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Original Article

The effects of positive psychological intervention on obstetric surgery patients' mental states, pain levels, and quality of life

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Abstract: To explore the effect of positive psychological intervention (PPI) on the psychological state, pain levels, and quality of life of patients undergoing obstetric surgery. A total of 96 patients undergoing obstetric surgery in The Second Hospital of Shandong University from March 2018 to May 2019 were selected for this study. They were equally and randomly separated into a control and an observation group. We found the postoperative hospital stays, bleeding times, feeding times, and activity times of the observation group with PPI were shorter than they were in the control group without PPI ($P<0.05$). Moreover, the SAS and SDS scores, and the pain levels of the observation group were significantly lower than they were in the control group ($P<0.05$), resulting in improved quality of life scores in the observation group ($P<0.05$). Furthermore, the overall incidences of postpartum hemorrhage, infections, depression, constipation, and bedsores were significantly lower in the observation group than they were in the control group (25% vs 77.08%, $P<0.05$). In conclusion, PPI can improve the mental states of patients undergoing obstetric surgery and improve their quality of life.

Keywords: Positive psychological intervention, obstetric surgery, psychological state, quality of life

Introduction

Hospital obstetrics departments play critical roles in the treatment and health care of pregnant women and women giving birth and employ a variety of surgical methods [1]. Most clinical obstetric operations are cesarean sections and artificial abortions. However, surgery can cause certain damage to a mother's body due to the invasiveness of the procedure, resulting in complications such as infected incisions and constipation, leading to unfavorable prognoses for the mothers [2]. Mothers often feel nervous and anxious before an operation, and coupled with the incision trauma following the operation, the pain has a negative impact on the surgical process, such as tension, anxiety, panic, depression, etc. It also affects the patients' quality of life after the surgery [3, 4]. Thus, it is of vital significance to carry out aggressive nursing intervention for these patients.

Positive psychological intervention (PPI) is a model based on positive psychology, which emphasizes and stimulates some actual or potential positive strengths and qualities inherent in the patients, thereby establishing a higher-quality personal and social lifestyle [5]. PPI first originated overseas, where it was primarily applied in cancer patients. At present, it is rarely used in patients undergoing obstetric surgery. A pilot overseas study with 60 obstetric fistula patients in 2017 found that nurses delivering positive psychology intervention for patients was feasible to implement and received positively by the patients [6]. However, this previous study has many limitations, and the preliminary clinical information should be carefully interpreted, indicating the urgency and importance of future, larger studies.

In this study, a total of 96 obstetric surgery patients admitted to The Second Hospital of Shandong University from March 2018 to May

2019 were selected as the study cohort. With these patients, we aimed to explore the impact of PPI on the psychological statuses, pain levels, and quality of life of obstetric surgery patients and to provide clinical guidance.

Materials and methods

General information

A total of 96 patients undergoing obstetric surgery and admitted to The Second Hospital of Shandong University from March 2018 to May 2019 were selected as the research cohort. Inclusion criteria: (1) patients fitting the relevant indicators for obstetric surgery, (2) patients with no pregnancy complications, (3) patients having all normal indicators of prenatal fetuses confirmed by ultrasound and X-ray examination, and (4) patients who signed the informed consent. Exclusion criteria: (1) patients presenting with severe mental illness, (2) patients also suffering from other inflammation or heart disease, and (3) patients with speech or communication impairments. In the end, a total of 98 patients were enrolled in this study. This study was approved by the hospital's ethics committee, and all the patients signed the informed consent.

They were randomly separated into control and observation groups, with 48 patients in each group. The control group ranged in age from 22 to 36 years old, with an average age of 27.68 ± 3.42 years, their gestational time ranged from 37 to 40 weeks, and there were 28 cesarean section cases and 20 ectopic pregnancy cases. The observation group ranged in age from 21 to 37 years old, with an average age of 27.50 ± 3.18 years, their gestational time ranged from 37 to 41 weeks, and there were 29 cesarean section cases and 19 ectopic pregnancy cases. There were no significant differences in the general clinical data between the two groups ($P>0.05$).

