

# World Journal of *Clinical Cases*

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## Retrospective Study

## Treatment of postpartum depression with integrated traditional Chinese and Western medicine nursing and electrical stimulation

Wen-Hui Zhai, Mei-Jiao Wang, Yi-Jing Zhao, Shuang-Ling Hu, Jin-Man Zhou

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## Abstract

## BACKGROUND

Postpartum depression (PPD) is a common psychological disease among puerperal women, and postpartum pelvic floor dysfunction is a common disease among pregnant women. The occurrence of postpartum pelvic floor dysfunction will increase the incidence of PPD.

## AIM

To explore the therapeutic effect of integrated traditional Chinese and Western medicine nursing combined with electrical stimulation of pelvic floor muscles and the rectus abdominis on PPD.

## METHODS

From April 2020 to January 2022, 100 parturients with a rectus abdominis muscle separation distance > 2.0 cm who underwent reexamination 6 wk after delivery at our hospital were selected as the research subjects. According to the random number table method, the patients were divided into either an observation group ( $n = 50$ ) or a control group ( $n = 50$ ). There was no significant difference in the general data between the two groups ( $P > 0.05$ ). Both groups were treated by electrical stimulation. The observation group was additionally treated by integrated traditional Chinese and Western medicine nursing. A self-designed Depression Knowledge Questionnaire was used to evaluate the awareness of knowledge on depression in all patients 3 wk after intervention. The Hamilton Depression Scale (HAMD) was used to evaluate the depression before intervention and 1 wk and 3 wk after intervention, and the Morisky Medication Adherence Scale (MMAS-8) was used to evaluate the medication compliance. SPSS19.0 was used for statistical analyses.



## RESULTS

The rate of awareness of knowledge on depression in the observation group was significantly higher than that of the control group ( $P < 0.05$ ). The scores of MMAS-8 were comparable between the two groups before intervention ( $P > 0.05$ ), but were significantly higher in the observation group than in the control group at 1 wk and 3 wk after intervention ( $P < 0.05$ ). The HAMD scores were comparable between the two groups before intervention ( $P > 0.05$ ), but were significantly lower in the observation group than in the control group at 1 wk and 3 wk after intervention ( $P < 0.05$ ).

## CONCLUSION

Integrated traditional Chinese and Western medicine nursing combined with electrical stimulation of pelvic floor muscles and the rectus abdominis is effective in the treatment of postpartum depression and worthy of clinical promotion.

**Key Words:** Integrated traditional Chinese and Western medicine nursing; Pelvic floor muscles; Rectus abdominis; Electrical stimulation; Postpartum depression

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**Core Tip:** As a common disease among pregnant women, postpartum pelvic floor dysfunction can seriously increase the incidence of postpartum depression (PPD). The purpose of this study was to explore the therapeutic effect of integrated traditional Chinese and Western medicine nursing combined with electrical stimulation of pelvic floor muscles and the rectus abdominis on PPD. After randomly selecting parturients with pelvic floor dysfunction, they were given electric stimulation therapy, either alone or in combination with integrated traditional Chinese and Western medicine nursing. The results showed that the combination of traditional Chinese and Western medicine nursing and electrical stimulation of pelvic floor muscles and the rectus abdominis was effective in the treatment of PPD.

