Effects of Solution-Focused Nursing Intervention on Anxiety and Depression, Self-Efficacy, and Pregnancy Outcomes in Patients with Recurrent Spontaneous Abortion

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Abstract

Objective: To investigate the effects of nursing intervention based on the Solution-Focused Model (SFM) on anxiety and depression, self-efficacy, and pregnancy outcomes in patients with recurrent spontaneous abortion (RSA).

Methods: A total of 180 immunological RSA patients admitted to our hospital from October 2020 to October 2022 were selected as study subjects and divided into a study group and a control group using the random number table method, with 90 cases in each group. All RSA patients received low molecular weight heparin anticoagulation therapy. The control group received routine nursing care, while the study group received SFM nursing intervention. The anxiety and depression scores, sleep quality, and self-efficacy scores before and after treatment, as well as patient satisfaction and pregnancy outcomes were compared between the two groups.

Results: After intervention, the Self-Rating Anxiety Scale (SAS) score $(40.10\$\pm3.15), Self-RatingDepressionScale(SDS)score(38.51\pm3.24), andPittsburghSleepQualityIndex(PS$ 0.05).$TheGSESscoreinthestudygroupafterinterventionwas(34.48\pm3.21), whichwashigherthanthatinthecont$ and the differences were statistically significant (P<0.05). The overall satisfaction rate in the study group was 94.44%, which was higher than 85.56% in the control group (P<0.05). The successful fetal preservation rate in the study group was 88.89%, which was higher than 76.67% in the control group (P<0.05).

Conclusion: Nursing intervention based on the Solution-Focused Model can effectively alleviate anxiety and depression in RSA patients, improve their sleep quality and pregnancy outcomes, and enhance their self-efficacy and patient satisfaction.

Full Text

Preamble

Title: Effects of Solution-Focused Nursing Intervention on Anxiety, Depression, Self-Efficacy, and Pregnancy Outcomes in Patients with Recurrent Spontaneous Abortion

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Abstract

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Methods: A total of 180 patients with immune-type RSA admitted to our hospital from October 2020 to October 2022 were randomly divided into a study group and a control group, with 90 cases in each group. All patients received low molecular weight heparin anticoagulation therapy. The control group received routine nursing care, while the study group received SFM nursing intervention. The two groups were compared in terms of anxiety and depression scores, sleep quality, self-efficacy scores, patient satisfaction, and pregnancy outcomes before and after treatment.

Results: After intervention, the Self-Rating Anxiety Scale (SAS) score $(40.10\$\pm3.15), Self-RatingDepressionScale(SDS)score(38.51\pm3.24), andPittsburghSleepQualityIndex(PS$ 0.05).$TheGeneralSelf-EfficacyScale(GSES)scoreinthestudygroupafterinterventionwas(34.48\pm3.21), whi$ and the differences were statistically significant (P<0.05). The total satisfaction rate in the study group was 94.44%, higher than 85.56% in the control group (P<0.05). The successful fetal preservation rate in the study group was 88.89%, higher than 76.67% in the control group (P<0.05).

Conclusion: Solution-focused nursing intervention based on the SFM can effectively alleviate anxiety and depression in RSA patients, improve their sleep

quality and pregnancy outcomes, and enhance self-efficacy and patient satisfaction.

Keywords: Solution-focused model; recurrent spontaneous abortion; anxiety and depression; self-efficacy; pregnancy outcome

Introduction

Recurrent spontaneous abortion (RSA) refers to the loss of two or more consecutive pregnancies in women of childbearing age with the same sexual partner, with an incidence of approximately 1% to 5% among women of childbearing age [**?**]. The etiology of RSA is complex [**?**], and low molecular weight heparin is commonly used clinically for treatment, though its mechanism of action in treating RSA remains unclear. It may be related to its immunosuppressive and immunomodulatory properties, possibly improving maternal hypercoagulable state, reducing blood viscosity and vascular resistance, increasing placental blood supply, fundamentally altering intrauterine microcirculation, and promoting embryonic growth and development [**?**].

A study on the psychological status of RSA patients found that the incidence of negative emotions such as anxiety and depression is generally elevated in this population [**?**]. The more miscarriages a patient experiences, the greater the risk of miscarriage in subsequent pregnancies, leading to gradually increasing psychological pressure and fear of pregnancy failure, as well as a growing tendency to lose confidence in pregnancy. Patients often exhibit psychological states such as depression and sadness [**?**]. Excessive stimulation from negative emotions like anxiety and depression can place the body in a hyperactive state and affect normal embryonic development through exaggerated responses of various regulatory mechanisms, potentially leading to adverse pregnancy outcomes such as intrauterine growth restriction, intrauterine death, miscarriage, and preterm birth [**?**]. Moreover, some patients may not cooperate with treatment or may discontinue therapy due to emotional influences, thereby affecting treatment efficacy. Clinical studies have shown that low molecular weight heparin is effective in treating immune-type RSA, but treatment of immune-type RSA is not limited to rational medication use and requires effective nursing measures [**?**].

