

## Original Article

# Personalized nursing care improves psychological health, quality of life, and postoperative recovery of patients in the general surgery department

Chunyan Du<sup>1</sup>, Hongyan Li<sup>2</sup>, Lijuan Qu<sup>3</sup>, Yi Li<sup>4</sup>, Xia Bao<sup>5</sup>

Departments of <sup>1</sup>Spine Surgery, <sup>2</sup>Ophthalmology, <sup>3</sup>Emergency Surgery, <sup>4</sup>Dentistry, <sup>5</sup>Vascular Surgery, The Affiliated Hospital of Qingdao University, Qingdao, Shandong, China

Received January 23, 2019; Accepted March 11, 2019; Epub July 15, 2019; Published July 30, 2019

**Abstract:** Objective: The aim of the current study was to investigate the effects of personalized nursing care on psychological health, quality of life, and postoperative recovery levels of patients during the perioperative period. Methods: There were a total of 118 patients during the perioperative period, with 59 patients undergoing regular nursing care, serving as the control group, and 59 patients undergoing personalized nursing care, forming the intervention group. This study evaluated visual analogue scale (VAS) scores, incidence of postoperative complications, disease awareness rates, negative emotions, quality of life, and degree of satisfaction with nursing in both groups. Results: After the operation, incidence of complications in the intervention group was significantly lower than that in the control group ( $P < 0.05$ ). The awareness rate of patients in the intervention group was significantly higher than that in the control group ( $P < 0.05$ ). One week following the operation, self-rated anxiety scale (SAS) and self-rating depression scale (SDS) scores of patients in the intervention group were significantly lower than those in the control group ( $P < 0.05$ ). In addition, patients in the intervention group had significantly shorter stays in the hospital and significantly lower hospitalization costs than those in the control group ( $P < 0.05$ ). Quality of life scores of patients in the intervention group were also superior to those in the control group ( $P < 0.05$ ). Patients in the intervention group had a significantly higher degree of satisfaction with nursing than the control group ( $P < 0.05$ ). Conclusion: Application of personalized nursing care in perioperative patients can ameliorate negative emotions, improve satisfaction with nursing care and awareness of diseases, and significantly decrease hospitalization times, costs, and pain, thereby facilitating recovery. Thus, it is worthy of promotion in clinical practice.

**Keywords:** Personalized nursing care, general surgery department, perioperative period, psychological health, quality of life

## Introduction

The General Surgery Department is the largest clinical department of all surgery departments, with surgery as the major treatment. It mainly deals with cancer surgeries [1, 2]. For patients that undergo surgery here, difficulties in treatment and resulting trauma are much more severe than in non-invasive or minimally invasive surgeries. These factors frighten patients, giving rise to negative emotions, like anxiety and depression, that hinder surgery implementation and postoperative recovery [3, 4]. Moreover, wound pains and infections, after surgery, are major factors affecting postoperative recovery and quality of life. These factors need to be resolved [5]. Hence, an available and efficient nursing protocol should prepare patients for surgery. This is critical for mental

health and postoperative recovery levels of patients in the General Surgery Department.

Personalized nursing care is people-oriented, integrated, individualized, and systemic, giving patients physiological and psychological comfort. These factors help patients cooperate with treatment [6, 7]. At present, personalized nursing care prioritizes respect for the personality and individual privacy of patients [8]. It has frequently been applied among patients at Gynecological [9] and Cardiac Surgery Departments [10]. It has been reported [13] that application of personalized nursing care can not only improve clinical treatment efficacy but also ease anxiety. While there have been many studies focusing on the value of personalized nursing care in perioperative patients at the General Surgery Department, most have con-

# Personalized nursing care improves mental health and postoperative recovery

**Table 1.** General information

Item	Intervention group n=59	Control group n=59	X <sup>2</sup> /t	P
Gender			0.034	0.854
Male	32 (54.24)	31 (52.54)		
Female	27 (45.76)	28 (47.46)		
Age (years)			0.035	0.852
≤ 55	25 (42.37)	24 (40.68)		
> 55	34 (57.63)	35 (59.32)		
BMI (kg/m <sup>2</sup> )			0.034	0.854
≤ 22	29 (49.15)	28 (47.46)		
> 22	30 (50.85)	31 (52.54)		
History of smoking			0.034	0.854
Yes	31 (54.10)	30 (52.63)		
No	28 (45.90)	29 (47.37)		
Drinking history			0.035	0.853
Yes	34 (52.54)	33 (55.93)		
No	25 (42.37)	26 (44.07)		
Type of surgery			0.314	0.957
Hepatobiliary surgery	13 (22.03)	12 (20.34)		
Traumatic surgery	11 (18.64)	9 (15.25)		
Anorectal surgery	12 (20.34)	13 (22.03)		
Breast surgery	13 (22.03)	14 (23.73)		
Others	10 (16.95)	11 (18.64)		
Educational level			0.036	0.850
Below high school	22 (37.29)	23 (38.98)		
High school and above	37 (62.71)	36 (61.02)		

