Pritam et al. Sri Lankan Journal of Anaesthesiology 34 (3): 392-403 (2026)

doi: https://doi.org/10.4038/slja.v34i3.9769

Published date: 20th November 2026

SLJA

ORIGINAL RESEARCH

Comforting Manoeuvres for Reducing Symptoms of Postpartum Depression in Patients Undergoing Caesarean Section Under Regional Anaesthesia: A Randomized Controlled Study

Yadav Pritam[1], Kumar Vineet[1], Arya Sidharth[2], Yadav Ashish[1], Singhal Suresh[1], Manohar Manisha[1]

[1]Pandit Bhagwat Dayal Sharma Institute of Medical Sciences, Rohtak, India.
[2]Institute of Mental Health, Pandit Bhagwat Dayal Sharma Institute of Medical Sciences, Rohtak, India.

*Corresponding author: Dr. Ashish Yadav E-mail: ashish.yadav318@gmail.com

https://orcid.org/0000-0002-4279-7818

ABSTRACT

Background and aims: Postpartum depression is a common and potentially devastating complication of the process of childbirth. Comforting manoeuvres have proven efficacy in reducing perioperative stress and anxiety and may be helpful in reducing postpartum depressive symptoms in patients undergoing cesarean section under regional anaesthesia. The purpose of this study was to assess the role and effectiveness of comforting manoeuvres in reducing symptoms of postpartum depression and improving postoperative satisfaction in patients undergoing cesarean section under regional anaesthesia.

Materials and methods: Patients scheduled for cesarean section under regional anaesthesia were enrolled and randomly divided into two groups of 45 each by permuted block randomization – Group I: Control Group [C] and Group II: hand-holding and calming conversation group [CH], who were provided hand-holding and calming conversation throughout the surgery. Our primary outcome was the Edinburgh Postnatal Depression Scale [EPDS] score assessed at 1 week, 2 weeks,

Received: 13th November 2025 **Accepted:** 25th June 2026

This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License, which permits unrestricted use, distribution and reproduction in any medium provided the original author and source are credited.

and 1 month postpartum, while the secondary outcome was the patient satisfaction score [1-10], measured postoperatively.

Results: Lower mean EPDS scores were observed in patients in the comforting manoeuvers group than in patients in the control group at 1, 2, and 4 weeks postpartum, but the difference was not statistically significant at any time point [p=0.074, 0.827, and 0.457 at 1, 2, and 4 weeks, respectively]. Postoperative satisfaction score was significantly higher in the comforting manoeuvres group. [p=<0.001].

Conclusion: Comforting manoeuvres were found to be comparable to the control group for the reduction of postpartum depressive symptoms. However, they resulted in better postoperative satisfaction in patients posted for caesarean section under regional anaesthesia.

Keywords: Postpartum depression, comforting manoeuvres, calming conversation, hand holding, caesarean section

INTRODUCTION

Postpartum depression is a common consequence of the process of childbirth, with a prevalence of 22 percent in the Indian population.[1] It has the potential to have devastating negative effects on maternal and children's well-being, along with adverse social consequences. It may adversely affect maternal-infant bonding and child care, leading to a plethora of health problems for the child, including delay in development, negative effects leading up to adulthood, and physical trauma to the baby by the mother in extreme scenarios.[2] Aetiology of postpartum depression is multifactorial, including numerous biological, psychological, and socio-economic factors. Amongst others, emergency caesarean section, high level of perioperative anxiety, and poor patient experience are strongly associated with postpartum depression.[3-7] Thus, methods aimed at reducing perioperative anxiety and improving patient experience might help in reducing postpartum depression.

Numerous methods for reducing perioperative anxiety and improving patient satisfaction are being tried by caregivers in the present era of enhancing maternal health care. However, pharmacological measures are always associated with apprehension of adverse effects on pregnancy and the fetus.[8] Hence, a non-pharmacological method would be favorable for women giving birth as well as for the baby. Many studies have established the efficacy of low-cost and easily applicable non-pharmacological supportive measures like hand holding, calming conversation, music therapy, and informational videos, etc., in decreasing perioperative anxiety, providing emotional support, improving postoperative analgesia, and enhancing patient experience for caesarean section.[9-11] However, we could not find any study exploring these measures for their effects on postpartum depression. The authors of the present study conducted a randomized controlled trial and found that comforting maneuvers, such as hand-holding and calming conversation, reduced perioperative anxiety and improved patient satisfaction.[10] Authors collaborated with a psychiatrist at our institute and hypothesized that reduced perioperative anxiety and enhanced patient experience might be extrapolated to attenuation of depressive symptoms after caesarean section. Hence,

the present study was designed and conducted in collaboration with a psychiatrist to test comforting manoeuvres [combination of hand-holding and calming conversation] for their efficacy in reducing postpartum depressive symptoms in patients undergoing cesarean section under regional anaesthesia.