The Solution-Focused Model (SFM) is an intervention approach that focuses on solutions rather than problems, utilizing patients' own capabilities to fully mobilize their subjective initiative [**?**]. SFM has been established in professional psychotherapy and clinical applications and has achieved positive effects [**?**]. Therefore, rather than passively facing problems, we believe SFM can better guide RSA patients to actively resolve negative emotions, improve self-efficacy, and enable RSA pregnant women to live more positively. Additionally, RSA patients may experience varying degrees of sleep problems, and previous studies have shown that alleviating sleep problems can help reduce mental disorders and keep patients away from depression [**?**]. Currently, there is a lack of research on SFM nursing intervention in the care of immune-type RSA patients during

treatment.

In this study, we fully leveraged the advantages of SFM nursing intervention in the process of treating immune-type RSA patients with low molecular weight heparin, standardized nursing procedures, and strengthened communication and collaboration between medical staff. We evaluated the application of SFM using indicators such as fetal preservation success rate, emotional status, sleep status, and patient satisfaction to explore its feasibility and applicability, providing practical evidence for nursing research on immune-type RSA.

Methods

Study Population

From October 2020 to October 2022, 180 patients with immune-type RSA admitted to our hospital were selected as study subjects. The patients' ages ranged from 20 to 38 years, with a mean age of (28.52$±$3.01) years. There were no significant differences in general data between the two groups (P>0.05), as shown in , indicating comparability.

Diagnostic Criteria for RSA

(1) History of amenorrhea, with no or minimal vaginal bleeding, or symptoms such as abdominal cramps and lower back pain; (2) Positive urine pregnancy test; (3) Cervical os closed, soft uterine body, with uterine size roughly consistent with amenorrhea days; (4) Ultrasound confirmation of intrauterine pregnancy; (5) Two or more consecutive spontaneous abortions with the same sexual partner.

Inclusion Criteria

(1) RSA patients who received fetal preservation treatment after admission; (2) Gestational age $ $12 weeks; (3) Autoimmune antibody tests: anticardiolipin antibody (ACA), anti-endometrial antibody IgG and IgM, with at least one weakly positive; (4) No history of stillbirth or live birth; (5) Patients provided informed consent and signed informed consent forms.

Exclusion Criteria

(1) Patients with recent spontaneous abortion, embryonic arrest, biochemical pregnancy, and other abnormal pregnancies; (2) Patients who had taken medications affecting immune function or received recent immunotherapy before admission; (3) Patients with other immune diseases; (4) Patients with severe heart, brain, liver, kidney, hematopoietic system diseases, or mental illnesses; (5) Patients with reproductive tract infections or malformations; (6) Patients with abnormal coagulation function; (7) Patients with other pregnancy complications, such as severe hyperemesis gravidarum; (8) Patients who did not take medication as prescribed or whose

efficacy could not be determined; (9) Patients with incomplete clinical information.

Interventions

All patients in both groups received low molecular weight heparin treatment upon admission: low molecular weight heparin calcium administered via abdominal subcutaneous injection at an initial dose of 10,000 IU every 12 hours. During treatment, prothrombin time was tested every two days, and medication dosage was adjusted according to test results. After prothrombin time reached 1.5 times that of normal pregnant women, ACA testing was performed monthly. If results were negative, medication was discontinued; when results turned positive, medication was resumed. After six months of treatment, the dose was reduced to 5000 IU/day. The treatment course was based on fetal maturity, typically discontinued at 34-36 weeks of gestation.

The control group received routine nursing care, including admission guidance, treatment preparation, regular ward rounds, and medication nursing. Medical staff closely monitored each patient's condition changes, strengthened medication guidance, dietary guidance, and health education, and guided patients to face the disease with a positive and optimistic attitude.

The study group received SFM nursing intervention. SFM consultation typically consists of five components: describing the problem, establishing well-defined goals, exploring exceptions, providing session feedback, and evaluating outcomes. According to previous studies, significant effects can be achieved after 3-5 SFM interventions.

(1) **Establishment of Nursing Team**: A nursing team was established with the department head nurse as team leader, including one resident physician and one psychological counselor, two charge nurses, and responsible nurses. The main responsibilities of each member were clearly defined. Basic patient information was collected and analyzed 1-2 days after admission. One-on-one communication was conducted according to patients' basic information, with each intervention lasting 30-45 minutes. If patients could not receive on-site intervention, telephone follow-up or online video intervention was conducted, with each patient receiving no fewer than 4 interventions.

