Observational Study

Medicine

OPEN

Effects of goal-oriented nursing intervention on postpartum depression

Xin-Hui Wang, MB[a], Yu Zhou, MB[b], Qing Wang, MM[a], Xuan Yan, MB[c], Yan-Hong Huang, MB[a,*]

This retrospective study aimed to explore the effects of goal-oriented nursing intervention (GONI) on postpartum depression (PPD). We retrospectively analyzed the medical records of 72 women with PPD. They were allocated to a treatment group (n = 36, exercise plus GONI) or a control group (n = 36, exercise). Patients in both groups received a total of 3 months of treatment. Outcomes included the 17-item Hamilton Rating Scale for Depression (HAMD-17) total score, HAMD-17 response rate (≥50% score reduction), HAMD-17 remission rate (score ≤ 7), and adverse events. Outcomes were analyzed before and after 3-month of treatment. After treatment, patients in the treatment group achieved more effective outcomes in the HADM-17 total score ($P < .01$), HADM-17 response rate ($P < .01$), HADM-17 remission rate ($P < .01$) than those in the control group. Regarding safety, the medical records of both the groups did not report any adverse events. The results of this study showed that GONI and exercise had more effects in patients with PPD. Further prospective studies are required to validate our findings.

Abbreviations: GONI = goal-oriented nursing intervention, HAMD-17 = 17-item Hamilton Rating Scale for Depression, MT = music therapy, PHE = psychological health education, PPD = postpartum depression.

Keywords: effects, goal-oriented nursing intervention, postpartum depression

1. Introduction

Postpartum depression (PPD) is a serious psychiatric disorder and a major depressive episode occurring 1 month to 1 year after delivery.[1–5] It has been reported that this disorder affects about 1 in 9 adult females.[6] A study reported a high worldwide prevalence, ranging from 11.9% to 19.2% during the perinatal duration.[7,8] PPD often manifests as feeling sad or worthless, hopelessness or helplessness, loss of pleasure, depressed mood or frequent mood changes, severe fatigue, uninterested in babies or bonding with them, unreasonable crying, and thoughts of injuring, hurting, death, or suicide.[9–13] If this condition cannot be treated fairly well, it can cause serious harm to mothers, children, and families, or even increase the risk of infant mortality or maternal suicide.[14–18]

Currently, the efficacy of pharmacotherapy is not specifically established for adult women with PPD because of insufficient clinical trials and ethical constraints for presenting pregnant subjects.[19] Several modalities, such as psychotherapy, lifestyle changes, exercise, or a combination of these, have been reported to manage this condition.[2–25] However, all of them had limited effectiveness. Fortunately, goal-oriented nursing intervention (GONI) has potential effects for PPD management.

It includes psychological health education (PHE) and music therapy (MT). PHE was performed by presentation and face-to-face modality for depression relief. MT is a set of music for psychotherapy that is applied to get rid of psychological barriers and enhance physical and mental health disorders. However, its efficacy remains limited. Therefore, this study aimed to investigate the effects of GONI in the treatment of patients with PPD.

2. Methods and patients

2.1. Ethical statement

Ethical approval for this retrospective study was waived because data were collected and analyzed from the completed medical records.

2.2. Study design

This retrospective study included 72 PPD medical records, comprising a treatment group (n = 36) and control group (n = 36). They were allocated to treatment and control groups according to the different treatments they received. The treatment group comprised patients who underwent exercise and GONI. The control group included patients who performed exercise without GONI. All medical records were obtained from the Bao Ji People's Hospital from January 2019 to December 2021. Written informed consent was obtained from all eligible patients.

2.3. Study population

The inclusion criteria were adult female patients aged 18 to 40 years who suffered from depression during a depressive episode that occurred between 1 month and 1 year after delivery.

The authors have no conflicts of interest to disclose.

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

[a] *Department of Obstetrics, Bao Ji People's Hospital, Bao Ji, China,* [b] *Department of Nursing Care, Bao Ji People's Hospital, Bao Ji, China,* [c] *Department of Psychiatry, Bao Ji People's Hospital, Bao Ji, China.*

**Correspondence: Yan-Hong Huang, Department of Obstetrics, Bao Ji People's Hospital, No. 24 Xinhua Lane, Jing-er Road, Bao Ji 721000, China (e-mail: gesoaez37@21cn.com).*

How to cite this article: Wang X-H, Zhou Y, Wang Q, Yan X, Huang Y-H. Effects of goal-oriented nursing intervention on postpartum depression. Medicine 2022;101:37(e30651).

