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High-quality nursing care on psychological disorder in ovarian cancer during perioperative period
A systematic review and meta-analysis

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Abstract

Background: This study aimed to explore the effect of high-quality nursing care (HQNC) on psychological disorder in patients with ovarian cancer (OC) during the perioperative period (PPP).

Methods: A literature search was performed at the Cochrane Library, PUBMED, Excerpt Medica Database, China National Knowledge Infrastructure, and Chinese Biomedical Literature Database from their inception until March 1, 2022. Two authors independently performed study selection, data collection, and methodological quality evaluation. The outcomes were anxiety (as measured by the Self-rating Anxiety Scale), depression (as measured by Self-rating Depression Scale), length of hospital stay, and rate of patient satisfaction.

Results: Eight trials involving 742 patients with OC were included in this study. Results of the data analysis showed that patients who received HQNC had a more promising effect on anxiety relief (mean difference, −9.00; random 95% confidence interval, −11.36 to −6.63; $P < .001$) and depression decrease (mean difference, −7.62; random 95% confidence intervals, −8.45 to −6.78; $P < .001$) than patients who underwent routine nursing care.

Conclusion: This study summarized the latest evidence of HQNC on psychological disorder relief in patients with OC during perioperative period. These findings showed that HQNC may benefit patients with anxiety and depression.

Abbreviations: CI = confidence interval, HQNC = high-quality nursing care, LHS = length of hospital stay, MD = mean difference, OC = ovarian cancer, OR = odds ratio, RCTs = randomized controlled trials, RNC = routine nursing care, RPS = rate of patient satisfaction, SAS = Self-rating Anxiety Scale, SDS = Self-rating Depression Scale.

Keywords: anxiety, depression, high-quality nursing care, meta-analysis, ovarian cancer, systematic review

1. Introduction

Ovarian cancer (OC) is one of the most common gynecological malignancies in females,[1–5] accounting for 2.5% of all cancers in the female population.[6] It also ranks as the fifth leading cause of cancer-related deaths in women in the United States. A study reported that approximately 13,770 patients died of OC, and 21,410 cases were newly diagnosed in 2021 in the United States.[7] Surgery is a main effective modality of clinical treatment for patients with OC and can greatly improve the prognosis and survival time.[8–11] However, postoperative complications, such as anxiety and depression, are inevitable.[12–14]

Studies reported that routine nursing care (RNC)-benefited OC patients underwent surgery. Patients were instructed health education, essential knowledge of ovary, and guidance for diet, medication, and physical rehabilitation. To further relieve psychological disorders in patients with OC during the perioperative period (PPP), high-quality nursing care (HQNC) is reported to relieve anxiety and depression.[15–19] In addition to RNC, HQNC also included psychological counseling and advice. Previous clinical studies have investigated the psychological effects of HQNC in the treatment of patients with OC during PPP.[20–27] However, no systematic review or meta-analysis has explored this issue. Therefore, this systematic review and meta-analysis comprehensively assessed HQNC on psychological disorders relief in patients with OC during PPP.

2. Methods

2.1. Literature search

A search was performed on the Cochrane Library, PUBMED, Excerpt Medica Database, China National Knowledge Infrastructure, and Chinese Biomedical Literature Database databases from their inception until March 1, 2022, to identify eligible trials. In addition, other literature sources were searched. We carried out literature search using keywords of "ovarian cancer," "ovarian neoplasms," "genital neoplasms, female,"

"cancer," "neoplasms," "carcinoma," "malignant tumor," "anxiety," "psychological disorder," "depressive symptoms," "emotional depression," "mood," "stress," "distress," "surgery," "surgical resection," "high-quality nursing care," "advanced care," "intensive care," "randomized controlled trial," "clinical trial," and "controlled study." Detailed search strategy of PUBMED was presented in Table 1. This study included randomized controlled trials (RCTs) investigating the psychological effects of HQNC in patients with OC during PPP.

2.2. Study selection

After a comprehensive literature search, all records were identified using the reference management software to remove duplicate studies. Two authors (P.J. and L.-L.S.) independently screened titles and abstracts of remaining literature, and the full texts of potential articles were read cautiously. All eligible studies were included against eligibility criteria. Discrepancies were resolved by consulting a third experienced author (W.T.).