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## INTRODUCTION

Postpartum depression (PPD) refers to maternal depression during the puerperium. The prevalence of PPD in Western developed countries is 7%-40%, and it is 3.5%-63.3% in Asian countries[1]. The reported prevalence of PPD in China ranges from 1.1%-52.1%, with an average of 14.7%[2]. The strongest correlation factors include not only previous history of mental illness and positive family history, but also individual psychological factors and obstetric factors[3]. Postpartum pelvic floor dysfunction is a common disease in pregnant women[4]. Pregnancy and childbirth can lead to different degrees of damage to the structure and function of the pelvic floor[5]. If postpartum pelvic floor injury is not recovered in time and effectively, different degrees of pelvic floor dysfunction diseases may occur, such as pelvic organ prolapse, stress urinary incontinence, chronic pelvic pain, sexual dysfunction, and abnormal defecation, affecting the patient's physical and mental health and quality of life and thus aggravating PPD[6]. The three main current treatments for PPD are medication, psychotherapy, and physical therapy. Evidence-based medical evidence has shown that the effect of comprehensive treatment is better than that of any single treatment[7-9]. Electrical stimulation of pelvic floor muscles and the rectus abdominis can achieve the contraction and tension of pelvic floor muscles and the rectus abdominis, provide structural support for the lower abdomen, bladder, and urethra, and enhance the strength of the urethral sphincter, thereby greatly reducing the occurrence of rectus abdominis muscle dehiscence, pelvic organ prolapse, urinary incontinence, and other dysfunction diseases[10]. This study aimed to explore the therapeutic effect of integrated traditional Chinese and Western medicine nursing combined with electrical stimulation of pelvic floor muscles and the rectus abdominis in the treatment of PPD[11].

## MATERIALS AND METHODS

### Research subjects

From April 2020 to January 2022, 100 parturients with a rectus abdominis separation distance  $> 2.0$  cm at our hospital were selected as the research subjects. The inclusion criteria were as follows: A distance between rectus abdominis muscles  $> 2$  cm and receiving outpatient examination at our hospital 6 wk after delivery. Informed consent was provided by the patients and their families in accordance with the Declaration of Helsinki of the World Medical Association. Their

age ranged from 20 to 40 years. The exclusion criteria were: Previous history of abdominal surgery (except cesarean section); congenital abdominal wall dysplasia; patients with abdominal rash, infection, and other diseases; contraindications for electrical stimulation therapy; withdrawal of consent or loss to follow-up. Using the random number table method, the patients were divided into either an observation group ( $n = 50$ ) or a control group ( $n = 50$ ). The age of patients in the observation group was 21-42 years, with an average of  $31.83 \pm 2.68$  years. The mean gestational age was  $39.54 \pm 1.03$  wk (range, 36-42 wk). The mean number of pregnancies was  $1.54 \pm 0.27$  (range, 0-3). Regarding the mode of delivery, vaginal delivery was used in 16 cases and cesarean section in 36 cases. The average age of patients in the control group was  $31.22 \pm 2.45$  years (range, 21-40 years). Gestational age ranged from 36 to 41 wk, with an average of  $39.19 \pm 1.35$  wk. The mean number of pregnancies ranged from 0 to 3 (mean,  $1.46 \pm 0.23$ ). Vaginal delivery was used in 13 cases and caesarean section in 38 cases. There was no significant difference in the general data between the two groups ( $P > 0.05$ ).

## Research methods

Both groups were treated by electrical stimulation: Phenix USB 4 neuromuscular therapy instrument (French Sugiyaman) was used to connect the electrode lines A1+, A1-, A2+, A2-, B1+, B1-, B2+, and B2- channels, and the electrode sheets were glued to the rectus abdominis, transverse abdominis, and external abdominal oblique and internal abdominal oblique muscles on both sides. The power supply of the therapeutic instrument was switched on, and the interval distance program (U8) was used to set the frequency and pulse width parameters as 30 Hz/200 s, 75 Hz/400 s, 4 Hz/300 s, and 3 Hz/150 s, and the treatment time as 8 s, 7 s, 11 s, and 6 s, respectively. According to the standard of muscle tingling and contraction without pain, the current was set at 30 min/time, once a day, and the treatment was continued for 15 d.