MATERIALS AND METHODS

This prospective randomized interventional study was done in a tertiary care centre after obtaining approval from the Institutional Ethics Committee [EC/NEW/INST/2022/HR/1089]. The study was registered with the Clinical Trial Registry of India [CTRI/2024/02/063043]. It was conducted between March 2024 and December 2024.

All patients aged 18-40 years, ASA II, planned to undergo cesarean section under regional anesthesia were included in the study. Exclusion criteria were refusal by the patient or preference for general anaesthesia, patients with a history of psychiatric/neurological disorder, head injury, drug abuse or alcohol abuse, any psychological trauma in the past 6 months, any life-threatening medical complications, multipara [> 2 previous births], pregnant with a serious obstetric complication or any other serious diseases, presenting with fetal distress or delivered a newborn with serious congenital or other diseases.

Sample size calculation

The authors could not find any previous study using a non-pharmacological intervention intraoperatively to reduce symptoms of postpartum depression. So a pilot study was conducted in a similar manner to the main study, including 15 patients in each group, and the sample size was derived based on data observed in the pilot study using the mean reduction in EPDS scores in the two groups [mean ± SD of 0.13±1.4 in Group 1 and 0.13±1.6 in Group 2]. Assuming 80% power and a 95% confidence interval, the minimum calculated sample size for each arm was 40 [total = 80].

Group allocation

The patients scheduled for cesarean section under regional anaesthesia were screened for eligibility to be enrolled in the study. A total of 106 patients were screened, of whom 26 were excluded per the exclusion criteria. Eighty eligible patients were followed up for intervention and observations [Figure 1]. They were randomly divided into two groups by permuted block randomization: Group I: control group [C] and Group 2: hand-holding and calming conversation group [CH]. The group allocations were sealed in serially numbered opaque envelopes by the research coordinator, who was not involved in this study. The present study was assessor-blinded for outcomes. The person recording data and the statistician analyzing data were kept blinded to group allocation.

Details of intraoperative hand-holding and calming conversation were explained to patients in the interventional arm, and informed written consent was obtained. Baseline demographic details, preoperative anxiety visual analog score [1-100], and baseline Edinburgh Postnatal Depression Scale [EPDS] scores were noted.[12,13] A calming conversation was initiated in the preoperative room; patients were informed about the procedure, and their queries were addressed. A calming conversation was continued to facilitate positive thinking. Simple questions about the place the patient belongs, the number of family members, the person who is escorting the patient in the hospital for delivery, any predecided name for the baby, and the meaning of that name, the patient's favourite food or sport, and any others