2.3. Eligibility criteria

Inclusion criteria: RCTs evaluating the psychological effect of HQNC in patients with OC during PPP were considered. All patients who underwent surgery were diagnosed with OC and were complicated by anxiety and depression. Patients in the treatment group received HQNC, whereas those in the control group received RNC.

The exclusion criteria were as follows: irrelevant studies of duplicate, review, noncontrolled studies, and case reports; and studies that did not involve HQNC, incomplete data, not RCT, and combined therapy.

2.4. Outcome measurement

The primary outcomes were anxiety and depression. Anxiety was measured using the Self-rating Anxiety Scale (SAS), and depression was assessed using the Self-rating Depression Scale (SDS).[28–30] SAS consists of 20 subscales, and each item scores from 1 to 4, with a higher score indicating more serious of anxiety condition.[28,29] SDS comprises of 20 subscales, and each one ranges from 1 to 4, with a higher score suggesting worse of depression.[29,30] The secondary outcomes were length of hospital stay (LHS) and rate of patient satisfaction (RPS).

2.5. Data extraction

Two authors (P.J., L.-L.S.) independently retrieved relevant information from the selected primary trials using a previously established data extraction form. The following data were sought: first author, year of publication, general patient characteristics, sample size, types of intervention and comparison, and primary and secondary outcomes. The differences between the two authors were resolved by consulting a third experienced author (W.T.).

2.6. Risk of bias assessment

All included trials were evaluated for methodological quality using the Cochrane risk-of-bias tool through seven domains. Each was further defined as having a low, unclear, or high risk of bias. The analysis was performed by two independent authors (B.-X.L., M.L.). The divergences between the two authors were resolved by a third author (W.T.) through discussion.

2.7. Statistical Analysis

All data analyses were conducted using RevMan 5.3 software (The Nordic Cochrane Centre for The Cochrane Collaboration,

Table 1

Detailed search strategy in PUBMED.

Number	Search terms
1	ovarian cancer
2	ovarian neoplasms
3	genital neoplasms, female
4	cancer
5	neoplasms
6	carcinoma
7	malignant tumor
8	Or 1-7
9	surgery
10	surgical resection
11	operation
12	Or 9-11
13	psychological disorder
14	depressive symptoms
15	anxiety
16	emotional depression
17	mood
18	stress
19	distress
20	Or 13-19
21	high-quality nursing care
22	advanced care
23	intensive care
24	Or 21-23
25	case-control study
26	observational study
27	clinical trial
28	randomized controlled trial
29	Or 25-28
30	8 AND 12 AND 20 AND 24 AND 29

Copenhagen, Denmark). All continuous data were presented as mean difference (MD) and 95% confidence interval (CI), and all dichotomous data were presented as odds ratios and 95% CI. Statistical heterogeneity of pooled data was checked using I^2 index with $I^2 < 50\%$, indicating reasonable heterogeneity, and $I^2 \geq 50\%$, indicating substantial heterogeneity. A fixed-effects model was used to pool the data with reasonable heterogeneity, and a random-effects model was used to synthesize the data with significant heterogeneity.

3. Results

3.1. Records of study selection

In total, 142 citations were identified (Fig. 1). Titles and abstracts were scanned, and 89 studies were excluded because of the irrelevant records, including reviews, case reports, uncontrolled studies, and not specifically related to the topic. We examined the full text of the 28 remaining articles. Twenty studies were eliminated because they did not involve HQNC, incomplete data, and combined therapy, and were not RCT. Finally, 8 trials were eligible for data analysis (Fig. 1).

3.2. Study characteristics

Eight trials including 742 patients focusing on HQNC for anxiety and depression in patients with OC during PPP were included in this study (Table 2). The sample sizes ranged from 50 to 200 women. All 8 studies were prospective RCTs. The general characteristics of patients with OC in those studies are summarized in Table 2.