Received: 20 July 2022 / Received in final form: 19 August 2022 / Accepted: 19 August 2022

http://dx.doi.org/10.1097/MD.0000000000030651

Depression severity was assessed using a 17-item Hamilton Rating Scale for Depression (HAMD-17) score ≥ 18. The exclusion criteria were as follows: previous psychiatric disorders or cognitive problems, age < 18 years, inability to complete exercise, use of antidepressant medication or psychotherapy, and incomplete patient records.

2.4. Management approach

Women in both groups received exercise modality. This study was conducted using a telephone-based exercise intervention. Trained health experts participated in the study. The exercise intervention was any activity for at least 30 minutes per session, once daily, with three sessions weekly for a total of 3 months.

In addition, women in the treatment group also received GONI. It consisted of PHE and MT. PHE was provided through presentations and face-to-face interventions to relieve depression. The participants were instructed twice a month for a total of 3 months. MT includes Chinese classical folk music, world-famous music, and relaxation music, as recommended by American Association of Music Therapy. Its choice is in accordance with patient's preferences. They were performed for at least 30 minutes daily, five times weekly for 3 months.

2.5. Outcome measurements

Outcomes were measured using the HAMD-17 total score, HAMD-17 response rate (≥50% score reduction), HAMD-17 remission rate (score ≤ 7), and adverse events. The HAMD-17 tool consists of 17 items, and the score for each item ranges from 0 (normal) to 4 (severe) or from 0 (normal) to 2 (severe),[26] with score of 0 to 7 meaning none/minimal depression, score of 8 to 17 indicating mild depression, score of 18 to 25 suggesting moderate depression, and scores of 26 or more signifying severe depression.[26] Outcomes were measured and analyzed before and after treatment.

2.6. Statistical analysis

SPSS software (SPSS 19.0, IBM Corp., Armonk, NY) was used for the statistical analysis. The Student *t* test or Mann–Whitney *U* test was used to analyze continuous data, and the χ^2 test or Fisher exact test was used to analyze discontinuous data. Statistical significance was set at $P < .05$ (2-side).

3. Results

A flow chart of the medical record selection process is shown in Figure 1. This study enrolled 188 medical records of PPD patients. One hundred and sixteen patient records were excluded from this study because of incomplete medical records (n = 68), inappropriate duration (n = 11), treatment (n = 21), and control (n = 16). Ultimately, 72 medical records were included in this study, all of which were included in the final data analyses.

The general characteristics of all participants are shown in Table 1. There were no significant differences in age, race, body mass index, educational background, employment status, marital status, type of delivery, or family history of PPD between the two groups (Table 1).

A comparison of the HADM-17 total score is shown in Table 2. No significant difference was detected between the two groups before treatment ($P = .50$; Table 2). However, a significant difference was observed between the two groups after treatment ($P < .01$; Table 2).

A comparison of the HADM-17 response rate is presented in Table 3. There was a significant difference in the HADM-17 response rate with exercise and GONI compared to exercise alone ($P < .01$; Table 3).

A comparison of HADM-17 remission rate is shown in Table 4. A significant difference in the HADM-17 remission rate was observed between the two groups after treatment ($P < .01$; Table 4).

Regarding safety, we did not identify any reports from the enrolled medical records of either group.

4. Discussion

PPD is the most common complication in women with delivery, with a prevalence of 11.9% to 19.2%. In some countries such as Iran, this figure has increased from 25% to 42.1%.[27] This negatively affects the mothers, newborns, and their families.[28] If this disorder cannot be managed in a timely and effective manner, it may result in maternal suicide or a risk of infant mortality.[14–18]

Exercise is a non-pharmacological treatment for PPD. This plays an important role in the management of PPD. A recent meta-analysis investigated the effects of exercise on PPD.[24] The results showed that exercise had a significant moderating effect on depressive symptoms. The other study reported that exercise can significantly decrease the severity of depressive symptoms in PPD.[29] Another study also reported that physical exercise is a safe modality for achieving better psychological well-being and decreasing PPD symptoms.[30] The results of previous studies are partially consistent with those of present study.[24,29,30]

