

Research Progress on Psychological Distress in Patients with Ectopic Pregnancy in China

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Abstract: Ectopic pregnancy is a leading cause of death for child-bearing aged women. Most patients with ectopic pregnancy experience suffer psychological distress which seriously affects their physical and mental health. The psychological distress, influencing factors, measurement tools, and nursing interventions in patients with ectopic pregnancy in China are reviewed in this article. The results showed that the main psychological distress of patients with ectopic pregnancy is anxiety, depression, uncertainty sense of disease, and low self-esteem. The main factors affecting the psychological distress of ectopic pregnancy patients included life-threatening disease, different marital status, and reproductive needs. The main intervention methods for psychological distress in pregnant patients included: cognitive behavioral therapy, emotional therapy of traditional Chinese medicine, and family support. The majority of cross-sectional surveys in China focused on psychological conditions of the patients with ectopic pregnancy, and there are very few longitudinal studies. Large-sample, multi-center longitudinal studies should be conducted in the future to monitor the development of ectopic pregnancy. Qualitative research should be conducted on patient experience, to provide guidance and basis for the implementation of targeted nursing interventions and to further explore standardized, continuous, and generalizable psychological care protocols for distress interventions for patients with ectopic pregnancy, thereby minimizing psychological distress such as anxiety, depression, and uncertainty in patients with ectopic pregnancy.

Keywords: ectopic pregnancy, psychological distress, influencing factors, nursing intervention, review

Background

Ectopic pregnancy refers to the implantation of the fertilized egg outside the uterine cavity. According to the implantation site, it is classified as a tubal pregnancy, ovarian pregnancy, cervical pregnancy, or abdominal pregnancy. Ectopic pregnancy is acute conditions in obstetrics and gynecology and also the main cause of maternal death.¹ The reported incidence of ectopic pregnancy differs in various countries, but globally, it is typically around 2%. However, it is much higher in China due to the high rate of cesarean section and the policy of open birth.² Studies have indicated that most patients diagnosed with ectopic pregnancy experience a high level of psychological distress, which seriously affects their quality of life as well as their physical and mental health; in addition, these effects can persist, even after several years.³ Approaches to relieve the psychological pressure and negative emotions of patients with ectopic pregnancy and to establish correct cognition are particularly important in nursing.⁴ Herein, the psychological distress of patients with ectopic pregnancy and the subsequent nursing interventions are reviewed to help nurses identify the psychological state, provide targeted psychological intervention, and promote the physical and mental recovery of the patients. The researches cited in this review were searched from PUBMED, Web of Science and Science Direct databases. The key words were including “ectopic pregnancy”, “psychological distress”, “influencing factors”, and “nursing intervention”. We included studies from 2000 to 2022. Conference abstracts only and duplicated papers were excluded.

Main Psychological Distress Areas of Patients with Ectopic Pregnancy

Anxiety and Depression

Anxiety and depression are the most common psychological conditions in patients with ectopic pregnancy. Using the Self-Rating Anxiety Scale (SAS) and Self-Rating Depression Scale (SDS), Zhao et al found that 39.53% of patients had anxiety and 37.21% had depression.⁵ Wenjun Tang et al found that the incidence of depression was 20.4% in patients with repeated ectopic pregnancy after conservative treatment of tubal pregnancy.⁶ Using the Spielberger state-trait anxiety scale, Li Pan et al found that out of 80 patients with ectopic pregnancy upon admission, 33.7% had moderate anxiety and 52.5% had severe anxiety.⁷ Feifei Zhang et al found that postoperative anxiety symptoms were more obvious in patients with ectopic pregnancy, which were related to being unmarried, fertility requirements, and cognitive behavioral disorders.⁸ Chen Guina et al found that unmarried patients with ectopic pregnancy experienced varying degrees of anxiety.⁹ Zhang Weixia et al observed higher anxiety and depression among fertility seekers than non-fertility seekers.¹⁰ Wenjuan Zhang et al observed higher anxiety level in patients with planned pregnancy than those with unplanned pregnancy.¹¹ Therefore, after ectopic pregnancy, different levels of anxiety and depression may occur during different stages of treatment and treatment methods, depending on marital status and fertility needs, which can provide guidance for the medical staff to assess the psychological status of patients.