3.3. Study quality assessment

According to the Cochrane risk-of-bias tool, four studies reported random sequence generation,[20,22–24] whereas the other
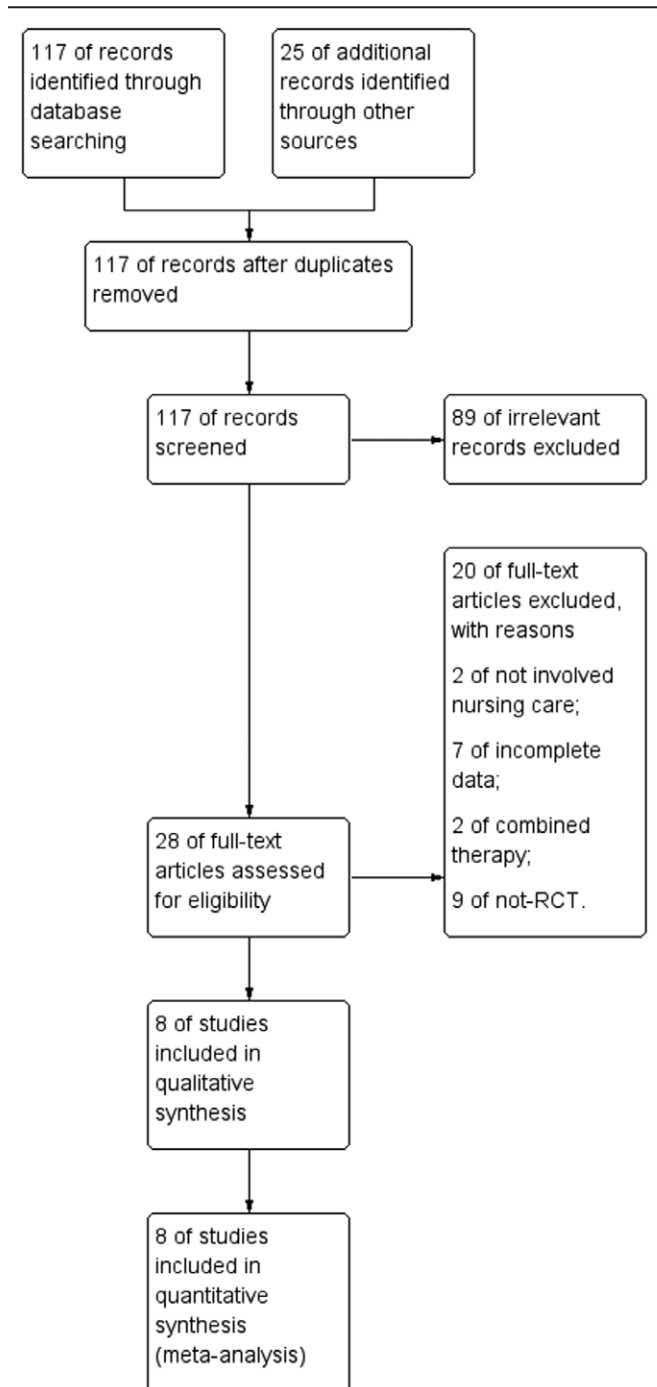
Figure 1. Diagram flow of study selection. RCT = randomized controlled trial.

Figure 2. Risk of bias summary.

3.5. Data analysis of depression

Seven studies with 674 participants evaluated the effect of HQNC on depression reduction in patients with OC during PPP. There were significant differences in SDS (MD, –7.62; random 95% CI, –8.45 to –6.78; $P < .001$; I^2=58%; Table 3 and Fig. 4).

3.6. Report of LHS and RPS

Only one study reported the effect and safety of HQNC for patients with anxiety and depression during PPP on LHS (MD, –5.5; fixed 95% CI, –7.12 to –3.88; Table 3) and RPS (MD, 34.77; fixed 95% CI, 1.95–621.45; Table 3).

4. Discussion

OC is one of the most lethal gynecological cancers, resulting in a high incidence of cancer-related deaths in the female population. Surgery is the most effective treatment for such disorder.[8–11] Although a large number of patients with OC benefit

four trials failed to report it sufficiently[21,25–27] (Fig. 2). As for allocation concealment and blinding to participants, investigators, and outcome assessors, none of the 8 studies reported sufficiently[20–27] (Fig. 2). As for incomplete outcome data, all studies reported outcomes comprehensively,[20–22,24–27] except one study[23] (Fig. 2). All 8 trials reported selective reporting and other biases sufficiently[20–27] (Fig. 2).