The observation group was additionally treated by integrated traditional Chinese and Western medicine nursing consisting of: (1) Traditional Chinese medicine emotional nursing. The seven emotions are people's emotional reactions to objective things. In the emotional state, the human body's tolerance is not high, which leads to the disorder of the body and the imbalance of Yin and Yang of the Zang Fu organs and causes diseases. As a result, there will be bad psychological concerns such as anxiety, depression, and fear. Therefore, nursing staff can conduct modern modulation. Specifically, nursing staff can keep close relations with patients, keep patience to listen to their inner emotion expression, speech implement induction, modern guide pathogenesis and abnormal emotional reflection. Nursing staff can also inform patients to guard against arrogance and impatience, actively comply with medical and nursing instructions, and relieve physical and mental discomfort; (2) Strengthening the health education of patients and improving their self-care ability. This occurred mainly in the form of explanation, demonstration, and publicity materials, so that patients and their families can obtain the related knowledge of postpartum care, gradually get rid of the dependence of patients, and improve their self-care ability; (3) Diet care. Postoperative diet conditioning was mainly adopted. The initial diet should be from less to more, from thin to thick, and from simple to complex. Light foods with low residue and no stimulation and appropriate amount of vegetables and fruits should be given so that the stool is soft but not loose. During the recovery period, the diet nursing followed the principle of syndrome differentiation and feeding. Patients with Yin deficiency were given light nourishing food such as lily and tremella; those with Qi deficiency were given jujube, pigeons, and other Qi nourishing food; those with blood deficiency to give pig liver, longan meat, and other blood supplementing food. If the stool was loose, apple juice was given to neutralize the spleen and stomach and stop diarrhea; and (4) Pelvic floor muscle relaxation may only manifest as vaginal laxity, lower abdominal distention, frequent urination, and urgency at the beginning, but it will slowly evolve into urinary incontinence, uterine prolapse, *etc.* Sphincter contraction was conducted in a sitting position by consciously contracting the urethra, vagina, and rectal sphincter, and then relaxing. This was repeated 50 to 100 times, 2 to 3 times a day. During urination, patients were asked to consciously contract the perineum, stop urination, and then relax the perineal muscles and continue to urinate. This was repeated 2-3 times a day until the urine was emptied.

## Investigation and analysis of depression

A self-designed Depression Knowledge Questionnaire was used to evaluate the awareness on knowledge of disease in all patients 3 wk after intervention. The Hamilton Depression Scale (HAMD) was used to evaluate the depression before intervention and 1 wk and 3 wk after intervention, and the Morisky Medication Adherence Scale (MMAS-8) was used to evaluate the medication compliance. The degree of awareness of disease knowledge, medication compliance, and depression before intervention and 1 wk and 3 wk after intervention were statistically analyzed. The Depression Knowledge Questionnaire has a 5-point scale (1-5 points), including disease knowledge, drug usage and dosage and precautions, psychological adjustment, outpatient review, self-emotion adjustment, recurrence prevention, *etc.*, with a total of 100 points; the higher the score, the better the knowledge. The Cronbach's reliability coefficient is 0.888, and the validity coefficient is 0.840. A score  $< 60$  was classified as unawareness, 60-80 was classified as basic awareness,  $> 80$  was classified as awareness, and the awareness rate was calculated as (number of patients with awareness + number of patients with basic awareness)/total number of cases  $\times 100\%$ . The MMAS-8 questionnaire has a 1-point scale (0-1 points), with a total of eight items, and the total score is 8 points. The higher the score, the better the compliance. The Cronbach's  $\alpha$  reliability coefficient is 0.892, and the validity coefficient is 0.848. The HAMD scale has a 4-point scale (0-4 points), with 17 items, and the total score is 68 points. The higher the score, the more serious the depression. The Cronbach's  $\alpha$  reliability coefficient is 0.896, and the validity coefficient is 0.851.

## Statistical analysis

Statistical analyses were performed using SPSS 19.0. Measurement data are expressed as the mean  $\pm$  standard deviation and were compared using the *t*-test, while count data are expressed as  $n$  (%) and were compared using the  $\chi^2$  test. All data were considered statistically significant at  $P < 0.05$ .

