3.1 Reproductive Concerns Scale (RCS)

The Fertility Worry Scale (FWS) was developed by Wenzel et al[9]. in 2005 to assess fertility-related concerns among female cancer patients. This 14-item instrument employs a 5-point Likert scale ranging from 0 (strongly disagree) to 4 (strongly agree), yielding a maximum score of 56. Higher scores indicate greater fertility anxiety levels. The scale demonstrated excellent internal consistency (Cronbach's $\alpha = 0.91$). Although currently available only in Dutch, it has not been validated in Chinese. Key advantages include its simplicity for patient completion and comprehension, even among low-education populations. However, its single-dimensional structure limits comprehensive assessment.

3.2 Modified Reproductive Concerns Scale (mRCS)

The Modified Reproductive Concerns Scale (m-RCS) was developed by Cherven et al[10]. in 2021 to assess the level of fertility anxiety in young cancer patients aged 18 to 22. The m-RCS contains 8 items across three dimensions: fertility concern, disease concern, and information need. The first 7 items are scored on a Likert 5-point scale, ranging from "strongly disagree" to "strongly agree," with scores assigned from 1 to 5, for a total possible score of 35. The eighth item is a semi-open question and does not contribute to the overall score. The scale focuses on the fertility anxiety of young cancer patients, expands the scope of application, and has certain clinical significance. However, the m-RCS has not yet been widely verified in clinical practice and needs to be further promoted and applied.

3.3 Reproductive Concerns after Cancer scale (RCAC)

The Post-Cancer Fertility Worry Scale was compiled by Gorman et al[11]. in 2013 to assess fertility and related issues in young adult female cancer patients. It contains 18 items across six dimensions, including pregnancy ability, spouse knowledge, children's health, personal health, infertility acceptance, and pregnancy preparation. The scale employs a Likert 5-point scoring method, ranging from "strongly disagree" to "strongly agree," with scores assigned from 1 to 5, for a total possible score of 90. Higher scores indicate a higher level of fertility anxiety. The Cronbach's α of this scale was 0.82.In 2016, Qiao Tingting translated the scale into Chinese and verified it in female cancer patient groups. The Cronbach's α of the Chinese version of the scale was 0.792, indicating good reliability and validity. The scale has also been translated into Spanish, Swedish, Portuguese, Korean, and other languages and has been validated in different cancer types, including breast, thyroid, and skin cancer.

3.4 Reproductive Concerns After Cancer scale-Man (RCAC-M) Reproductive Concerns after Cancer Scale-Man (RCAC-M)

In 2020, Gorman et al. revised the RCAC to develop the Reproductive Concerns After Cancer-Male Scale (RCAC-M) for assessing fertility concerns in male cancer patients. This scale retains RCAC's item content and dimensional structure. Each dimension functions as an independent subscale, with higher scores indicating greater patient anxiety within that specific dimension. The scale demonstrates acceptable reliability (Cronbach's $\alpha = 0.78$). However, it has not yet undergone extensive psychometric validation in clinical settings.

3.5 Fertility Problem Inventory (FPI)

The FPI was compiled by Newton et al[12]. in 2013 to assess individuals suffering from fertility problems. It includes 46 items across five dimensions: social pressure, sexual pressure, marital relationship, fertility need, and infertility acceptance. The scale uses a Likert 6-point scoring method, ranging from "strongly disagree" to "strongly agree," with scores assigned from 1 to 6, for a total possible score of 276. A higher score indicates a greater degree of stress associated with infertility. The internal consistency reliability of each item of the scale ranges from 0.77 to 0.93, and the retest reliability was 0.83 for females and 0.84 for males.

In 2011, Peng Sinicized the scale and validated it in a group of young patients facing fertility distress. The Cronbach's α of this scale ranges from 0.77 to 0.87. Currently, this scale has been introduced and validated in Greece. The list of fertility problems covers multiple dimensions of patient

ISSN 2616-5791 Vol. 6, Issue 7: 60-65, DOI: 10.25236/AJMHS.2025.060709

fertility, and the content is comprehensive and in-depth. However, due to the large number of items and the fact that some content involves personal privacy, its use in clinical promotion is somewhat limited. At present, the scope of application of this questionnaire is not extensive.