Uncertain Sense of Disease

Uncertainty sense of disease refers to the feeling of uncertainty that patients experience about the symptoms, diagnosis, treatment, and prognosis of their disease, which can produce a stress response than can affect a patient in many ways. Patients' psychological adjustment and coping abilities may be altered, resulting in pressure during medical treatment, thereby increasing negative emotions such as anxiety and depression.¹² Jing Ma's survey, utilizing Mishel's Uncertainty in Illness Scale for Adults (MUIS-A), showed that patients who were admitted with ectopic pregnancy had a moderate level of uncertainty sense of disease.¹³ The researchers conducted an investigation on 104 patients with ectopic pregnancy and found that 95.2% of the patients had a moderate level of uncertainty sense of disease at admission, and 4.8% had a high level of uncertainty sense of disease, mainly manifesting as sudden abdominal pain and vaginal bleeding.¹⁴ Some studies have shown that due to the lack of specificity in symptoms in hospitalized patients with abdominal pain and mild vaginal bleeding, it is necessary to wait for the results of an auxiliary examination to distinguish ectopic pregnancy from luteal cyst rupture, abortion, accessory torsion, and other diseases; the waiting period for results may increase the uncertainty sense of disease, especially for women who are in the early stages of a planned pregnancy.¹⁵

Low Self-Esteem

The low self-esteem surrounding ectopic pregnancy comes from the patients' self-perception of the condition and other people's attitude towards their condition.¹⁶ When a patient is diagnosed with an ectopic pregnancy, she may assume that she would be treated unfairly. Refusing to communicate with others and avoiding normal social contact may result in patients becoming withdrawn and autistic.¹⁷ The type of surgery is an important factor affecting the psychological state of patients with ectopic pregnancy, and the shame of conservative surgery is significantly lower than that of invasive surgery.¹⁶ Proactively reporting their condition to medical staff can make these patients feel very embarrassed, especially unmarried women. This can lead to delayed treatment. The younger the patient, the stronger their sense of inferiority.¹⁸ Patients with higher education levels, better economic conditions, and better employment conditions are more concerned about their own image, more sensitive to the outside world, and more prone to negative emotions towards themselves.¹⁶ In addition, some patients need gynecological examination, vaginal care, or other operations, which also contributes to the low self-esteem.¹⁸

Main Factors Affecting the Psychological Distress in Patients with Ectopic Pregnancy

Life-Threatening Diagnosis

Ectopic pregnancy has the characteristics of rapid onset and development, resulting in severe abdominal pain, massive hemorrhage, and shock after rupture. Severe cases could be life-threatening, and patients often lack the cognitive and

psychological preparation for the condition. They also face treatment uncertainty, which causes fear.¹⁹ Patients scheduled for surgery worry about the effects and safety of surgery as well as surgery-related problems that may lead to irreversible outcomes (ie, hysterectomy). For patients receiving conservative treatment, the toxic side effects of methotrexate could lead to alopecia, a digestive tract reaction, bone marrow suppression, etc., due to which these patients may have many negative emotions, leading to the decline of treatment compliance and endocrine disorders; all of these issues could result in decreased treatment effectiveness.^{20,21}

Marital Status

In China, it is “against public order and social customs” to get pregnant before marriage. Compared with married ectopic pregnancy patients, most unmarried patients are younger, psychologically immature, and have relatively minimal experience. After being diagnosed with ectopic pregnancy, the patients have feelings of fear and anxiety, lack of knowledge of ectopic pregnancy, and are ashamed to talk to parents and friends, which leads to serious psychological pressure. A previous study showed that the SAS and SDS scores of married patients with ectopic pregnancy were 34.54 ± 5.12 and 37.62 ± 4.36 , respectively, which were significantly lower than those of unmarried patients, which were 43.61 ± 8.37 and 52.74 ± 9.75 , respectively ($p < 0.05$). This indicates that the degree of anxiety and depression in unmarried patients with ectopic pregnancy is higher than it is in married patients.⁸ After the occurrence of ectopic pregnancy, one of the patients studied was concerned about infertility or another ectopic pregnancy in the future, abandonment by her boyfriend, a lack of understanding from her parents or colleagues, and friends with a different view of her psychological problems, all of which worsened the patient’s psychological distress. Some unmarried patients from this study regretted having premarital sex and failed contraceptive prevention measures. Some patients expressed resentment toward the male partner, believing that the male partner was responsible for their current pain, especially when the sex was not completely consensual.⁸ For married patients, future fertility problems were more concerning, especially for patients with multiple ectopic pregnancies who were worried about being looked down upon by their husbands and in-laws or facing the risk of being abandoned by their husbands. Therefore, they felt depressed, pessimistic, and even suicidal.²²