**Table 1 Comparison of awareness of depression knowledge between the two groups (*n*)**

Group	<i>n</i>	Awareness	Basic awareness	Unawareness	Compliance rate (%)
Control	50	10	31	9	82.00
Observation	50	15	34	1	98.00
$\chi^2$					7.111
<i>P</i> value					0.015

**Table 2 Comparison of Morisky Medication Compliance Questionnaire scores between the two groups**

Group	<i>n</i>	Before intervention	1 wk after intervention	3 wk after intervention
Control	50	4.75 ± 0.58	5.32 ± 0.65	6.35 ± 0.85
Observation	50	4.81 ± 0.60	6.15 ± 0.76	7.43 ± 0.92
<i>t</i> value		0.508	5.869	6.097
<i>P</i> value		0.522	< 0.001	< 0.001

**Table 3 Comparison of Hamilton Depression Scale scores between the two groups**

Group	<i>n</i>	Before intervention	1 wk after intervention	3 wk after intervention
Control	50	38.72 ± 5.52	35.21 ± 4.72	28.25 ± 3.94
Observation	50	39.08 ± 5.48	31.17 ± 4.29	23.52 ± 3.57
<i>t</i> value		0.327	4.479	6.291
<i>P</i> value		0.711	< 0.001	< 0.001

## RESULTS

### Comparison of awareness of depression knowledge between the two groups

The *awareness* rate of depression knowledge in the observation group was significantly higher than that of the control group ( $P < 0.05$ ; Table 1).

### Comparison of MMAS-8 scores between the two groups

The MMAS-8 scores in the control group and the observation group before intervention were comparable ( $P > 0.05$ ), but they were significantly higher in the observation group than in the control group at 1 wk and 3 wk after intervention ( $P < 0.05$ ; Table 2).

### Comparison of HAMD scores between the two groups

The HAMD scores of the control group and the observation group before intervention were comparable ( $P > 0.05$ ), but they were significantly lower in the observation group than in the control group at 1 wk and 3 wk after intervention ( $P < 0.05$ ; Table 3).

## DISCUSSION

Depression, also known as depressive disorder, is characterized by significant and persistent low mood, with high incidence, high recurrence, high disability, high suicide rate, and other characteristics. Depression can range from melancholy to grief, accompanied by anxiety, hallucinations, delusions, and other psychotic symptoms. At present, the main treatment for depression is drug therapy, which can effectively control the patient's condition, and the degree of awareness of disease knowledge plays an important role in drug therapy. The rectus abdominis is located on both sides of the median line of the anterior abdominal wall[11-13]. It is a band shaped multi-abdominal muscle with a narrow upper and wide lower structure[14]. As a core abdominal muscle group, the rectus abdominis can not only control the spine and pelvis movement, but also maintain negative pressure to assist breathing and body movement. Rectus abdominis separation may lead to increased intra-abdominal pressure, low back pain, abnormal posture, pelvic anteversion, and so on[15]. With the opening of the second and third child policy in China, multiple pregnancies, macrocephaly, and cesarean section are considered to be the important influencing factors of rectus abdominis muscle separation[16-17].



In China, the current mainstream psychological intervention is a trinity intervention model (bio-psychology-social model), the greatest feature of which is to decompose the causes of all psychological diseases and find out the primary causes of psychological diseases by tracing to its source[18,19]. Although theoretically it is generally applicable, for individuals, it is often necessary to formulate corresponding intervention plans according to the experiences and living conditions of different individuals in advance, so as to make specific analysis of specific problems. At the same time, the corresponding auxiliary means usually do not have a high threshold in the application process, so it has a strong advantage in the field of specific analysis of mental illness[20,21].

Emotional disorder mainly refers to the phenomenon of uncontrolled emotional self-regulation caused by the comprehensive action of internal and external factors. The causes of this disorder are complex, including endocrine disorders, emotional vulnerability to small environment and climate, the past pressure that has not been reasonably released, too paranoid attitude towards some things, *etc.* The process of childbirth described above can be seen either as a previous stressor or as a unique experience, which can be considered as a psychogenic risk factor for maternal mood disorders[22-23]. However, there are some shortcomings in this study. The HAMD and MMAS-8 data were measured only at 1 and 3 wk after the intervention[24]. Although there was marked improvement in depression, long-term measures of antidepressant and medication adherence remain unclear.