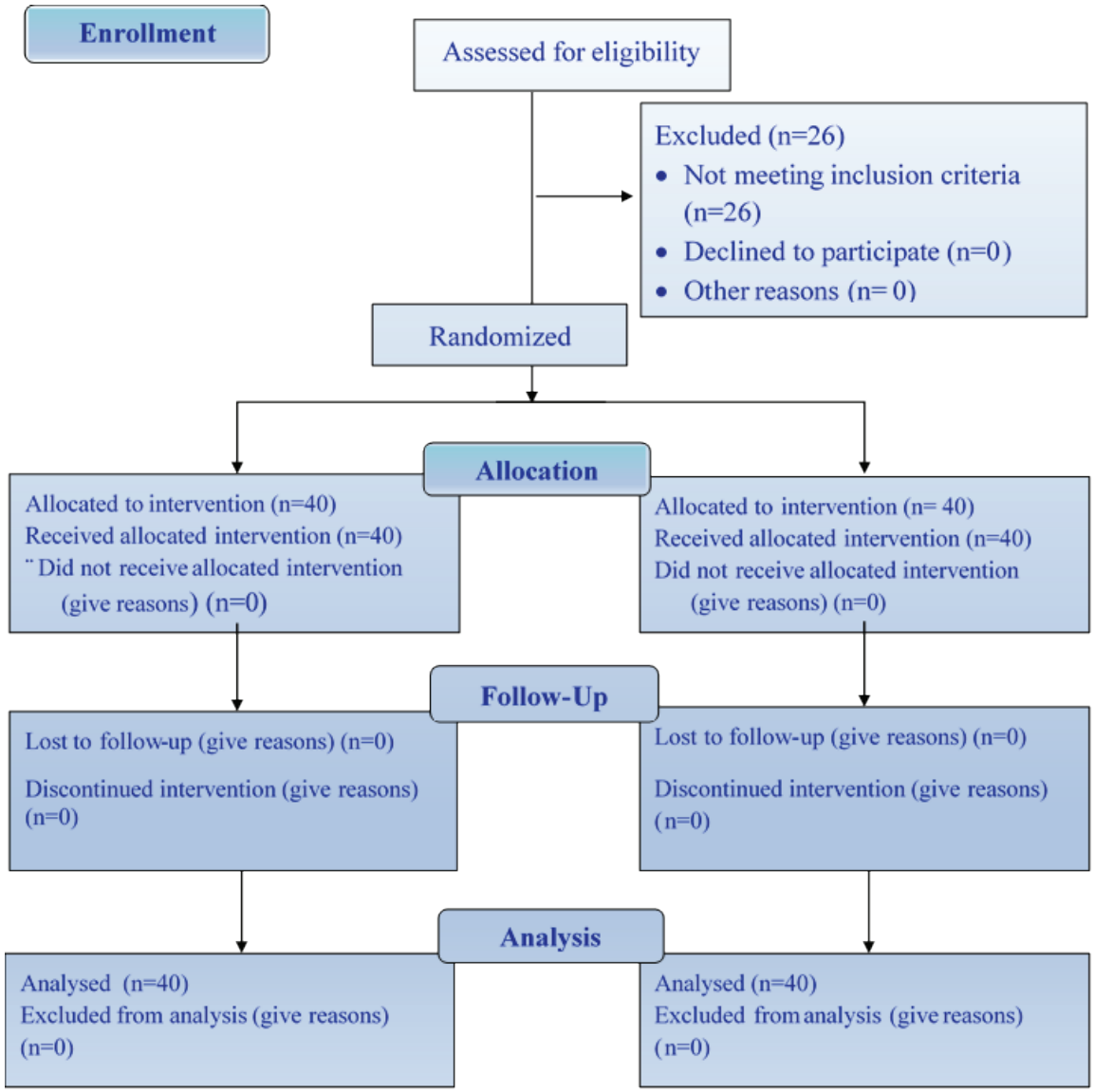


Figure 1: Consolidated standards of reporting trials (CONSORT) diagram.

that the patient likes, etc.[9] Meanwhile, the hand of the patient was held by a female resident anaesthetist, gently taking care of the patient's comfort after giving regional anaesthesia, and continued to hold her hand along with calming conversation throughout the surgery. Any anxiolytic medication or rescue analgesia used intraoperatively was recorded. For both groups, patients were asked to rate their satisfaction on a 1-10 Likert scale one hour postoperatively. All patients were given 3 copies of the EPDS form and a validated Hindi-translated version of the EPDS.[14] Patients were followed up, and EPDS scores were assessed by a trained person not included in the study at 1 week, 2 weeks, and 1 month postpartum via a telephonic interview. Patients with EPDS scores >9 were defined as having severe depressive symptoms and a higher risk of postpartum depression. These patients were counselled and recommended to go to the psychiatric clinic for further management.

Statistical analysis

Data were coded and recorded in an MS Excel spreadsheet, and SPSS v23 [IBM

Corp.] was used for statistical analysis. Descriptive statistics were reported as means/standard deviations and medians/IQRs for continuous variables, and as frequencies and percentages for categorical variables. Group comparisons for continuously distributed data were performed using an independent-samples t-test for two groups and a one-way ANOVA for more than two groups. Post hoc pairwise comparisons were conducted using Tukey's HSD test for one-way ANOVA to control for alpha inflation. If data were not normally distributed, appropriate non-parametric tests, such as the Wilcoxon test or Kruskal-Wallis test, were used for these comparisons. For categorical data, the Chi-squared test was used to compare groups. If the expected frequency in the contingency tables was <5 or >25% of the cells, Fisher's Exact test was used instead. Pearson's correlation [if the data were normally distributed] and Spearman's correlation [for non-normally distributed data] were used to analyze linear correlation between two continuous variables. P-value < 0.05 was considered statistically significant.

RESULTS

Patients in both groups were comparable in the distribution of baseline characteristics, including mean age, gestational age, education level, self- and partner employment, family type, acceptance of surgery, history of previous unpleasant experience, order of birth, weight, and the gender of the newborn [Tables 1 and 2]. Patients in both groups had similar VAS scores for preoperative anxiety and EPDS scores before surgery [Table 1].

Table 1: Comparison of demographic and obstetric characteristics of the two groups

Age (Years)	**Total**	**Group CH**	**Group C**	**95% CI**	**Significance**
Mean (±SD)	22.48 (±2.03)	22.51 (±2.12)	22.44 (±1.96)	0.07 (-0.79 to 0.92)	W = 1018.000
Median (IQR)	22.00 (21-24)	22.00 (21-24)	22.00 (21-24)		$p = 0.967^{m}$
VAS for anxiety		**Group CH**	**Group C**	**95% CI**	**Significance**
Mean (±SD)	66.26 (±10.69)	66.36 (±10.60)	66.16 (±10.90)	0.20 (-4.30 to 4.70)	W = 1036.000 $p = 0.852^{m}$
Median (IQR)	68.00 (59-72)	68.00 (63-72)	68.00 (59-74)		
Gestational age (days)		**Group CH**	**Group C**	**95% CI**	**Significance**
Mean (± SD)	260.09 (±5.07)	260.22 (±5.30)	259.96 (±4.88)	0.27 (-1.87 to 2.40)	W = 1053.500 $p = 0.743^{m}$
Median (IQR)	260 (256-265)	260 (255- 265)	260.00 (256- 264)		
Order of Birth		**Group CH**	**Group C**	**95% CI**	**Significance**
First	62 (68.89%)	32 (71.11%)	30 (66.67%)	4.44% (-100 to 23.55%)	$\chi^2 = 0.052$ $p = 0.820^{f}$
Second	28 (31.11%)	13 (28.89%)	15 (33.33%)	-4.44% (-100 to 14.66%)	$\chi^2 = 0.052$ $p = 0.820^{f}$