In this study, we compared the effects of exercise combined GONI to exercise alone in the treatment of adult women with PPD. This retrospective study included medical records of 188 patients. After excluding 116 records, 72 eligible patient records were included, and the outcome data were collected and analyzed. The results of this study showed that patients who received exercise and GONI achieved more promising effects in decreasing the HAMD-17 total score, improving the HAMD-17 response rate, and enhancing the HAMD-17 remission rate than patients who underwent exercise alone. This finding indicates that GONI may benefit adult women with PPD after delivery.

We have summarized several limitations as follows. First, this study assessed limited outcomes because there were few outcome data in the medical records. Second, the sample size was small, and the limited number of records reflects restricted effects. Third, this retrospective study, patients, researchers, and outcome assessors were not blinded because we collected data from completed medical patient records, and it was impossible to perform the blinding procedure. Fourth, this study collected

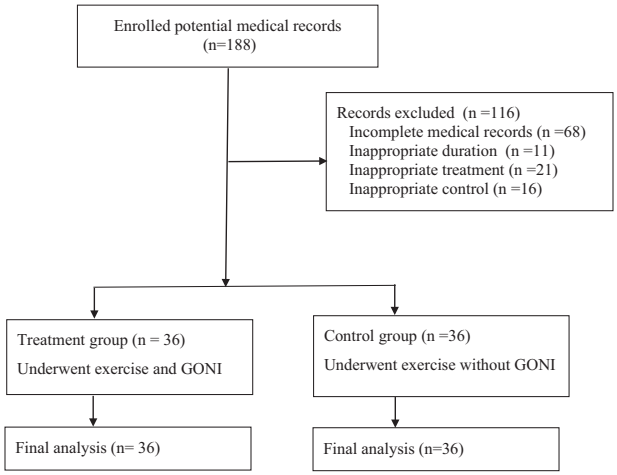

Figure 1. Flow chart of patients' medical record selection.

Table 1

Patient general characteristics.

Characteristics	Treatment group (n = 36)	Control group (n = 36)	*P*
Age (yr)	28.4 (5.1)	28.7 (5.5)	.81
Race (Han ethnicity)	36 (100.0)	36 (100.0)	–
BMI (kg/m^2)	24.3 (3.8)	24.6 (3.6)	.73
Education background			
Primary school or lower	2 (5.5)	1 (2.8)	.56
Secondary school	6 (16.7)	8 (22.2)	.55
High school	15 (41.7)	11 (30.6)	.33
College or university	13 (36.1)	16 (44.4)	.47
Employment			
Unemployed	12 (33.3)	15 (41.7)	.47
Work for others	23 (63.9)	21 (58.3)	.63
Own-account work	1 (2.8)	0 (0)	.49
Martial status			
Married	32 (88.9)	31 (86.1)	.72
Single	1 (2.8)	2 (5.5)	.56
Divorced	2 (5.5)	3 (8.3)	.65
Separated	1 (2.8)	0 (0)	.49
Type of delivery			
Spontaneous	33 (91.7)	34 (94.4)	.65
Forceps	3 (8.3)	1 (2.8)	.33
Vacuum	0 (0)	1 (2.8)	.49
Family history of PPD	9 (25.0)	11 (30.6)	.60

Data are presented as mean ± standard deviation or number (%).
BMI = body mass index, PPD = postpartum depression.

Table 2

Comparison of HAMD-17 total score between the two groups.

HAMD-17	Treatment group (n = 36)	Control group (n = 36)	*P*
Pre-treatment	28.5 (2.3)	28.2 (2.4)	.59
Post-treatment	6.3 (2.9)	12.7 (3.5)	<.01
Difference between two groups		–6.4 (–7.9, –4.9)	<.01

Data are presented as mean (range).
HAMD-17 = the 17-item Hamilton Rating Scale for Depression.

Table 3

Comparison of HAMD-17 response rate between the two groups.