(2) **Problem Description**: During communication with patients, nurses followed the principles of narrative nursing. Guided by nursing staff, RSA patients were encouraged to express their inner thoughts and faced problems, identify reasons behind the problems, and actively discuss these issues with patients and their families to negotiate positive responses. Second, RSA patients inevitably experienced negative emotions such as anxiety and depression, and may also have sleep problems. Nursing team members could adopt positive guidance methods, conduct hypothetical reasoning with patients, and discuss hypothetical problems with patients,

such as: What negative impacts do anxiety and depression have on treatment? Do anxiety and depression affect final pregnancy outcomes? Do sleep disorders and low self-efficacy affect pregnancy outcomes? How can these problems be improved? Family members, especially spouses, could be invited to assist in problem-solving when necessary to improve patient treatment compliance, enhance their confidence in problem-solving, assist them in tapping their potential to solve problems, and help them alleviate depression and anxiety.

(3) **Establishing Refined Goals**: RSA patients were encouraged that if current problems were effectively solved, it would have positive effects on pregnancy outcomes and other aspects. According to patients' clinical characteristics and psychological status, nursing team members and patients jointly constructed feasible and specific goals. Goals were then adjusted in a timely manner according to patients' specific behaviors during implementation. For example, suppose your anxiety, depression, sleep disorders, and low self-efficacy were completely cured—what kind of outcome would you achieve? Or what outcome would you like to achieve?

(4) **Exploring Exceptions**: After establishing clear goals, we continued to discuss what would happen if problems did not occur subsequently, or what situations might occur if similar problems were not seriously resolved. This helped pregnant women realize that their unconscious efforts might lead to different outcomes. At the same time, they discovered that even minor changes should not be ignored as unconscious efforts. These unconscious efforts might prompt them to further consider making these exceptions happen again. The focus of SFM is to help pregnant women firmly recognize their own value and discover that through their own changes, they can effectively solve faced problems. The nursing team also needed to help pregnant women build confidence during the nursing process.

(5) **Post-Session Feedback**: Based on preliminary communication and understanding, the nursing team tried to explore pregnant women's strengths, resources, and efforts, and provided timely positive feedback and praise. This increased the probability of achieving established goals. If pregnant women did not achieve expected goals, the nursing team promptly discussed possible influencing factors with them, timely adjusted established goals, and shared successful cases of other patients to help them understand more methods and experiences, enhancing their confidence and hope in problem-solving. Team members primarily used relevant questions to help pregnant women refine their goal achievement and direction.

(6) **Evaluating Effects**: In this stage, medical staff continued to use scaling questions to emphasize the importance of change for pregnant women, starting with small changes and gradually increasing the degree of change, with timely encouragement and praise to help patients build confidence and realize their efforts to solve problems. The order of the above five steps

was not completely fixed during the intervention process but was flexible to guide pregnant women to achieve their goals. Therefore, pregnant women could successfully solve similar problems in the future.

Observation Indicators

(1) **Psychological Status, Sleep Quality, and Self-Efficacy**: These were compared between the two groups before and after intervention. The Self-Rating Anxiety Scale (SAS), Self-Rating Depression Scale (SDS), and Pittsburgh Sleep Quality Index (PSQI) were used to assess sleep quality. SAS and SDS scores each consist of 20 items, scored according to symptom frequency on a scale of 1, 2, 3, or 4. All scores were summed and multiplied by 1.25, rounded to the nearest integer to obtain the standard score, with higher scores indicating greater depression and anxiety. The SAS standard cutoff point is 50: <50 indicates no anxiety, 50-59 indicates mild anxiety, 60-69 indicates moderate anxiety, and $ $70 indicates severe anxiety. The SDS standard cutoff value is 53: <53 indicates no depression, 53-62 indicates mild depression, 63-72 indicates moderate depression, and $ $73 indicates severe depression. The PSQI scale includes seven components: sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction, with a total of 23 items. Each component is scored as 0, 1, 2, or 3, with the cumulative score being the PSQI total score ranging from 0 to 21, where higher scores indicate poorer sleep quality. Self-efficacy was assessed using the General Self-Efficacy Scale (GSES), which includes 10 items scored from 1 to 4, with higher scores indicating higher self-efficacy.

(2) **Nursing Satisfaction**: A self-designed nursing satisfaction questionnaire from our hospital's obstetrics department was used to evaluate nursing staff satisfaction. The questionnaire contains 20 items, each scored 1-5, with a total score of 100. Scores $ $90 indicate very satisfied; 75 to <90 indicate satisfied; 60 to <75 indicate basically satisfied; and <60 indicate dissatisfied.