Fertility Requirements

This same study showed differences in the SAS scores (40.12 ± 8.12) and SDS scores (46.12 ± 8.71) of patients with fertility requirements and those without fertility requirements (31.26 ± 5.06 and 34.62 ± 5.69). In comparison, the degree of depression was higher in patients with fertility requirements than it was in patients without fertility requirements ($p < 0.05$).⁸ For patients with fertility requirements, giving birth to a healthy child is their biggest wish. Studies indicated that patients diagnosed with ectopic pregnancy have a worse psychological status after surgery, which may be related to the patients’ fear of another ectopic pregnancy, infertility, marriage breakdown, and other factors.²³ Some patients even lost their uterus due to ectopic pregnancy hemorrhage, resulting in infertility. Other patients were diagnosed with ectopic pregnancy following assisted reproduction. In addition, the families of many patients with fertility requirements wish to continue the family line. If the patient’s spouse and in-laws are indifferent, fearful, and sad, it affects the psychological state of patient, thus worsening their psychological burden.²⁴ For patients who do not have fertility requirements, they usually accept their condition. After surgery, they are most concerned about effective contraception and mainly worry about how to avoid another ectopic pregnancy.⁶

Psychological Distress Assessment Tools for Ectopic Pregnancy Patients Symptom Check List-90

This scale is composed of 90 items in 9 dimensions, and the total score is between 90 and 450 points. A higher score indicates a worse mental state.⁸

Self-Rating Anxiety Scale and Self-Rating Depression Scale

Both scales are composed of 20 items, and the total score is 80 points. The SAS is divided into 50 points, and the SDS is divided into 53 points as the cutoff values. A higher score indicates more serious anxiety or depression.²⁵

State-Trait Anxiety Inventory

This is used to assess the patient's anxiety under stress. The score ranges from 20 to 80 points. A higher score indicates more severe anxiety.²⁶

Hamilton Anxiety Scale and Hamilton Depression Scale

The Hamilton Anxiety Scale (HAMA) is composed of two structural factors of mental anxiety and physical anxiety. A higher total score on the HAMA indicates more serious anxiety. The HAMA includes 14 items, and the Hamilton Depression Scale (HAMD) included 17 items. A higher score on the HAMD indicates more serious depression.^{27,28}

Mishel's Uncertainty in Illness Scale

This scale contains two dimensions of ambiguity and complexity, and the score range is 25–125 points. A higher score indicates a higher level of disease uncertainty. The MUIS scale is widely used to measure patients' disease uncertainty sense worldwide.¹³

Intervention for Psychological Distress in Patients with Ectopic Pregnancy Cognitive Behavioral Therapy

Cognitive behavioral therapy (CBT) is the most widely used and accepted form of psychotherapy for mental disorders such as depression and anxiety.²⁹ The cognitive portion of CBT mainly includes techniques such as guided imagination, self-discipline training, distraction, thinking detection, coping style, and problem-solving techniques. The behavioral portion of CBT mainly includes progressive muscle relaxation, relaxation training, and hypnosis, all of which can be used alone or in combination.³⁰ Xiujun He et al divided 90 patients with tubal pregnancy and ectopic pregnancy into an intervention group and a control group after conservative treatment. The intervention group CBT via conventional nursing techniques, and the results showed that the anxiety score of the patients in the intervention group (36.1 ± 4.2) was significantly lower than it was in the control group (42.5 ± 4.3) ($p < 0.05$).³¹

Ning Xu et al determined the SDS and SAS scores of 60 patients after two weeks of intervention. The SDS score (44.55 ± 4.27) and SAS score (40.25 ± 6.35) in the intervention group were significantly lower than in the control group (49.54 ± 4.27 and 46.55 ± 7.21) ($p < 0.05$), indicating that progressive muscle relaxation training can relieve depression and anxiety.²⁵ Nurses trained in CBT techniques have a beneficial effect on the psychological state of patients with first or second ectopic pregnancies; the physical and mental states of the patients can be improved, and the influence of internal and external factors on their health can be reduced.