Methods

The control group was given routine nursing interventions for obstetric surgery, and the routine healthcare (preoperative preparations, precautions, and routine psychological care) was provided by responsible nurses. The observation group was given PPI in addition to the care provided to the control group. The details were as follows. (1) Preoperative psychological evaluation. Most of the patients demonstrated worries about their surgeries and the postoperative effects, and they showed different levels of depression, anxiety, and other emotions. The variation in psychological emotions could lead to physiological stress such as a rapid heart rate and increased blood pressure. Thus, the patients' surgical tolerance would be decreased and the operation could be compromised. Therefore, the psychological states were evaluated based on each patient's general situation, and any changes in their vital signs, illness, or moods were monitored, and the development of specific psychological care was prepared. (2) Psychological intervention during the operation. The patients were warmly welcomed, comforted and encouraged with a smile to help them relieve tension, any indoor activities during surgery should be reduced to prevent the patients from panic, during the skin disinfection, the precautions during surgery, and especially the effects of anesthesia were briefly explained to boost the patient's confidence in the surgery, and during the operation, active communication took place between the patients and the medical staff to distract from their pain, and topics such as pain and bleeding were to be avoided, since such sensitive topics can cause negative emotions. (3) Pain assessment. The responsible nurses were required to master the pain assessment method accurately, pay constant attention to the facial expressions of the patients, and properly assess each patient's postoperative pain. (4) Postoperative psychological intervention. The patients were asked if there was any pain or discomfort after waking up from the surgical anesthesia, and they were informed that the operation was complete. Active communication with the patients was performed to eliminate their negative thoughts by listening to their thoughts and feelings.

Observation indicators and evaluation criteria

The lengths of the postoperative hospitalization stays, the bleeding times, feeding times, and activity time were compared between the two groups.

The self-rating anxiety scale (SAS) and self-rating depression scale (SDS) scores before and after the intervention were compared between

Table 1. A comparison of the general data between the two groups

Groups	average age	gestational weeks	pregnancy types	
			cesarean section	ectopic pregnancy
Observation group (*n* = 48)	27.50 ± 3.18	37.67 ± 2.56	29	19
Control group (*n* = 48)	27.68 ± 3.42	37.81 ± 2.32	28	20
t/X^2	0.277	0.281	0.043	
P	0.782	0.779	0.835	

Table 2. A comparison of the lengths of the postoperative hospitalization stays, bleeding times, feeding times, and times getting out of bed between the two groups (χ ± s)

Groups	hospitalization stay (d)	bleeding time (h)	feeding time (h)	time getting out of bed (h)
Observation group (*n* = 48)	8.67 ± 2.15	8.31 ± 5.24	14.65 ± 8.67	26.64 ± 7.54
Control group (*n* = 48)	12.42 ± 3.26	11.03 ± 6.28	30.13 ± 12.52	35.07 ± 9.50
t	6.653	2.304	7.042	4.815
P	<0.001	0.023	<0.001	0.001

the two groups. The SAS and SDS were used to evaluate each patient's psychological state. The SAS and SDS each include 20 items, and each item is worth four points, for a total of 80 points. Scoring criteria [7]: ① <50 points is normal; ② ≥50 points is defined as anxiety and depression.

The pain levels after the intervention were compared between the two groups. The visual analog scale (VAS) was applied to evaluate the pain level. 0 is defined as no pain, 1 to 3 as mild pain, 4 to 6 as moderate pain, and 7 to 10 as severe pain.

The quality of life was compared between the two groups after the intervention. Generic Quality of Life Inventory-74 (GQOL-74) was used to assess the quality of life after the intervention [8]. GQOL-74 includes physical function, mental health, material life, and social function, and each item is scored from 0-100 points, with a total score of 0 to 100 points (the lower the score, the worse the quality of life).

The incidences of postoperative complications were compared between the two groups.

Statistical analysis

The statistical analysis was performed using SPSS 22.0. The measurement data were presented as x ± s and were analyzed using *t* tests. The enumeration data were expressed as n (%) and were analyzed using chi-square tests. *P<0.05* was considered statistically significant.