(3) **Pregnancy Outcomes**: These included full-term delivery, miscarriage, preterm survival, and preterm death. The successful fetal preservation rate was calculated as: (preterm survival + full-term delivery) cases / total cases × 100%.

Statistical Analysis

Data were processed using SPSS 22.0 software. Measurement data were expressed as ($\bar{x}\pm s$) and analyzed using t-tests. Count data were expressed as cases (%) and analyzed using ^{2} tests. $P<0.05$ was considered statistically significant.

Results

Psychological Status

There were no significant differences in SAS and SDS scores between the two groups before intervention (P>0.05). After intervention, SAS and SDS scores in both groups decreased significantly compared with before intervention, and the above two scores in the study group were significantly lower than those in the control group (P<0.05), as shown in .

Sleep Quality and Self-Efficacy

There were no significant differences in GSES and PSQI scores between the two groups before intervention (P>0.05). After intervention, GSES scores in both groups increased significantly, while PSQI scores decreased significantly. Moreover, GSES scores in the study group were significantly higher than those in the control group, while PSQI scores showed the opposite pattern (P<0.05), as shown in .

Patient Satisfaction

The satisfaction rates of the two groups were 94.44% and 85.56%, respectively, with patient satisfaction in the study group significantly higher than that in the control group (P<0.05), as shown in .

Pregnancy Outcomes

The successful fetal preservation rate in the study group reached 88.89%, significantly higher than 76.67% in the control group, with a statistically significant difference (P<0.05), as shown in .

Discussion

RSA has a relatively high incidence among women of childbearing age and is a clinically complex and difficult-to-treat condition that has become a hot topic in modern medical research. Autoimmune-type RSA is relatively common clinically [**?**], and low molecular weight heparin is the main treatment, which has good efficacy in improving patients' abnormal immune function symptoms [**?**]. However, due to multiple miscarriages, RSA patients are prone to anxiety and depression, and long-term application of low molecular weight heparin can cause adverse reactions such as skin bruising, leading to or aggravating patients' psychological trauma [**?**]. Therefore, for RSA patients, treatment alone is not comprehensive enough and requires appropriate nursing intervention. Current disease-centered routine nursing can no longer meet patients' needs, and patient-centered nursing intervention models have emerged.

In this study, based on low molecular weight heparin treatment for immune-type RSA patients, we compared the intervention effects of routine nursing and

SFM nursing. The results showed that after intervention, SAS and SDS scores in the study group decreased significantly compared with the control group, while GSES scores increased significantly compared with the control group. This suggests that SFM nursing intervention is superior to routine nursing intervention in improving negative emotions and enhancing self-efficacy in RSA patients. The possible reason is that SFM-based nursing intervention can effectively alleviate negative emotions in RSA patients by addressing each patient's psychological problems, identifying causes through problem analysis, assisting patients in solving problems through effective means, and helping RSA patients escape psychological distress [**?**]. During the process of patients dealing with psychological problems, their potential is fully utilized, allowing them to gain a sense of achievement, enhance self-confidence, and actively and proactively face and solve problems [**?**].

RSA patients often have sleep disorders, and their negative emotions may worsen sleep disorders, greatly affecting their quality of life [**?**]. In this study, PSQI scores in the study group after intervention decreased significantly compared with the control group. The possible reason is that after effective intervention, negative emotions in RSA patients were effectively alleviated, their psychological burden was resolved, and their confidence in handling or solving problems was enhanced, thereby addressing sleep disorders caused by negative emotions and improving sleep quality [**?**].

RSA patients' satisfaction with intervention in the study group was higher than that in the control group, indicating that the implementation of SFM nursing intervention is significant in improving the nurse-patient relationship. Furthermore, in this study, the successful fetal preservation rate in the study group was significantly higher than that in the control group. The possible reason is that the main pathological basis of immune-type RSA patients is abnormal immune function. Low molecular weight heparin can inhibit certain cell functions, improve patients' coagulation disorders, reduce damage to vascular endothelial cells, and thereby regulate human immunity [**?**]. Moreover, after SFM nursing intervention, patients' anxiety, depression, and sleep quality improved significantly, and self-efficacy increased substantially. Sympathetic nerve physiological arousal levels and endorphin levels in the body can also improve immune function to a certain extent, thus resulting in a higher successful fetal preservation rate in the study group.

The application of SFM nursing intervention in immune-type RSA patients has demonstrated good effects, significantly improving patients' psychological status, sleep quality, and pregnancy outcomes, and enhancing self-efficacy.

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Note: Figure translations are in progress. See original paper for figures.