In 2017, Italian scholars Zurlo et al. revised the list of fertility problems based on the FPI and formed a brief version. The Cronbach's α of this revised scale was 0.78, indicating good reliability and validity. Additionally, Jeffrey and Kathryn et al. used a self-designed questionnaire to investigate the fertility worries of young breast cancer patients, but this questionnaire has not been verified for reliability and validity.

To sum up, among the fertility anxiety assessment tools for cancer patients, the Post-Cancer Fertility Anxiety Scale (RCAC) not only covers the assessment of fertility but also deeply considers factors such as spouse's knowledge, children's care, and health status. This scale has been widely used in over 20 young women with different cancer types and has been validated in Chinese female cancer groups, with good reliability and validity. It can comprehensively assess the fertility anxiety of patients. However, this scale is primarily aimed at assessing the fertility anxiety of patients with diagnosed cancer, and no specific assessment tool for the fertility anxiety of patients with OC (ovarian cancer) has been identified.

4. Factors influencing fertility concerns in patients with ovarian cysts

4.1 Number of children and size of cysts

Multiple studies have shown that the number of children and cyst size are influencing factors for fertility anxiety in patients with ovarian cysts. The more children a woman has, the less she worries about childbirth, which is consistent with the report by Feng Yunbi et al[15]. As the biggest emotional bond between husband and wife in a marriage, children may face multiple influences from their spouse and family. This is particularly true due to the influence of traditional Chinese culture on women who anticipate that they may not be able to conceive, resulting in immense physical and mental pressure for those who are ill. Therefore, patients with ovarian cysts who have not yet given birth have more serious concerns about fertility compared to those who have children.In addition, studies have found that compared to cysts with a diameter of less than 5 cm, patients with cysts having a diameter of ≥5 cm have more serious fertility concerns. On the one hand, a larger diameter indicates the severity of the disease; on the other hand, it is also related to the treatment method. Clinically, ovarian cysts with a diameter of ≥5 cm are often surgically removed, which may cause damage or loss of ovarian tissue, increase the probability of infertility, and trigger more serious fertility concerns.The research results suggest that clinical staff should focus on the psychological situation of patients who have not given birth or have large ovarian cysts. They should alleviate the psychological condition of this group through psychological counseling and disease knowledge explanation.

4.2 Disease factors

The ovary is an important endocrine organ in women, and the depletion of follicles and the decline in egg quality can lead to decreased ovarian reserve function (DOR). Ovarian cysts (OC) are a common benign tumor in women of reproductive age. About 7% of women worldwide have experienced symptomatic ovarian cysts. Generally speaking, conservative treatment can be chosen for simple and functional cysts, while symptomatic cysts with suspicious or significantly enlarged ultrasound findings require surgical treatment[13].In the past, open surgery for ovarian cyst removal was commonly used in clinical practice for patients with ovarian cysts. Although it can achieve certain results, it can cause significant trauma, severe pain, and slow postoperative recovery. The surgical incision for open ovarian cystectomy is relatively large, and it has a significant impact on the patient's ovaries and sex hormones. With the development of medical technology, laparoscopic ovarian cystectomy has been widely used in clinical practice. However, regardless of the surgical method, there will inevitably be an impact on ovarian reserve function during the operation.The most common clinical manifestations of ovarian reserve dysfunction are menstrual disorders, decreased fertility, and fluctuations in sex hormones. These issues affect the quality of life of patients and cause serious fertility concerns.