rectal operations, 27 underwent breast surgeries, and 21 underwent other surgeries. Patients were randomly divided into the control group (treated with regular nursing care in perioperative period) and the intervention group (treated with personalized nursing care in perioperative period), with 59 patients in each group. There were no statistically significant differences in terms of gender, age, and surgery types between the two groups ( $P > 0.05$ ; **Table 1**). Inclusion criteria: Patients were eligible for surgery, conforming to the classification criteria of general surgery. Exclusion criteria: Patients had severe liver or kidney dysfunctions, severe complications, severe blood coagulation disorders, and difficulties with communication or did not cooperate with the study. All participants in the study provided informed consent. This study was approved by the Ethics

centrated on surgical efficacy and mitigation of postoperative pain in the application of personalized nursing care [11-13]. There is little information regarding postoperative quality of life levels of patients.

The current study implemented personalized nursing care for perioperative patients at the General Surgery Department, evaluating the effects on patient psychological health and quality of life.

## Methods and materials

### General data

A total of 118 perioperative patients in the General Surgery Department were prospectively randomized and selected. There were 63 men and 55 women, with an average age of  $43.58 \pm 5.13$  years old. Of these, 25 underwent liver and gallbladder surgeries, 20 underwent traumatic surgeries, 25 underwent ano-

rectal operations, 27 underwent breast surgeries, and 21 underwent other surgeries. This study was approved by the Ethics Committee of the Affiliated Hospital of Qingdao University.

### Nursing care

Patients in the control group received regular perioperative protocol of nursing care in the General Surgery Department upon admission to the hospital. This included preoperative preparations, association with anesthetists, intraoperative monitoring of vital signs (including electrocardiograph monitoring), cooperation with the physicians, and guidance regarding postoperative diet and recovery.

Patients in the intervention group received additional personalized nursing care, with the following procedures: (1) Nursing environment: Aimed to provide a comfortable and humanized nursing environment for patients with appropriate ventilation and tidiness in the wards. Regular sanitation and changes of bedclothes were provided, with comfortable humidity and

## Personalized nursing care improves mental health and postoperative recovery

temperature; (2) Psychological nursing care: Timely psychological comfort or guidance was provided with any signs of fear, anxiety, or depression in patients. Patients were informed of the notice of surgery and postoperative recovery, enhancing their awareness of the surgery. This may help patients feel more positive; (3) Intraoperative nursing care: Surgical environment was maintained at a reasonable humidity and temperature and the position of patients was adjusted to keep them comfortable. Moreover, pads were used to protect the joints of patients, according to their preferences. Vital signs were monitored closely. During the operation, patients were continuously asked if they were comfortable; (4) Postoperative nursing care: After surgery, pain care was specifically carried out for patients. Following recovery from anesthesia, nurses were made aware of the condition of patients using a questionnaire for nursing protocol in the next phase, minimizing patient pain. Additionally, a nutrition-oriented diet was adopted for patients with protein-rich, low-fat, and digestible food. Patients were prohibited from spicy, oily, or cold food. Moreover, vitamins were supplemented through vegetable and fruit intake. Meticulous guidance was provided for rehabilitation training. At the time of discharge, patients were informed of all relevant notices. Rehabilitation, psychological conditions, and quality of life levels of patients were investigated through WeChat or telephone calls. Any problems were resolved in a timely and appropriate manner. When patients were discharged from the hospital, intervention ended.

### Primary outcomes

(1) Postoperative pain levels of the two groups were evaluated using the visual analogue scale (VAS) on the third day after surgery [14]: No pain, 0 points; Mild but tolerable pain, less than 3 points; Tolerable pain but affecting sleep, 4-6 points; Intolerable pain, 7 points; (2) Incidence of postoperative complications was compared between the groups, including postoperative wound infections, postoperative pulmonary infections, and deep venous thrombosis of the lower extremities.