Emotional Therapy Techniques of Traditional Chinese Medicine

Traditional Chinese medicine (TCM) classifies ectopic pregnancy as blood stasis in the lower abdomen. In nursing, the patients' constitution can be identified through the combined use of four diagnostic methods. Gastrointestinal discomfort caused by methotrexate can be alleviated by massage at the Neiguan and Zusanli acupoints. The Neiguan acupoints can regulate mental disorders such as insomnia and depression.^{32,33} Traditional Chinese medicine suggests that external stimulation leads to emotional fluctuations, anxiety, sadness, and other negative emotions, possibly causing Chi-body disorder and Chi-blood stasis, both of which are not conducive to treatment. As a TCM nursing method, emotional therapy can improve negative emotions, balance Yin and Yang in the body, maintain a relaxed state of the body and mind, and actively contribute to the improvement of life quality.^{34,35} Zhao et al measured the HAMA and HAMD scores of 64 patients with ectopic pregnancy, and found that the patients who received TCM emotional therapy had significantly lower scores than those who did not; these results demonstrated that emotional therapy could improve anxiety and depression.²⁷ Gu et al noted that TCM emotional therapy can effectively treat depression, anxiety, and other adverse psychological emotions. In addition, nursing based on syndrome differentiation can effectively regulate the microcirculation of the patient's body and supplement the daily nutrition required by the body, thus promoting rapid recovery from the disease.³⁶

Family Support

In the theory of a healthy family, the family is a whole entity that is intrinsically sound, adaptable to change, and responsive to problems. For patients, family support from their spouse, parents, etc., after ectopic pregnancy will need to adapt to a series of psychological and physiological changes, loss of control over emotions, mood swings, and conflicts with family. Hence, family care and support are critical, especially companionship and care from the spouse. Emotional support, spousal support, and support from the patient's elders and other relatives have a significant impact on the psychological status of the patient. Understanding, support, and respect from family can help to build the patient's confidence and alleviate their psychological concerns.¹ Studies have found that the mental health status of the spouse of the patient with ectopic pregnancy is poor, and the spouse's emotional response through verbal or nonverbal communication as well as the family's response to the ectopic pregnancy will impact the patient.^{37–39} In addition, under the traditional fertility concept in China of carrying on the family line and raising sons to support in old age, women are under tremendous pressure to bear children, which will increase their psychological distress.²⁴ Therefore, medical staff taking care of these individuals should be family-centered and should encourage and support the family members to participate in caregiving. This will provide more emotional support to patients, reduce their psychological pressure, improve stress on the married couple caused by the lack of knowledge, and promote the patients' mental health and family happiness to achieve the goal of improving the psychological distress of the patients.

Others

Internet-based health education patterns, evidence-based nursing, lifestyle interventions, group psychological counseling, music therapy, continuing nursing, and other methods have positive impacts on promoting the mental health of patients diagnosed with ectopic pregnancy.^{40–43}

Conclusions

With the development of the disease, patients with ectopic pregnancy may experience psychological problems such as anxiety, depression, and uncertainty from diagnosis, surgery, to postoperative recovery. At present, there are mainly the following problems in China: (i) Psychological distress is a continuous negative state, not a simple combination of depression and anxiety. Most studies may only capture some concepts of psychological distress and lack comprehensiveness. (ii) The assessment instruments in the current study vary widely, so the findings are poorly comparable. (iii) There is insufficient research on the current status and influencing factors of psychological distress in patients with ectopic pregnancy, so there are still many uncertain factors. (iv) There are few targeted intervention plans for psychological distress in patients with ectopic pregnancy. Some scholars in China have made preliminary attempts, but most of them focus on hospitalized patients during the perioperative period. There are problems such as short intervention duration, lack of theoretical basis, poor repeatability of the plan, and significant regional limitations. Therefore, a large-sample, multicenter longitudinal study should be conducted to regularly follow up patients with ectopic pregnancy and observe the dynamic changes in their mental health. To further understand the internal emotions of these patients, future qualitative studies could be conducted to understand the emotional experiences of patients choosing different treatment strategies after the diagnosis of ectopic pregnancy. This will facilitate a better understanding of the psychological distress characteristics of these patients, and provide a basis for further exploration of a standardized, continuous, and generalizable psychological care program of distress intervention programs for patients with ectopic pregnancy, in order to minimize anxiety, depression, uncertainty, and other psychological distress in patients with ectopic pregnancy.