(Continued)

Age (Years)	Total	Group CH	Group C	95% CI	Significance
Weight of newborn (gm)		**Group CH**	**Group C**	**95% CI**	
Mean	2857.00 ± 213.08	2845.73 ± 221.44	2868.27 ± 206.25	-22.53 (-112.19 to 67.12)	t = -0.500 $p = 0.619^{t}$
Median	2871.50 (2675- 2983)	2873.00 (2657- 2983)	2870.00 (2735- 2980)		
Gender of newborn		**Group CH**	**Group C**	**95% CI**	**Significance**
Male	42 (46.67%)	20 (44.44%)	22 (48.89%)	-4.44% (-100 to 16.15%)	$\chi^2 = 0.045$ $p = 0.833^{\S}$
Female	48 (53.33%)	25 (55.56%)	23 (51.11%)	4.44% (-100 to 25.04%)	$\chi^2 = 0.045$, $p = 0.833^{\S}$

*^{t} = t test; ^{m} = Mann-Whitney U Test; ^{f} = Fisher's Exact Test; *Significant at p<0.05,*
†: Wilcoxon-Mann-Whitney U Test; §: Chi-Squared Test

Table 2: Comparison of personal and social characteristics of the two groups

Variable	Parameter	Total	CH Group	C Group	95% CI	Significance
Educational Level	Primary	8 (8.89%)	3 (6.67%)	5 (11.11%)	-4.44% (-100 to 7.28)	$\chi^2 = 0.137$ $p = 0.714^{f}$
	Non-graduate	65 (72.22%)	33 (73.33%)	32 (71.11%)	2.22% (-100 to 20.72)	$\chi^2 = 0.000$ $p = 1.000^{f}$
	Graduate	17 (18.89%)	9 (20.00%)	8 (17.78%)	2.22% (-100 to 18.39)	$\chi^2 = 0.000$ $p = 1.000^{f}$
Self-employed	Yes	16 (17.78%)	9 (20.00%)	7 (15.56%)	4.44% (-100 to 20.22)	$\chi^2 = 0.076$ $p = 0.784^{f}$
	No	74 (82.22%)	36 (80.00%)	38 (84.44%)	-4.44% (-100 to 11.33)	$\chi^2 = 0.076$ $p = 0.784^{f}$
Partner employment	Yes	83 (92.22%)	41 (91.11%)	42 (93.33%)	-2.22% (-100 to 8.83)	$\chi^2 = 0.000$ $p = 1.000^{f}$
	No	7 (7.78%)	4 (8.89%)	3 (6.67%)	2.22% (-100 to 13.28)	$\chi^2 = 0.000$ $p = 1.000^{f}$
Family type	Nuclear	58 (64.44%)	30 (66.67%)	28 (62.22%)	4.44% (-100 to 24.20)	$\chi^2 = 0.048$ $p = 0.826^{f}$
	Joint	32 (35.56%)	15 (33.33%)	17 (37.78%)	-4.44% (-100 to 15.31)	$\chi^2 = 0.048$, $p = 0.826^{f}$
Acceptance for surgery	Yes	68 (75.56%)	33 (73.33%)	35 (77.78%)	-4.44% (-100 to 13.29)	$\chi^2 = 0.060$, $p = 0.807^{f}$
	No	22 (24.44%)	12 (26.67%)	10 (22.22%)	4.44% (-100 to 22.18)	$\chi^2 = 0.060$, $p = 0.807^{f}$
Any previous unpleasant experience	Yes	9 (10.00%)	5 (11.11%)	4 (8.89%)	2.22% (-100 to 14.61)	$\chi^2 = 0.000$, $p = 1.000^{f}$
	No	81 (90.00%)	40 (88.89%)	41 (91.11%)	-2.22% (-100 to 10.17)	$\chi^2 = 0.000$, $p = 1.000^{f}$