3.4. Data analysis of anxiety

All 8 studies with 742 patients assessed the effect of HQNC on anxiety relief in patients with OC during PPP. Statistically significant differences were found in SAS (MD, –9.00; random 95% CI, –11.36 to –6.63; $P < .001$; $I^2 = 95\%$; Table 3, Fig. 3).

Table 2

General characteristics of included studies.

Study	No. of patients (T/C)	Age (yr, T/C)	Intervention	Control	Outcomes
Chen[20]	59/59	T: 44 ± 10; C: 44 ± 10	HQNC	RNC	SAS; SDS
Cui[21]	40/40	T: 44.3 ± 2.1; C: 44.2 ± 2.2	HQNC	RNC	SAS; SDS
Gao and Li[22]	47/47	T: 51 ± 12; C: 51 ± 12	HQNC	RNC	SAS; SDS
Jiao et al[23]	34/34	T: 55 ± 7.5; C: 56.6 ± 6.2	HQNC	RNC	SAS
Wang[24]	34/34	T: 56.2 ± 2.5; C: 56.6 ± 2.4	HQNC	RNC	SAS; SDS
Wang[25]	34/34	T: 41.4 ± 10.3; C: 42.5 ± 11.7	HQNC	RNC	SAS; SDS; LHS; RPS
Xu[26]	25/25	T: 51.7 ± 7.6; C: 52.2 ± 6.5	HQNC	RNC	SAS; SDS
Zhang et al[16]	100/100	T: 44.9 ± 1.2; C: 45.6 ± 1.4	HQNC	RNC	SAS; SDS

C = control group, HQNC = high-quality nursing care, LHS = length of hospital stay, NR = not reported, RNC = routine nursing care, RPS = rate of patient satisfaction, SAS = Self-rating Anxiety Scale, SDS = Self-rating Depression Scale, T = treatment group.

Table 3

Qualitative synthesis of included trials.

Outcome or subgroup	Studies	Participants	Statistical method	Effect estimate
1.1 SAS	8	742	Mean difference (IV, random, 95% CIs)	−9.00 (−11.36 to −6.63)
1.2 SDS	7	674	Mean difference (IV, random, 95% CIs)	−7.62 (−8.45 to −6.78)
1.3 LHS	1	64	Mean difference (IV, fixed, 95% CIs)	−5.50 (−7.12 to −3.88)
1.4 RPS	1	64	Odds ratio (M-H, fixed, 95% CIs)	34.77 (1.95–621.45)

CI = confidence interval, LHS = length of hospital stay, RPS = rate of patient satisfaction, SAS = Self-rating Anxiety Scale, SDS = Self-rating Depression Scale.
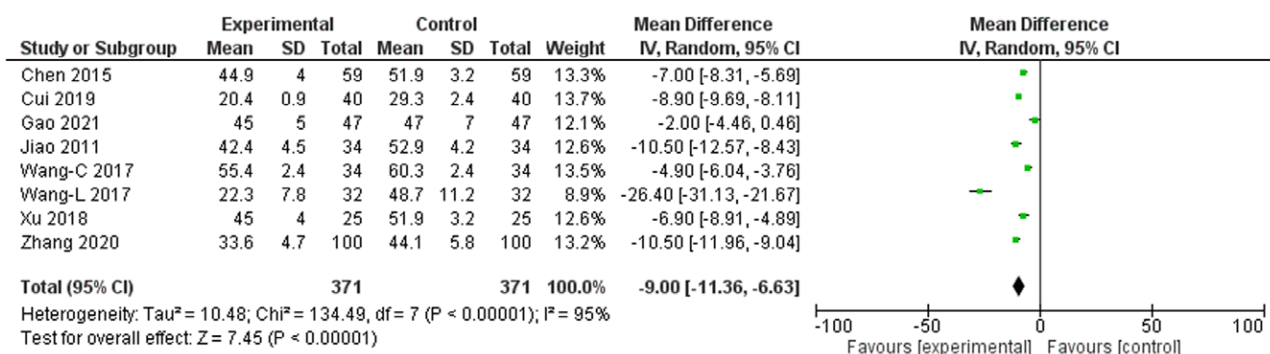