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References

1. Yudong W, Qi L. Chinese expert consensus on the diagnosis and treatment of tubal pregnancy. *Chin J Obstet Gynecol Pediatr.* 2019;35(07):780–787.
2. Qianqian Y. *Effects of Pregnancy Outcomes and Related Risk Factors on Ectopic Pregnancy*. Lanzhou University; 2019.
3. Farren JE, Jalmbant MA, Falconieri NO, et al. Posttraumatic stress, anxiety and depression following miscarriage and ectopic pregnancy: a multicenter, prospective, cohort study. *Auton Neurosci Basic Clin.* 2019;2019:222.
4. Wen-ping H, Hui-qin H. Effect of psychological intervention and emotional support on psychosomatic recovery of ectopic pregnancy patients. *Chin J Health Educ.* 2020;36(12):1168–1170.
5. Xiaoxia Z, Xiping S, Wenjuan W. A study on the value of psychological intervention in patients with ectopic pregnancy. *Psychologies.* 2020;17(03):120–121+139.
6. Wenjun T, Chunmei K. Influence of health education and psychological nursing on repeated ectopic pregnancy after conservative treatment of tubal pregnancy. *Chin J Reprod Health.* 2017;28(02):134–137.
7. Pan Li ZH, Li L. Effect of progressive relaxation training on anxiety in patients with ectopic pregnancy treated conservatively. *Chin Mater Child Health Care.* 2013;28(19):3090–3092.
8. Feifei Z, Chengmei C, Lin LI. Analysis of postoperative psychological status and risk factors in patients with ectopic pregnancy. *Electron J Hum Sex.* 2021;30(06):67–70.
9. Guina C, Fang Y. Nursing research on salpingectomy for unmarried ectopic pregnancy patients. *Chin Pract Med.* 2017;12(20):146–148.
10. Weixia Z, Yanling L, Xiaoling L. Influence of high-quality nursing services on negative emotions, postoperative pain and complications in patients with ectopic pregnancy surgery with fertility requirements. *Nurs Pract Res.* 2018;15(21):64–67.
11. Wenjuan Z. Application of Peplau interpersonal relationship theory combined with CICARE communication model in patients with ectopic pregnancy. *Chin J Pract Nurs.* 2020;2020:54–56.
12. Jingna C, Guanzhen LU, Yanling Y. Domestic research hotspots of disease uncertainty: co - word clustering analysis. *J Nurs Adm.* 2019;21(5):365–369.
13. Jing M. *Status and Influencing Factors of Disease Uncertainty in Patients with Ectopic Pregnancy*. Guangdong: Guangzhou University of Traditional Chinese Medicine; 2020.
14. Qiong H, Yijuan Z. Analysis of anxiety and depression in patients with ectopic pregnancy. *J Anhui Med Univ.* 2012;47(4):487–488.
15. Ruimei L. The value of targeted nursing in the treatment of ectopic pregnancy. *Chin Remed Clin.* 2019;21(18):3199–3201.
16. Yan D. Investigation and analysis of stigma and related influencing factors in patients with ectopic pregnancy. *Today Nurs.* 2019;26(10):161–164.
17. Peiyang D. Research on stigma and its influencing factors in patients with ectopic pregnancy. *Healthmust-Readmagazine.* 2019;36:42.
18. Xiaohong HE, Yan Z, Dongqi C, et al. Effect of health education path on disease uncertainty in tubal pregnancy patients. *Int J Nurs Stud.* 2014;6:1435–1437.
19. Huaju X, Linyun W, Xiaohua Z, et al. Observation on the application effect of emergency treatment of acute hemorrhagic shock in gynecological surgery. *Women's Health Res.* 2019;11:19–20+32.
20. qing L. Clinical observation and nursing research progress of conservative treatment of ectopic pregnancy. *Guide Chin Med.* 2019;17(36):7–8.
21. Zhihong L, Juanjuan Z. The effect of conservative treatment, laparoscopic surgery and laparotomy in the treatment of ectopic pregnancy and its effect on the life quality of patients. *Contemp Med.* 2020;26(26):113–115.
22. Zhongping L. Effect of psychological nursing on ectopic pregnancy after conservative treatment of tubal pregnancy. *Med Forum.* 2019;23(6):826–827.
23. Ping Y, Li W, Yiyang D, et al. Effects of continuing care based on timing theory on postoperative anxiety, depression and self-care ability of patients with ectopic pregnancy. *Chin J Integr Med.* 2022;28(02):224–228.
24. Hui W, Fu Shujiao H, Xiaolei C. Analysis of coping style and influencing factors of spouse in emergency ectopic pregnancy rupture. *Matern Child Health J.* 2020;35(07):1306–1308.
25. Ning XU, Qiong Z, Shanshan Y, et al. Effect of progressive muscle relaxation training combined with humanistic care on the comfort index of patients with ectopic pregnancy. *Nurs Pract Res.* 2020;17(21):109–110.
26. Yongge C. The effect of psychological nursing intervention on patients with ectopic pregnancy surgery. *Qilu Nurs J.* 2018;24(12):105–107.
27. Yanhe Z. Application value of emotional nursing in patients with ectopic pregnancy. *Guang J Chin Med.* 2019;34(6):951–953.
28. Zhong L, Zhao Y, Zhu H. Randomized trial of the application value of comprehensive nursing intervention in the perioperative period of ruptured bleeding of ectopic pregnancy. *Ann Palliat Med.* 2021;10(4):4593–4600. PMID: 33966407. doi:10.21037/apm-21-692
29. Miao X, Zhili Z, Meng Z, et al. Genetic mechanism of the efficacy of cognitive behavioral therapy in the treatment of anxiety disorders. *Chin J Behav Med Brain Sci.* 2021;30(10):949–954.
30. Yao Zhaonan Q, Xiaoqing J, Xiaoping L. Effects of cognitive behavioral intervention on anxiety and depression in patients with ectopic pregnancy. *Chin Rural Health Serv Admin.* 2018;38(04):502–504.
31. Xiujun H. Effect of relaxation training and psychological nursing on the recurrence of ectopic pregnancy after conservative treatment of tubal pregnancy. *Aerosp Med.* 2017;28(7):876–878.
32. Yanfei W, Huizhen Y. Prospect of traditional Chinese medicine treatment on ectopic pregnancy. *J Tradit Chin Med.* 2017;18(2):74–75.
33. Yan LD, Zhou P, Lai MQ, et al. 针刺联合低频 rTMS 治疗轻中度抑郁障碍共病失眠 随机对照试验 [Effect of acupuncture combined with low frequency rTMS on comorbid mild-to-moderate depressive disorder and insomnia: a randomized controlled trial]. *Zhongguo Zhen Jiu.* 2023. 43(4):374–378. Chinese. doi:10.13703/j.0255-2930.20220730-k0001
34. Tang QS, Qu M, Sun WJ, et al. International clinical practice guideline of Chinese medicine anxiety. *World J Tradit Chin Med.* 2021;7:280–286.
35. Jia W, Liu W, Qiao X. Chinese expert consensus on enhanced recovery after hepatectomy (Version 2017). *Asian J Surg.* 2019;42(1):11–18. Epub 2018 Apr 5. PMID: 29627391. doi:10.1016/j.asjsur.2018.01.007
36. Yuxia G. Nursing intervention of traditional Chinese medicine in the treatment of ectopic pregnancy. *J Tradit Chin Med.* 2017;19(2):199–201.
37. Hasani S, Aung E, Mirghafourvand M. Low self-esteem is related to depression and anxiety during recovery from an ectopic pregnancy. *BMC Women's Health.* 2021;21(1):326. PMID: 34496785; PMCID: PMC8424942. doi:10.1186/s12905-021-01467-2