Our primary outcome measured was the EPDS score. The EPDS variable was not normally distributed in the 2 subgroups at 1, 2, and 4 weeks. Hence, a non-parametric test [Wilcoxon-Mann-Whitney U Test] was used for comparisons among the groups. The mean [SD] of EPDS at 1 Week postpartum was 6.93 [±1.51] in the CH group and 7.53 [1.73] in the control group. There was no significant difference between the groups in terms of EPDS scores at 1 Week [W = 794.500, p = 0.074]. Similarly, EPDS scores were statistically comparable between the two groups at 2 and 4 weeks [Table 3]. Progression of EPDS scores among the two groups is depicted in Figure 2. Fisher's exact test was used to explore the association between 'Group' and 'EPDS >9 as more than 20% of the total number of cells had an expected count of less than 5 before surgery, at 1 week, and at 2 weeks, while the Chi-squared test was used to explore the association between 'Group' and 'EPDS >9 at 4 Weeks. Both groups were similar in the distribution of patients with an EPDS score>9 at each time point (1, 2, and 4 weeks), respectively [Table 3].

Table 3: Comparison of EPDS scores between the two groups

Variables	Parameters	Total	Groups		Difference (95% CI)	Significance
			CH Test	Control		
EPDS (Before surgery)	Mean ±SD	6.76 ± 1.50	6.84 ± 1.41	6.67 ± 1.60	0.18 (-0.45 to 0.81)	W = 1085.000 $p = 0.552^{m}$
	Median (IQR)	7.00 (6.00 - 8.00)	7.00 (6.00 - 8.00)	6.00 (6.00 - 8.00)	0.00% (-100 to 8.52)	$\chi^2 = 0.000$ $p = 1.000^{f}$
EPDS (1 Week)	Mean ±SD	7.23 ± 1.64	6.93 ± 1.51	7.53 ± 1.73	-0.60 (-1.28 to 0.08)	W = 794.500 $p = 0.074^{m}$
	Median (IQR)	7.00 (6.00 - 8.00)	7.00 (6.00 - 8.00)	8.00 (6.00 - 9.00)	6.67% (-100 to 17.65)	$\chi^2 = 0.620$ $p = 0.434^{f}$
EPDS (2 Weeks)	Mean ±SD	7.01 ± 1.49	7.00 ± 1.43	7.02 ± 1.56	-0.02 (-0.65 to 0.60)	W = 985.500 $p = 0.827^{m}$
	Median (IQR)	7.00 (6.00 - 8.00)	7.00 (6.00 - 8.00)	7.00 (6.00 - 8.00)	0.00% (-100 to 8.52)	$\chi^2 = 0.000$ $p = 1.000^{f}$
EPDS (4 Weeks)	Mean ±SD	6.07 ± 1.29	5.98 ± 1.36	6.16 ± 1.22	-0.18 (-0.72 to 0.36)	W = 923.000 $p = 0.457^{m}$
	Median (IQR)	6.00 (5.00 - 7.00)	6.00 (5.00 - 7.00)	6.00 (5.00 - 7.00)	0.00% (-100.00 to 0.00)	χ^2 = NaN $p = 1.000^{f}$