Figure 3. Data analysis of anxiety. CI = confidence interval, IV, inverse variance, SD = standard deviation.
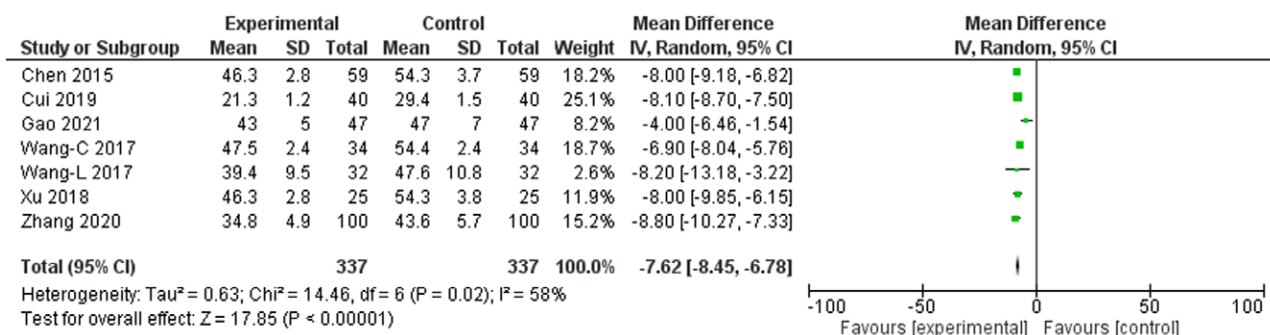

Figure 4. Data analysis of depression. CI = confidence interval, IV, inverse variance, SD = standard deviation.

from surgery, it is accompanied by a variety of complications, such as anxiety and depression.[12–14]

Previous studies have reported that HQNC has potential to reduce anxiety and depression in patients with cancer during PPP.[15–19] Furthermore, a variety of clinical trials have focused on the management of psychological disorders in patients with OC during PPP.[20–27] However, no study has addressed this topic systematically and comprehensively. Therefore, to the best of our knowledge, this is the first systematic review and

meta-analysis to comprehensively investigate the psychological effects of HQNC on patients with OC during PPP.

In the present study, we included eight studies with 742 patients. We pooled and analyzed the data on anxiety and depression. The results showed that the psychological effects of HQNC were superior to those of RNC in terms of anxiety relief (MD, −9.00; random 95% CI, −11.36 to −6.63; P < .001) and depression reduction (MD, −7.62; random 95% CI, −8.45 to −6.78; P < .001). Only one study investigated LHS and RPS, and no data were synthesized.

The strengths and limitations of this study were also investigated. As for strength, this study first clarified the psychological effects of HQNC in patients with OC during PPP. In addition, this study also provided a comprehensive and systematic insight into the potential impact of anxiety and depression management using direct comparisons of HQNC and RNC.

In terms of limitations, overall methodological quality of the 8 included trials is still not satisfactory, with 4 studies reporting insufficient randomization details, and none of the trials reported detailed information on allocation and blinding. The sample sizes of some studies were small, which may have affected the results. In addition, all included trials were conducted in China and published in Chinese journals, which may cause risk of reporting bias based on the location and region. Finally, there were an insufficient number of included studies that focused on LHS and RPS.

5. Conclusion

This study showed that HQNC had a better effect on anxiety and depression relief in patients with OC during PPP than that of RNC. However, the overall methodological quality of included studies was found to be low. Further similar studies with high-quality RCTs are required to validate the present conclusions.

Author contributions

Conceptualization: Peng Jin and Wei Tian.
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Investigation: Wei Tian.
Methodology: Wei Tian, Li-Li Sun, Bin-Xin Li, Mei Li, and Wei Tian.
Supervision: Wei Tian.
Validation: Wei Tian.
Writing-original draft: Peng Jin.
Writing-review & editing: Wei Tian.

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