4.3 Family Support

A survey found that family support is a negative predictor of fertility anxiety in patients with

ISSN 2616-5791 Vol. 6, Issue 7: 60-65, DOI: 10.25236/AJMHS.2025.060709

ovarian cysts. Family concerns about fertility in patients with ovarian cysts can have a direct impact. The better the family relationship and the higher the support, the greater the encouragement for individual disease treatment, helping patients develop more beliefs about overcoming the disease, reducing negative emotions, and alleviating patients' worries. On the contrary, it will exacerbate the negative emotions caused by the disease in patients. In addition, patients with higher family support will have a positive guiding effect in the process of disease treatment, such as accompanying patients to seek medical treatment, accelerating the resolution of negative emotions, and thus alleviating patients' concerns about fertility. The results of this study suggest that clinical staff can encourage family members of ovarian cyst patients to actively participate in the patient's disease treatment process from the perspective of family members, and reasonably exert the subjective initiative of family members, thereby alleviating the fertility anxiety of ovarian cyst patients.

4.4 Emotional regulation strategies

The investigation found that emotional regulation strategies are an important influencing factor of fertility anxiety in patients with ovarian cysts. Cognitive reappraisal can reduce fertility concerns in patients with ovarian cysts, while expression inhibition can increase fertility concerns in patients with ovarian cysts[14]. Cognitive reappraisal is essentially a positive emotional coping strategy. For patients with ovarian cysts, they will deal with the negative emotions brought by the disease in a more positive way after learning about it, reducing their worries about fertility; On the contrary, expression inhibition is a suppressive emotional processing method, and patients who adopt this emotional strategy will adopt an avoidance response to cope with the problems caused by the disease. However, avoidance does not fundamentally solve the problem, but rather exacerbates psychological issues, leading to more serious fertility concerns for patients with ovarian cysts. This result also suggests that clinical staff can start from emotional coping strategies and adopt positive guidance to encourage patients with high expression inhibition to express their negative psychology in a timely manner, alleviating their concerns and fears about fertility.

In summary, in the relevant research on fertility concerns in patients with ovarian cysts, the exploration of the impact of family factors on patients' fertility concerns is still in its infancy, and fertility issues themselves are also family issues, especially spouses as an important source of social support, which have a positive effect on reducing patients' fertility concerns.

5. Intervention measures for fertility concerns

5.1 Fertility Information Support

Fertility information support refers to the reproductive-related knowledge and guidance services provided to patients, which can serve as external resources for patients during the reproductive process. In current research, personalized intervention measures for ovarian cysts have not yet emerged; instead, such measures mainly target cancer patients. At present, information support for cancer patients' fertility concerns is primarily provided through various forms, including fertility knowledge manuals, ward posters, voice/video calls, the establishment of WeChat communication groups, and the use of online platforms. The main content includes reproductive system health knowledge, the impact of cancer and related treatments on fertility, infertility-related examinations, pre-treatment fertility choices, fertility protection measures, fertility management during cancer treatment, and other options for becoming parents.

Research shows that providing fertility-related information to cancer patients of childbearing age before they receive treatment can help them fully understand their own fertility status and take necessary fertility protection measures in a timely manner. This approach can reduce the regret rate of patients' future fertility decisions, effectively alleviate fertility concerns, and improve their quality of life. The results of Wang Dandan et al. showed that by forming a multidisciplinary expert team to provide patients with information on tumor fertility, the quality of fertility protection decisions can be improved, negative emotions such as conflicts and regrets can be reduced, and the level of fertility anxiety in the intervention group patients shows a downward trend over time.

Fertility, as a personal privacy issue, requires in-depth discussion in a safe, private, and free environment. Compared to traditional face-to-face communication methods, online interventions can more effectively enhance patients' understanding of sexual and reproductive health knowledge, encourage them to take positive actions, and thus alleviate the anxiety caused by cancer. Stark et al.

ISSN 2616-5791 Vol. 6, Issue 7: 60-65, DOI: 10.25236/AJMHS.2025.060709

developed interventions for reproductive health issues in cancer patients of childbearing age. Researchers provided patients with a list of reproductive health issues and hyperlinks to relevant evidence according to the "Reproductive Health Care Plan." The Fex-Can program in Sweden regularly promotes tumor reproductive knowledge to patients, promptly answers their questions, and conducts expert lectures. The results show that participants' fertility-related difficulties have been effectively alleviated, their fertility-related knowledge level has significantly improved, and their fertility anxiety level has decreased.