Significant at p<0.05, †: Wilcoxon-Mann-Whitney U Test, NaN

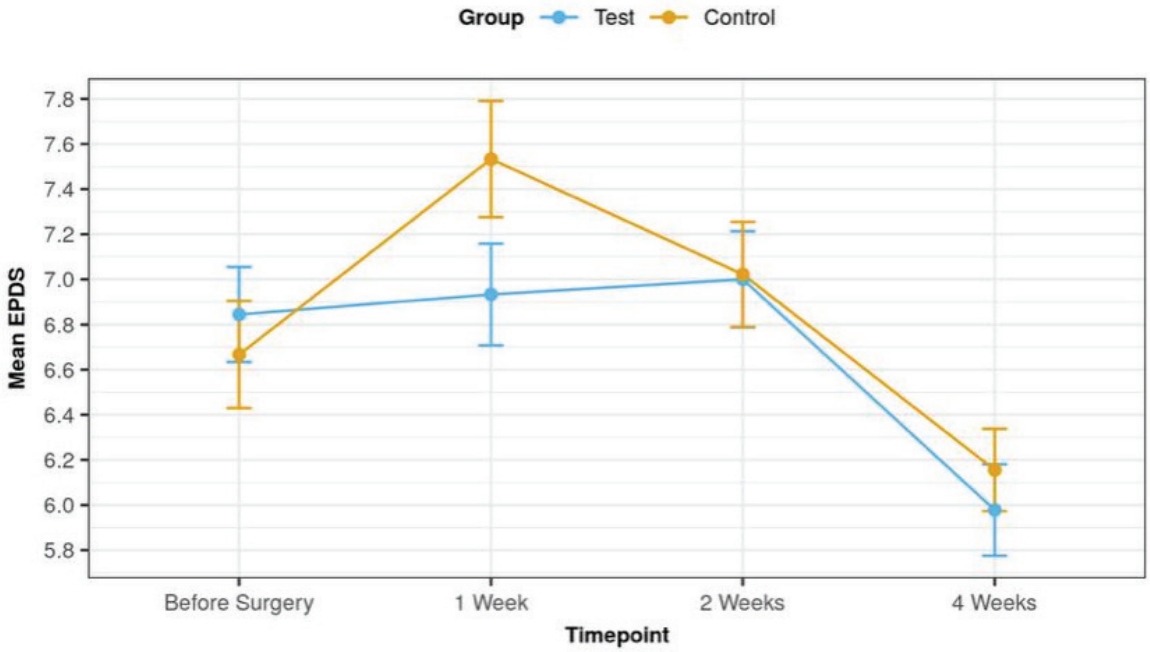


Figure 2: Change in EPDS score over time in two groups; Test – CH group

Table 4: Comparison of number of patients with EPDS score > 9 in two groups

Variables	Parameters	Total	Groups		Difference (95% CI)	Significance
			CH Test	Control		
EPDS >9 (Before surgery)	Yes	4 (4.44%)	2 (4.44%)	2 (4.44%)	0.00% (-100 to 8.52)	$\chi^2 = 0.000$ $p = 1.000^f$
	No	86 (95.56%)	43 (95.56%)	43 (95.56%)	0.00% (-100 to 8.52)	$\chi^2 = 0.000$ $p = 1.000^f$
EPDS >9 (1 Week)	Yes	7 (7.78%)	2 (4.44%)	5 (11.11%)	-6.67% (-100 to 4.31)	$\chi^2 = 0.620$ $p = 0.434^f$
	No	83 (92.22%)	43 (95.56%)	40 (88.89%)	6.67% (-100 to 17.65)	$\chi^2 = 0.620$ $p = 0.434^f$
EPDS >9 (2 Weeks)	Yes	4 (4.44%)	2 (4.44%)	2 (4.44%)	0.00% (-100 to 8.52)	$\chi^2 = 0.000$ $p = 1.000^f$
	No	86 (95.56%)	43 (95.56%)	43 (95.56%)	0.00% (-100.00% to 8.52)	$\chi^2 = 0.000$ $p = 1.000^f$
EPDS >9 (4 Weeks)	Yes	0 (0.00%)	0 (0.00%)	0 (0.00%)	0.00% (-100.00% to 0.00)	$\chi^2 = NaN$ $p = 1.000^f$
	No	90 (100.00%)	45 (100.00%)	45 (100.00%)	0.00% (-100.00% to 0.00)	$\chi^2 = NaN$ $p = 1.000^f$

Significant at $p<0.05$, ^{f} :Fisher's Exact Test

Table 5: Comparison of PSS (Patient satisfaction score) between the two groups

PSS (48 Hours)	Groups		Difference (95% CI)	Wilcoxon-Mann-Whitney U Test	
	CH Test	Control		W	p-value
Mean ± (SD)	7.34 ±1.80	4.78 ± 1.54	3.02 (2.42- 3.63)		
Median (IQR)	8 (7-9)	5 (4-6)		1862.000	<0.001
Min - Max	5 - 10	2 – 8			

The secondary outcome measured in our study was the postoperative patient satisfaction score [PSS]. Wilcoxon-Mann-Whitney U Test was used to make group comparisons, as the variable PSS [48 Hours] was not normally distributed in the 2 subgroups of the variable group. There was a significant difference between the 2 groups in terms of PSS [48 Hours] [W = 1862.000, p = <0.001], with the median PSS [48 Hours] being highest in the CH Group [Table 5].

DISCUSSION

Postpartum depression is one of the most prevalent yet neglected health conditions despite its serious consequences, including an increased risk of suicide and infanticide.[15,16] The adversity of postpartum depression spreads beyond the personal suffering of the patient to a larger social impact. Postpartum depression may account for unsound child care of otherwise proficient mothers. It may lead to various health issues for children reared in such family conditions. Etiology of postpartum depression remains hazy, although various factors are found to be associated with postpartum depression with varying degrees of strength. Various risk factors associated with a high likelihood of postpartum depression are younger age, smoking, high-risk pregnancy, prenatal anxiety, emergency cesarean, peripartum complications, low birth weight infant, unexpected pregnancy course, and lack of support from family and community.[3-7] Upadhyay et al. identified financial constraints, domestic violence, history of psychiatric illness, marital discord, and birth of a female baby to be associated with postpartum depression in a systematic review.[17]

Multiple interventions currently used to prevent and treat postpartum depression include pharmacologic interventions, supportive interpersonal and cognitive therapy, psychosocial support, and complementary therapies.[18] Pharmacological therapies are constrained by their potential risk to pregnancy outcomes. Moreover, most interventions are targeted in the antenatal and postnatal periods. Literary evidence of therapies directed to prevent postpartum depressive symptoms being used in the perioperative period of cesarean section is limited. Yao et al. conducted a study enrolling 330 patients in which ketamine [0.25 mg/kg diluted to 5 ml] was administered within 5 minutes of clamping the neonatal umbilical cord, and results were compared with a

placebo group receiving normal saline.[19] They found a significant decrease in the degree of postpartum depressive symptoms at one week postpartum in ketamine group participants as compared to the placebo group [13.1% vs. 22.6%, respectively; p = .029]. However, no such difference was found between the two groups at 2 weeks [11.8% vs. 16.8%; p = .209] and 1 month postpartum [10.5% vs. 14.2%, respectively; p = .319].