Results

Comparison of the general data between the two groups

No remarkable differences were found in terms of the number of gestational weeks, the average age, or the type of pregnancy (*P*>0.05, **Table 1**).

Comparison of the lengths of the postoperative hospitalization stays, the bleeding times, the feeding times, and the times to getting out of bed between the two groups

The lengths of the postoperative hospitalization stays, the bleeding times, the feeding times, and the times to getting out of bed in the observation group were shorter than they were in the control group (*P*<0.05, **Table 2**).

A comparison of the SAS and SDS scores between the two groups before and after the intervention

There was no significant difference in the SAS and SDS scores between the two groups before the intervention (*P*>0.05). After the intervention, the SAS and SDS scores of the observation group were significantly lower than they were in the control group (*P*<0.05, **Table 3**).

Table 3. A comparison of the SAS and SDS scores between the two groups before and after the intervention (χ ± s)

Groups	SAS (point)		SDS (point)	
	Before intervention	After intervention	Before intervention	After intervention
Observation group (*n* = 48)	65.45 ± 12.15	36.42 ± 8.55[a,b]	60.58 ± 11.15	34.88 ± 10.24[a,b]
Control group (*n* = 48)	66.87 ± 12.46	45.77 ± 8.92[a]	61.02 ± 12.33	47.23 ± 10.68[a]
t	0.565	5.243	0.183	5.783
P	0.573	<0.001	0.854	<0.001

Note: a, compared with pre-intervention (P<0.05); b, compared with the control group after the intervention (P<0.05).

Table 4. A comparison of the pain levels between the two groups after the intervention [n (%)]

Groups	1 day after intervention				3 days after intervention			
	No pain	Mild pain	Moderate pain	Severe pain	No pain	Mild pain	Moderate pain	Severe pain
Observation group (*n* = 48)	0(0.00)	21 (43.75)[a]	24 (50.00)	3 (6.25)	41 (85.41)[b]	7 (14.58)	0 (0.00)	0 (0.00)
Control group (*n* = 48)	0(0.00)	10 (20.83)	30 (62.50)	8 (16.66)	28 (58.33)	17 (35.41)	3 (6.25)	0 (0.00)
χ^2	6.843				9.616			
P	0.033				0.008			

Note: a, compared with the control group at 1 day after surgery (P<0.05); b, compared with the control group at 3 days after surgery (P<0.05).

Table 5. Comparison of the quality of life after intervention between the two groups [n (%)]

Groups	Physical function	Mental health	Material life	Social function
Observation group (*n* = 48)	54.37 ± 9.05	56.45 ± 7.40	60.76 ± 10.09	62.56 ± 10.00
Control group (*n* = 48)	42.50 ± 8.46	41.82 ± 6.44	46.29 ± 7.73	45.30 ± 7.25
t	6.638	10.330	7.887	9.681
P	<0.001	<0.001	<0.001	<0.001

Table 6. A comparison of the incidence of postoperative complications between the two groups [n (%)]

Groups	Postpartum hemorrhage	Infections	Depression	Constipation	Bedsore	Total incidence rate
Observation group (*n* = 48)	3 (6.25)	0 (0.00)	4 (8.33)	4 (8.33)	1 (2.08)	12 (25.00)
Control group (*n* = 48)	7 (14.58)	3 (6.25)	14 (29.16)	9 (18.75)	4 (8.33)	37 (77.08)
χ^2						26.053
P						<0.001

A comparison of the pain levels between the two groups after the intervention

The pain levels in the observation group were significantly lower than they were in the control group at 1 and 3 days post-surgery (*P*<0.05, **Table 4**).

A comparison of the quality of life after the intervention between the two groups

The quality of life scores in the observation group were significantly higher than they were in the control group after the intervention (*P*<0.05, **Table 5**).

A comparison of the incidences of postoperative complications between the two groups

The total incidence rate of postpartum hemorrhage, infections, depression, constipation, and bedsores in the observation group was 25.00%, which was significantly less than it was in the control group (77.08%) (*P*<0.05, **Table 6**).