38. Hasani S, Mirghafourvand M, Esmailpour K, Sehhatie Shafaie F. The effect of counseling based on health promotion awareness on mental health and self-esteem in women with ectopic pregnancy: a randomized controlled clinical trial. *J Matern Fetal Neonatal Med.* **2021**;34(11):1687–1694. PMID: 31303080. doi:10.1080/14767058.2019.1644314
39. Farren J, Jalmbraut M, Falconieri N, et al. Posttraumatic stress, anxiety and depression following miscarriage and ectopic pregnancy: a multicenter, prospective, cohort study. *Am J Obstet Gynecol.* **2020**;222(4):367.e1–367.e22. PMID: 31953115. doi:10.1016/j.ajog.2019.10.102
40. Yanhua C. Effects of WeChat-based continuing nursing in patients after surgery for ectopic pregnancy. *Chin J Mod Nurs.* **2018**;24(28):3400–3403.
41. Yanhua C. Effect of group psychological counseling on mental status and quality of life of patients with ectopic pregnancy. *Int J Nurs Stud.* **2018**;37(2):241–243.
42. Kasraei S, Seifollahi A, Aghajani F, Nakhoshtin-Ansari A, Zarei N, Tehranian A. Successful management of a patient with ovarian ectopic pregnancy by the end of the first trimester: a case report. *J Med Case Rep.* **2022**;16(1):175. PMID: 35491424; PMCID: PMC9059382. doi:10.1186/s13256-022-03403-w
43. GaoY Z, Xu T, Tian JS, Qin XM, Qin X-M. Research progress on antidepressant therapeutic biomarkers of Xiaoyaosan. *World J Tradit Chin Med.* **2020**;6:171–179. doi:10.4103/wjtc.wjtc_16_20

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