Therefore, future studies should increase the follow-up time and systematically measure the therapeutic effects of integrated traditional Chinese and Western medicine nursing combined with electrical stimulation of pelvic floor muscles and the rectus abdominis.

## CONCLUSION

In conclusion, integrated traditional Chinese and Western medicine nursing combined with electrical stimulation of pelvic floor muscles and the rectus abdominis has good therapeutic effects in the treatment of PPD, which is worthy of clinical promotion.

## ARTICLE HIGHLIGHTS

### Research background

Puerperal women are prone to postpartum pelvic floor dysfunction and psychological depression, and postpartum pelvic floor dysfunction often aggravates psychological depression.

### Research motivation

Integrated traditional Chinese and Western medicine nursing and electrical stimulation of pelvic floor muscles and the rectus abdominis can relieve mental depression and postpartum pelvic floor dysfunction, respectively, which may relieve the psychological depression of parturient women.

### Research objectives

The purpose of this study was to explore the clinical therapeutic effects of integrated traditional Chinese and Western medicine nursing combined with electrical stimulation of pelvic floor muscles and the rectus abdominis.

### Research methods

Through a randomized controlled trial, puerperal women were treated by electrical stimulation of pelvic floor muscles and the rectus abdominis, alone or in combination with integrated traditional Chinese and Western medicine nursing, and their psychological status was assessed.

### Research results

The awareness rate of depression knowledge in the observation group was significantly higher than that of the control group. After 1 wk and 3 wk of intervention, the Morisky Medication Compliance Questionnaire score in the observation group was significantly higher than that of the control group, and the Hamilton Depression Scale score was significantly lower than that of the control group.

### Research conclusions

Integrated traditional Chinese and Western medicine nursing combined with electrical stimulation of pelvic floor muscles and the rectus abdominis has a significant effect on postpartum depression.

### Research perspectives

Integrated traditional Chinese and Western medicine nursing combined with electrical stimulation of pelvic floor muscles and the rectus abdominis can relieve postpartum pelvic floor dysfunction and maternal depression, which has extensive clinical significance.

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## FOOTNOTES

**Co-first authors:** Wen-Hui Zhai and Mei-Jiao Wang.

**Author contributions:** Zhai WH and Wang MJ conceived, designed, and refined the study protocol; Zhao YJ and Zhou JM were involved in data collection; Zhai WH, Wang MJ, Zhou JMz, and Hu SL analyzed the data; Zhai WH and Wang MJ drafted the manuscript; all authors were involved in the critical review of the results and read and approved the final manuscript. Zhai WH and Wang MJ as co-first authors contributed equally to this work. The reasons for designating Zhai WH and Wang MJ as co-first authors are threefold. First, the research was performed as a collaborative effort, and the designation of co-first authorship accurately reflects the distribution of responsibilities and burdens associated with the time and effort required to complete the study and the resultant paper. This also ensures effective communication and management of post-submission matters, ultimately enhancing the paper's quality and reliability. Second, the overall research team encompassed authors with a variety of expertise and skills from different fields, and the designation of co-first authors best reflects this diversity. This also promotes the most comprehensive and in-depth examination of the research topic, ultimately enriching readers' understanding by offering various expert perspectives. Third, Zhai WH and Wang MJ contributed efforts of equal substance throughout the research process. The choice of these researchers as co-first authors acknowledges and respects this equal contribution, while recognizing the spirit of teamwork and collaboration of this study. In summary, we believe that designating Wen-Hui Zhai and Mei-Jiao Wang as co-first authors is fitting for our manuscript as it accurately reflects our team's collaborative spirit, equal contributions, and diversity.

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