Discussion

Patients with ectopic pregnancy, cesarean sections, etc. are usually subject to obstetric surgery, which is one of the most important opera-

tions in the hospital. However, unsatisfactory patient compliance often occurs due to the negative emotions induced by an inadequate knowledge of the surgery [9]. Once the patient's psychological stress is triggered by surgery, the non-autonomic nerves impulses are induced. And the excessive excitement will further aggravate the patient's psychological disorder and condition, directly affecting the patient's rehabilitation quality [10]. Incision infections are a common complication following cesarean sections. It is reported that the postoperative infection rate of cesarean section ranges from 8% to 27%, which is significantly higher than that of natural delivery through the vagina [11]. The distinctive difference between obstetric surgery and other surgical operations is that it involves the vital signs and quality of life of the fetus and the mother [12]. Postoperative pain is a postoperative stress response caused by surgical trauma. It is the most common clinical discomfort and has various impacts on the patient's physiology and psychology, and it may lower the immune response, further aggravate metabolic disorders, and exacerbate the postoperative complications, etc. [13, 14]. At the same time, the pain caused by incision trauma can easily produce anxiety and have a negative impact on patients' postoperative rehabilitation, which may prolong their hospital stays [15]. It can be concluded that fully assessing the severity of the disease before surgery, and formulating the proper surgical scheme, treatment, and intervention measures play an important role in the treatment of pregnant women with complications. Preoperative pain assessment and nursing intervention should be implemented to improve the quality of the operations for patients undergoing obstetric surgery and to promote the postoperative recovery of the patients undergoing obstetric surgery. Therefore, it is becoming an urgent problem for medical staff to strengthen the PPI for patients undergoing obstetric surgery, to ensure the stability of the patients' psychological states, pain levels, and quality of life, to boost confidence in the surgery and prognosis, to relieve pain, to improve the quality of life, and to promote rehabilitation.

With the constant advance of modern medical technology, people's awareness and needs toward health have gradually increased. Studies have shown that psychological factors play an important role in the treatment and prognosis of the disease [16]. The clinical nursing work no longer simply emphasizes the intervention of the disease, and more emphasis is now placed on the patient as the center of care. It is a key priority to ensure the mental health and physical stability of patients during the perioperative period, to help them build confidence in defeating the disease, and to increase the degree of surgical treatment and nursing cooperation. Related studies indicate that the implementation of more specific interventions can achieve a remarkable efficacy based on the patient's general information, such as disease characteristics, psychological conditions, postoperative pain and their own needs [17, 18]. PPI nursing is a humanized nursing method with a major focus. It explores the psychological state and well-being of patients and advocates a positive psychological orientation based on the patient's psychological changes and related information on the basis of conventional nursing and in accordance with scientific principles [19, 20]. PPI first originated overseas, and it was primarily applied in cancer patients in China and had favorable outcomes. PPI helps patients build confidence and hope by enhancing their positive emotional experience. This study showed that PPI effectively shortens postoperative hospital stays, bleeding times, feeding times, and the times getting out of bed in the observation group ($P<0.05$). It also reduced the SAS scores, SDS scores, and pain levels after the intervention in the observation group and improved the quality of life ($P<0.05$). Moreover, the incidences of postpartum hemorrhage, infections, depression, constipation, and bedsores in the observation group were significantly lower than they were in the control group ($P<0.05$). Overall, these data suggest that PPI can improve patients' quality of life by affecting their mental status, speeding up their recovery, and reducing their complications.

Our study still has limitations. The sample size was small, and the study was underpowered to observe all the signs. It's doubtful to attribute all the changes in mental status over time to surgery, and the clinical significance analysis needs to be evaluated with caution. The study staff involved in the data collection were not blinded to the intervention conditions which

may affect the data reporting. Nevertheless, our study emphasizes the importance of PPI for obstetric surgery patients and informs future large studies.

Disclosure of conflict of interest

None.

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