Authors could not find any non-pharmacological interventions used for decreasing perioperative anxiety that were followed up for analyzing their effects on postpartum depression. The present study found lower mean EPDS scores in patients in the comforting maneuvers group than in patients in the control group at 1, 2, and 4 weeks postpartum, but this difference was not statistically significant at each time point [p = 0.074, 0.827, 0.457 at 1, 2, and 4 weeks, respectively]. The total number of patients having an EPDS score of >9, who were classified as having postpartum depression, was also statistically comparable between the two groups at each time point [p = 0.434, 1.00, 1.00 at 1, 2, and 4 weeks, respectively]. However, the comforting maneuvers group had better patient experience, as the postoperative satisfaction score was significantly higher in the comforting maneuvers group [p < 0.001] than in the control group. This outcome was consistent with previous studies validating the efficacy of comforting maneuvers in improving subjective patient satisfaction among cesarean section patients.

Results of the present study do not support any advantage of comforting maneuvers in limiting postpartum depressive symptoms of cesarean section patients; however, many limitations of this study should be considered before rejecting the efficacy of comforting maneuvers for attenuation of postpartum depressive symptoms. The authors suggest one major drawback of this study was collecting EPDS scores telephonically. Telephonic interviews were planned to avoid loss of follow-up, but they may have hindered true representation of depressive symptoms. Direct, in-person assessment would have been a better alternative. Poor acceptance of psychiatric illness, along with sociocultural hindrance to being seen as weak mothers, may contribute to underreporting of depressive symptoms.[20] Data assessment for psychological symptoms is an intricate and personal process and should be done through physical interaction in a conducive ambiance to overcome hesitation in reporting depressive symptoms.

Other important factors not considered were income, family support, postoperative sleep, and analgesia quality, which could affect the occurrence of postpartum depressive symptoms. Varied combinations of the above-mentioned factors could have impacted the outcome of the present study and might have contributed to the non-translation of improved patient satisfaction into decreased postpartum depressive symptoms.

Many authors suggest a significant role of practical and emotional support provided by family or caregivers for prevention and treatment of postpartum depression.[18,21,22] The role of anaesthesiologists as caregivers is limited by their limited interaction with patients. Yet anaesthesiologists may play their part by providing emotional support apart from routine care during cesarean section. Conscious and organized efforts to decrease prenatal anxiety and improve patient experience may have the potential to decrease depressive symptoms, as higher anxiety and poor perioperative maternal experience are well-established risk factors

for postpartum depression. Frequent and courteous interactions between anaesthesiologists and patients should be planned to improve relationships with patients and enhance the effectiveness of emotional support through comforting manoeuvres.

Larger and more elaborate studies should be conducted to ascertain the efficacy of comforting maneuvers in reducing postpartum depressive symptoms in patients undergoing cesarean section while taking care to avoid limitations of the present study.

CONCLUSION

In the present study, comforting manoeuvres were found to be comparable to the control group for reduction of postpartum depressive symptoms in patients posted for cesarean section under regional anaesthesia. However, patient satisfaction was significantly better with comforting manoeuvres.

AUTHORS' CONTRIBUTIONS

Conceptualization and design: PY, VK, SA

Literature search: PY, VK, AY

Data collection: PY, VK, SA, MM

Data analysis: PY, VK, SS, AY

Manuscript drafting and critical revision: PY, VK

Proofreading and approval of the manuscript: PY, AY

FUNDING

No external funding was received for the preparation of the manuscript.

DECLARATION OF CONFLICTS OF INTEREST

There are no conflicts of interest to declare.

ETHICAL CLEARANCE

Approved by the Institutional Ethics Committee of the Pt. B. D. Sharma PGIMS/UHS, Rohtak, India (No: EC/NEW/INST/2022/HR/1089); Approval date: February 20, 2023.

The study was registered with the Clinical Trials Registry – India.