### Secondary outcomes

(1) One week after the operation, rates of patient awareness concerning the disease

were measured using questionnaires, with a total of 50 questions for 100 points. Scoring > 80 points indicates the disease is well understood. Scoring > 60 but < 80 indicates that the disease is generally understood. Scores < 60 indicate that the disease is poorly understood; (2) Negative emotions at one week after the operation were quantified using self-rated anxiety scale (SAS) and self-rated depression scale (SDS) [15] scores, in accordance with the criteria of previous studies; (3) Hospitalization times and costs were also compared between the groups when patients were discharged; (4) QLQ-C30 quality-of-life scale [16] scores were used to evaluate the quality of life of patients one month after discharge. The scale includes roles, somatic, emotions, cognitive, and social function, with a total of 30 items. Higher scores represent a better quality of life; (5) When patients were discharged, degree of satisfaction with nursing was measured using a questionnaire [17]. It was divided into three categories, including very satisfied, satisfied, and not satisfied.

### Statistical methods

SPSS 20.0 software (IBM, New York, USA) was used for data analysis. Measurement data were compared using independent *t*-test while enumeration data were compared using a Chi-squared test. Differences with  $P < 0.05$  are statistically significant.

## Results

### Comparison of VAS scores and rates of postoperative complications between groups

There was greater alleviation of pain in the intervention group than in the control group ( $P < 0.05$ ). The rate of complications in the intervention group was also significantly lower than that in the control group ( $P < 0.05$ ), indicating that the intervention group effectively mitigated postoperative complications (**Table 2**).

### Comparison of rates of patient awareness of the disease between groups

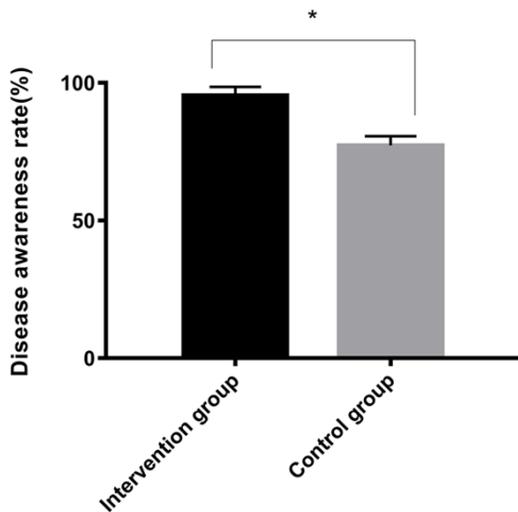
The rate of patient awareness in the intervention group was significantly higher than that in the control group ( $P < 0.05$ ). This suggests that patients in the intervention group had a deeper understanding of the disease than those in the control group (**Figure 1**).

**Table 2.** Comparison of postoperative VAS scores and postoperative complications between the two groups

	Intervention group n=59	Control group n=59	$\chi^2/t$	P
VAS score	1.32 ± 0.53	5.67 ± 1.19	25.65	< 0.001
Complication rate [n, (%)]	4 (6.78)	12 (20.34)	4.627	< 0.050

tion group were superior to those in the control group (Table 5).

*Comparison of degree of satisfaction with nursing between the groups*



**Figure 1.** Comparison of disease understanding rates between the two groups of patients; The disease understanding rate of the intervention group was significantly higher than that of the control group and differences were statistically significant ( $P < 0.05$ ); Note: \*represents  $P < 0.05$ .

Patients in the intervention group had a significantly higher degree of satisfaction with nursing (98.31%) than those in the control group (71.19%;  $P < 0.05$ ; Table 6).

**Discussion**

Of all departments in the hospital, the General Surgery Department performs the most surgeries. Negative emotions of perioperative patients, including their effects on surgery and nursing care, are a serious problem that should be resolved in clinical practice [18, 19]. Personalized nursing care aims to provide comprehensive, integral, and specific nursing care for patients, satisfying the needs of patients with comfortable and reasonable care. This method also addresses physiological and psychological needs, providing humanized care for patients. Thus, negative emotions in patients can be eliminated, promoting postoperative recovery [20, 21]. Personalized nursing care requires that nurses master solid professional knowledge and excellent communication skills. In addition, nurses should try to prepare a personalized and comfortable environment for patients [22]. With strict self-management, nurses should continue to improve their nursing profession skills and nursing concepts, aiming to provide more humanized, thoughtful, and active nursing care [23]. Since problems of perioperative patients in the General Surgery Department require urgent resolutions through a rational nursing protocol, it is necessary to select a nursing pattern with humanized care. Thus, the current study explored the value and efficacy of personalized nursing care in perioperative patients in the General Surgery Department, examining effects on psychological health and quality of life levels of patients.