5.2 Psychotherapy

The core principle of positive psychological intervention is that psychological support should not focus solely on reducing symptoms, but rather on maximizing an individual's positive potential to enhance emotions, cognition, or behavior. This approach helps patients leverage their inner resources to overcome obstacles and achieve self-actualization[15]. Psychological therapy can assist patients in confronting emotional challenges and reducing fertility concerns by providing psychological support, emotional counseling, and cognitive restructuring. Xiao Panpan et al. conducted a pre- and post-control study involving 24 young female cancer patients using metacognitive therapy. Their findings showed that, compared to conventional nursing, metacognitive therapy significantly improved patients' anxiety symptoms and metacognitive abilities. This enabled patients to better understand and cope with cancer-related negative emotions, thereby enhancing their mental health and alleviating fertility concerns.

Wang Dandan [15]administered mindfulness-based stress reduction therapy to 72 cancer patients. Their results demonstrated that this therapy, compared to conventional nursing, effectively helped patients regulate mood and reduce fertility concerns[16].

Similarly, Zhang Xueli et alfound that improving patients' cognitive attitudes toward their illness effectively diminished negative emotions, increased hope, and strengthened psychological adaptability. This shift helped patients rediscover hope, foster a sense of belonging, and mitigate fertility concerns.

5.3 Family therapy

When facing multiple challenges such as treatment, rehabilitation, childbirth, and family care, female patients often experience significant psychological pressure. Family understanding and support can strengthen patients' will to survive and reduce fertility concerns. Family-centered interventions for fertility concerns include Intimacy Enhancement Therapy, the "Start Dialogue" couples intervention program, and the FOCUS couples intervention program.

Kang Tingting et al. guided couples in learning intimacy skills, facilitating constructive discussions about fertility concerns while enhancing empathetic responses and mutual understanding. Their results showed that Intimacy Enhancement Therapy improves patient satisfaction with intimate relationships and reduces fertility concerns.

The "Start Dialogue" couples intervention program developed by Gorman and the FOCUS program developed by Zhou Jie et al. both aim to improve couple communication and interaction. Research demonstrates that effective communication between partners promotes open discussion, encourages emotional support from spouses, prevents persistent pessimistic feelings, strengthens disease adaptation abilities, improves emotional regulation, and ultimately reduces fertility anxiety.

6. Conclusion

Currently, research in China is increasingly focusing on the fertility concerns of female cancer patients, with both quantitative and qualitative studies emerging. Moving forward, multidisciplinary teamwork—involving physicians, nurses, psychologists, and reproductive specialists—could develop personalized treatment plans for patients. This approach should also enhance medical staff's knowledge of reproductive health and provide patients with real-time information support.

Information channels should be expanded, for example by establishing oncofertility clinics, offering online consultations via internet platforms, and facilitating patient experience exchanges through WeChat. While most current studies in China are small-scale cross-sectional surveys, future research should prioritize large-scale, multi-center clinical trials. Qualitative and longitudinal research should be conducted in parallel, while observational studies should be integrated with randomized controlled

ISSN 2616-5791 Vol. 6, Issue 7: 60-65, DOI: 10.25236/AJMHS.2025.060709

trials to advance this field.

In summary, fertility concerns deserve attention not only in cancer patients of childbearing age, but also in patients with conditions such as ovarian cysts—particularly young, childless, and psychologically vulnerable individuals. While existing domestic and international research primarily addresses individual patient factors, implementation of family therapy remains underdeveloped. Current couple-focused research emphasizes intimate relationships and communication skills; future studies should examine how patient and spousal coping strategies impact fertility concerns. Support interventions should be tailored to individual needs and China's specific context to improve patients' physical and mental health.