(CTRI No: CTRI/2024/02/063043)

REFERENCES

1. Panolan S, Thomas M B. Prevalence and associated risk factors of postpartum depression in India: A comprehensive review. *J Neurosci Rural Pract.* 2024 Jan-Mar;**15**(1): 1-7.
2. Serati M, Carnevali G. Perinatal depression. In: Clinical Cases in Psychiatry: *Integrating Translational Neuroscience Approaches. Cham:* Springer International Publishing. (2019) p. 155–70.
3. Ghaedrahmati M, Kazemi A, Kheirabadi G, Ebrahimi A, Bahrami M. Postpartum depression risk factors: A narrative review. *J Edu Health Promot* 2017;**6**: 60.
4. Mahishale A, Bhatt J. Comparison of level of depression among mothers with lower segment cesarean section and vaginal delivery: a cross-sectional study. *J Sci Soc* 2017;**44**: 15
5. Kim Y, Dee V. Sociodemographic and obstetric factors related symptoms of postpartum depression in Hispanic women in ruralCalifornia. *Journal of Obstetric, Gynecologic & Neonatal Nursing* 2018;**47**: 23–31.
6. Moameri H, Ostadghaderi M, Khatooni E, Irani A. Association of postpartum depression and cesarean section: a systematic review and meta-analysis. *Clinical Epidemiology and Global Health* 2019;**7**: 471–80

7. Xu H, Ding Y, Ma Y, Xin X, Zhang D. Cesarean section and risk of postpartum depression: a meta-analysis. *J Psychosom Res* 2017;**97**: 118–26

8. Ram D, Gandotra S. Antidepressants, anxiolytics, and hypnotics in pregnancy and lactation. *Indian J Psychiatry.* 2015 Jul;**57** (Suppl 2): S354-71. PMID: 26330654; PMCID: PMC4539881. doi: 10.4103/0019-5545.161504.

9. Sriramka B, Mallik D, Singh J, Khetan M. Effect of hand-holding and conversation alone or with midazolam premedication on preoperative anxiety in adult patients-A randomised controlled trial. *Indian J Anaesth*. 2021 Feb;**65**(2): 128-132.

10. Yadav P, Budhwar D, Kumar V, Singhal S, Kumar P, Saini R. Efficacy of Comforting Manoeuvres in Reducing Anxiety in Patients undergoing Caesarean Section under Regional Anesthesia - Randomised Control Trial *J Clin of Diagn Res*.2023; **17**(3): UC01-UC05.

11. Irani, M, Kordi, M, Tara, F, Bahrami, H. R., Shariati Nejad, K. The Effect of Hand and Foot Massage on Post-Cesarean Pain and Anxiety. *Journal of Midwifery and Reproductive Health.*2015;**3**(4): 465-471.

12. Cox, JL, Holden, JM and Sagovsky, R. Detection of postnatal depression: Development of 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry*;**150**: 782-286.

13. KL Wisner, BL Parry, CM Piontek, Postpartum Depression. *N Engl J Med*; **34**(3), July 18, 2002.

14. Joshi U, Lyngdoh T, Shidhaye R. Validation of hindi version of Edinburgh postnatal depression scale as a screening tool for antenatal depression. *Asian J Psychiatr*. 2020 Feb;**48**: 101919. doi: 10.1016/j.ajp.2019.101919. Epub 2019 Dec 26. PMID: 31927197.

15. McCue Horwitz S, Briggs-Gowan MJ, Storfer-Isser A, Carter AS. Prevalence, corelates, and persistence of maternal depression. *J Women'sHealth.* 2007;**16**(5): 678–91

16. Drozdowicz LB, Bostwick JM. Psychiatric adverse effects of pediatric corticosteroid use. In: *Mayo clinic Proceedings* 2014 Jun 1;**89**(6). New York: Elsevier. p. 817–834.

17. Upadhyay RP, Chowdhury R, Aslyeh Salehi, Sarkar K, Singh SK, Sinha B et al Postpartum depression in India: a systematic review and meta-analysis Bull *World Health Organ* 2017;**95**: 706–717

18. Anokye R, Acheampong E, Budu-Ainooson A, Issac-obeng E, Akwasi AG Prevalence of postpartum depression and interventions utilized for its management. *Ann Gen Psychiatry* 17, 18 (2018).

19. Yao J, Song T, Zhang Y, Guo N, Zhao P. Intraoperative ketamine for reduction in postpartum depressive symptoms after cesarean delivery: A double-blind, randomized clinical trial. *Brain Behav*. 2020 Sep;**10**(9): e01715.

20. Cho H, Lee, K, Choi E, Chao H, Park B, Suh M et al. Association between social support and postpartum depression. *Sci Rep* 12, 3128 (2022).

21. Kim YS, Sharma B, Jung Y, Kim D, Nam EW. Perceived social support among women of reproductive age attending a public health facility in a poor area of Northern Lima, *Peru. J. Glob. Health Sci.* **1**: 1 (2019).

22. Kaur A, Kallakuri S, Mukherjee A, Wahid SS., Kohrt BA, Thornicroft G et al. Mental health related stigma, service provision and utilization in Northern India: situational analysis. *Int J Ment Health Syst* 17, 10 (2023).