HAMD-17 response	Treatment group (n = 36)	Control group (n = 36)	*P*
After treatment	29 (80.6)	16 (44.4)	
OR (95% CI)		5.18 (1.80, 14.88)	<.01

Data are presented as mean (range).
CI = confidence interval, HAMD-17 = the 17-item Hamilton Rating Scale for Depression, OR = odds ratio.

Table 4

Comparison of HAMD-17 remission rate between the two groups.

HAMD-17 remission	Treatment group (n = 36)	Control group (n = 36)	*P*
After treatment	21 (69.4)	7 (19.4)	
OR (95% CI)		5.80 (2.01, 16.71)	<.01

Data are presented as mean (range).
CI = confidence interval, HAMD-17 = the 17-item Hamilton Rating Scale for Depression, OR = odds ratio.

data from a single center at Bao Ji People's Hospital, which may affect the generalizability of its findings to other centers. Finally, the subjective analysis of effectiveness based on the HAMD-17 scale may have caused a confusion bias. Future studies should address these limitations in the future.

5. Conclusion

In this single-center study, GONI significantly reduced the HAMD-17 total score and improved the HAMD-17 response and remission rates. Future prospective studies should be conducted to validate these findings.

Author contributions

Conceptualization: Xin-Hui Wang, Yu Zhou, Qing Wang, Xuan Yan, Yan-Hong Huang.
Data curation: Xin-Hui Wang, Xuan Yan, Yan-Hong Huang.
Formal analysis: Yan-Hong Huang.
Investigation: Yan-Hong Huang.
Methodology: Xin-Hui Wang, Qing Wang, Xuan Yan, Yan-Hong Huang.
Project administration: Yan-Hong Huang.
Resources: Xin-Hui Wang, Yu Zhou, Qing Wang, Xuan Yan, Yan-Hong Huang.
Software: Xin-Hui Wang, Yu Zhou, Xuan Yan, Yan-Hong Huang.
Supervision: Yan-Hong Huang.
Validation: Xin-Hui Wang, Yu Zhou, Qing Wang, Xuan Yan, Yan-Hong Huang.
Visualization: Xin-Hui Wang, Yu Zhou, Qing Wang, Xuan Yan, Yan-Hong Huang.
Writing – original draft: Xin-Hui Wang, Qing Wang, Xuan Yan, Yan-Hong Huang.
Writing – review & editing: Xin-Hui Wang, Yu Zhou, Qing Wang, Xuan Yan, Yan-Hong Huang.

References

[1] Stewart D, Vigod S. Postpartum depression. N Engl J Med. 2016;375:2177–86.
[2] Committee on Obstetric Practice. The American college of obstetricians and gynecologists committee opinion no. 630: screening for perinatal depression. Obstet Gynecol. 2015;125:1268–71.
[3] Payne JL, Maguire J. Pathophysiological mechanisms implicated in postpartum depression. Front Neuroendocrinol. 2019;52:165–80.
[4] Abdollahi F, Lye MS, Zarghami M. Perspective of postpartum depression theories: a narrative literature review. N Am J Med Sci. 2016;8:232–6.
[5] Bobo WV, Yawn BP. Concise review for physicians and other clinicians: postpartum depression. Mayo Clin Proc. 2014;89:835–44.
[6] Ko J, Rockhill K, Tong V, Morrow B, Farr S. Trends in postpartum depressive symptoms-27 States, 2004, 2008, and 2012. MMWR Morbid Mortal Weekly Rep. 2017;66:153–8.
[7] Gavin NI, Gaynes BN, Lohr KN, Meltzer-Brody S, Gartlehner G, Swinson T. Perinatal depression: a systematic review of prevalence and incidence. Obstet Gynecol. 2005;106:1071–83.
[8] Woody CA, Ferrari AJ, Siskind DJ, Whiteford HA, Harris MG. A systematic review and meta-regression of the prevalence and incidence of perinatal depression. J Affect Disord. 2017;219:86–92.
[9] Mendoza BC, Saldivia S. An update on postpartum depression. Rev Med Chil. 2015;143:887–94.
[10] Guille C, Newman R, Fryml LD, Lifton CK, Epperson CN. Management of postpartum depression. J Midwifery Womens Health. 2013;58:643–53.
[11] Wisner KL, Moses-Kolko EL, Sit DK. Postpartum depression: a disorder in search of a definition. Arch Womens Ment Health. 2010;13:37–40.
[12] Friedman SH, Resnick PJ. Postpartum depression: an update. Womens Health (Lond). 2009;5:287–95.
[13] Pearlstein T, Howard M, Salisbury A, Zlotnick C. Postpartum depression. Am J Obstet Gynecol. 2009;200:357–64.