Early assessment of fertility concerns can evaluate patients' psychological, social, emotional, and personal health status post-diagnosis. Research on this topic began relatively late in China and remains in its preliminary stages, lacking locally developed assessment tools and a comprehensive intervention framework. Given China's recent pro-fertility policies, addressing childbearing-age women's fertility concerns is particularly crucial. Chinese scholars should actively pursue multidimensional investigations aligned with domestic realities, establishing systematic assessment and intervention protocols to enhance patients' quality of life and wellbeing.

References

[1] Wei Jing, Yu Jun. Analysis of natural pregnancy status and influencing factors in patients with ovarian cysts of childbearing age after laparoscopic surgery [J]. Maternal and Child Health Care of China, 2024, 39(09):1674-1677.

[2] Hong Jianxu, He Jing, Liang Shuang. Influencing factors of PTSD in patients undergoing laparoscopic ovarian cyst removal [J]. Chinese Evidence-Based Nursing, 2024,10(11):2084-2086.

[3] Xie Peng,Wan Bin ,Zeng YAN,. Qualitative research on reproductive concerns among patients with HIV/AIDS of childbearing age: insights fromthe ABC-X model [J]. Chin J AIDS STD, 2024, 30(04): 382-386.

[4] Feng Shengya, Gao Rong, Liu Rong,. Latent profile analysis and its influencing factors of reproductive concerns in male cancer patients of childbearing age [J]. Journal of Nursing Science, 2024, 39(02):87-91.

[5] Canada A L, Schover L R. The psychosocial impact of interrupted childbearing in long-term female cancer survivors[J]. Psychooncology, 2012,21(2):134-143.

[6] Wenzel L, Dogan-Ates A, Habbal R, et al. Defining and measuring reproductive concerns of female cancer survivors[J]. J Natl Cancer Inst Monogr, 2005(34):94-98.

[7] Gorman J R, Su H I, Pierce J P, et al. A multidimensional scale to measure the reproductive concerns of young adult female cancer survivors[J]. J Cancer Surviv, 2014,8(2):218-228.

[8] Qiao Tingting ,Yan Ping,You Shuping, Correlation between reproductive apprehension and depression inyoung female cancer patients: a Grade III-A hospital in Urumqi [J]. Correlation between reproductive apprehension and depression inyoung female cancer patients: a Grade III - A hospital in Urumqi, 2019,46(17):3134-3138.

[9] Cherven B, Meacham L, Williamson L R, et al. Evaluation of the Modified Reproductive Concerns Scale Among Emerging Adult Cancer Survivors[J]. J Adolesc Young Adult Oncol, 2021,10(6):661-667.

[10] Newton C R, Sherrard W, Glavac I. The Fertility Problem Inventory: measuring perceived infertility-related stress[J]. Fertil Steril, 1999,72(1):54-62.

[11] Feng Yunbi, Fu Tao, Jiang Man. Analysis of Fertility Concerns and Influencing Factors in Women with Thyroid Cancer of Childbearing Age [J]. Chin J Prev Contr Chron Dis, 2019,27(09):684-686.

[12] Wang Dandan, Zhang Wei, Zheng Wei,. Effect of fertility consultation and education intervention on reproductive concerns of young gynecological malignant cancer patients [J]. Journal of Nursing Science, 2020,35(18):4-7.

[13] Lam C M, Shliakhtsitsava K, Stark S S, et al. Reproductive intentions in childless female adolescent and young adult cancer survivors[J]. Fertil Steril, 2020,113(2):392-399.

[14] Sin N L, Lyubomirsky S. Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: a practice-friendly meta-analysis[J]. J Clin Psychol, 2009,65(5):467-487.

[15] Wang Dandan, Zheng Wei, Hou Shouchao. Effect of mindfulness-based stress reduction on reproductive concerns and fear of cancer recurrence for young female cancer patients [J].Modern Preventive Medicine, 2019,46(15):2753-2756.

[16] Zhang Xueli, Chen Lifang, Jiang Meiqing. Effect of mental awareness training on fertility anxiety and rumination in young patients with breast cancer [J]. Clinical Education of General Practice, 2020,18(02):183-185.