[14] Meltzer-Brody S, Kanes SJ. Allopregnanolone in postpartum depression: role in pathophysiology and treatment. Neurobiol Stress. 2020;12:100212.
[15] Fantahun A, Cherie A, Deribe L. Prevalence and factors associated with postpartum depression among mothers attending public health centers of Addis Ababa, Ethiopia, 2016. Clin Pract Epidemiol Ment Health. 2018;14:196–206.
[16] Hahn-Holbrook J, Cornwell-Hinrichs T, Anaya I. Economic and health predictors of national postpartum depression prevalence: a systematic review, meta-analysis, and meta-regression of 291 studies from 56 countries. Front Psychiatry. 2018;8:248.
[17] Akram B, Ahmed MA, Maqsood F, Bibi B. Postpartum depression and suicidal ideation in new mothers with hearing loss: perceived social support as a moderator, a multicentre study. J Pak Med Assoc. 2020;70:213–8.
[18] Ma JH, Wang SY, Yu HY, et al. Prophylactic use of ketamine reduces postpartum depression in Chinese women undergoing cesarean section. Psychiatry Res. 2019;279:252–8.
[19] Morrell C, Sutcliffe P, Booth A, et al. A systematic review, evidence synthesis and meta-analysis of quantitative and qualitative studies evaluating the clinical effectiveness, the cost-effectiveness, safety and acceptability of interventions to prevent postnatal depression. Health Technol Assess (Rockv). 2016;20:1–414.
[20] Dennis CL, Grigoriadis S, Zupancic J, Kiss A, Ravitz P. Telephone-based nurse-delivered interpersonal psychotherapy for postpartum depression: nationwide randomised controlled trial. Br J Psychiatry. 2020;216:189–96.
[21] Huang R, Yang D, Lei B, et al. The short- and long-term effectiveness of mother-infant psychotherapy on postpartum depression: a systematic review and meta-analysis. J Affect Disord. 2020;260:670–9.
[22] O'Hara MW, Pearlstein T, Stuart S, Long JD, Mills JA, Zlotnick C. A placebo controlled treatment trial of sertraline and interpersonal psychotherapy for postpartum depression. J Affect Disord. 2019;245:524–32.
[23] Julian M, Le HN, Coussons-Read M, Hobel CJ, Dunkel Schetter C. The moderating role of resilience resources in the association between stressful life events and symptoms of postpartum depression. J Affect Disord. 2021;293:261–7.
[24] Marconcin P, Peralta M, Gouveia ER, et al. Effects of exercise during pregnancy on postpartum depression: a systematic review of meta-analyses. Biology (Basel). 2021;10:1331.
[25] Navas A, Carrascosa MDC, Artigues C, et al. Effectiveness of moderate-intensity aerobic water exercise during pregnancy on quality of life and postpartum depression: a multi-center, randomized controlled trial. J Clin Med. 2021;10:2432.
[26] Ramos-Brieva JA, Cordero-Villafafila A. A new validation of the Hamilton Rating Scale for Depression. J Psychiatr Res. 1988;22:21–8.
[27] Najafian M, Cheraghi M, Nazeri Astaneh A, Namazi M. A study on the relationship of postpartum depression and method of delivery. Jundishapur Sci Med J 2013;13:67–75.
[28] Stein A, Arteche A, Lehtonen A, et al. Interpretation of infant facial expression in the context of maternal postnatal depression. Infant Behav Dev. 2010;33:273–8.
[29] Özkan SA, Kücükkelepce DS, Korkmaz B, Yılmaz G, Bozkurt MA. The effectiveness of an exercise intervention in reducing the severity of postpartum depression: a randomized controlled trial. Perspect Psychiatr Care. 2020;56:844–50.
[30] Poyatos-León R, García-Hermoso A, Sanabria-Martínez G, et al. Effects of exercise-based interventions on postpartum depression: a meta-analysis of randomized controlled trials. Birth. 2017;44:200–8.