*Comparison of SAS and SDS scores at one week after surgery between groups*

Negative emotions of patients in the intervention group were less severe than those in the control group, which was conducive to patient recovery (Table 3 and Figure 2).

*Comparison of hospitalization times and costs between groups*

In addition, patients in the intervention group had significantly shorter stays in the hospital and significantly lower hospitalization costs than their counterparts in the control group ( $P < 0.05$ ; Table 4).

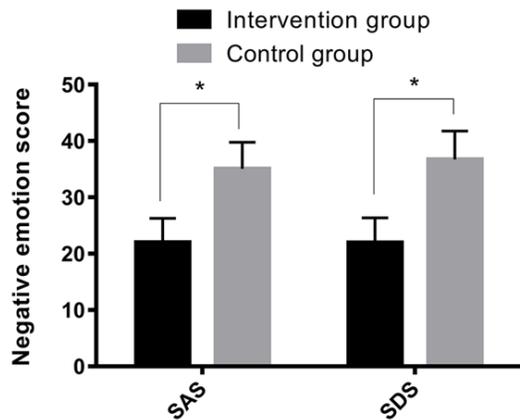
*Evaluation of quality of life of patients one month after discharge between the groups*

Scores concerning roles, emotions, and physical, cognitive, and social function in the intervention group were significantly higher than those in the control group ( $P < 0.05$ ). Thus, quality of life levels of patients in the interven-

During implementation of personalized nursing care in the General Surgery Department, the current study stipulated from the perspective of patients a nursing care protocol specific to the conditions of patients. They were provided a comfortable treatment and nursing environment, supplying comprehensive nursing care and resolving all psychological problems

**Table 3.** Comparison of SAS and SDS scores at 1 week after surgery in both groups

	Intervention group n=59	Control group n=59	t	P
SAS	22.01 ± 4.27	35.05 ± 4.72	15.74	< 0.001
SDS	21.98 ± 4.36	36.71 ± 5.04	16.98	< 0.001



**Figure 2.** Comparison of negative emotional scores in two groups of patients. SAS scores and SDS scores of the intervention group were significantly lower than those of the control group. SAS score and SDS score differences are statistically significant ( $P < 0.05$ ); Note: \*represents  $P < 0.05$ .

emerging from the perioperative period. In addition, multiple methods were adopted to investigate and solve problems for patients in recovery. Results of this study showed that, after the operation, patients in the intervention group had a VAS score of  $1.32 \pm 0.53$  points, significantly lower than that in the control group ( $5.67 \pm 1.19$ ). Rate of complications in the intervention group was 6.56%, also significantly lower than that in the control group (21.05%). It has been shown [24] that personalized nursing care can efficiently improve postoperative pain and decrease incidence of postoperative complications in patients. This is believed to be correlated with resultant improvements in the compliance of patients with treatment and nursing care.

Regarding evaluation of negative emotions, SAS and SDS scores of patients in the intervention group were  $22.01 \pm 4.27$  and  $21.98 \pm 4.36$  points, respectively, significantly lower than those in the control group ( $35.05 \pm 4.72$  and  $36.71 \pm 5.04$ , respectively;  $P < 0.05$ ). Awareness rates of the disease and nursing

satisfaction levels of patients in the intervention group were  $95.47 \pm 3.09\%$  and  $98.31\%$ , respectively, significantly higher than those in the control group ( $77.25 \pm 3.34\%$  and  $71.19\%$ , respectively;  $P < 0.05$ ). Comparing hospitalization times and costs between groups, it was found that they were significantly shorter and lower, respectively, than those in the control group ( $P < 0.05$ ). Results suggest that personalized nursing care can minimize hospitalization times and costs, mitigating economic pressure on patients and their families. In addition, quality of life scores in patients of the intervention group were superior to those in the control group ( $P < 0.05$ ). Results show the promising efficacy of personalized nursing care on perioperative patients in the General Surgery Department. Existing evidence [25] has shown that personalized nursing care can ameliorate negative emotions and improve nursing satisfaction, in accord with present conclusions. A previous study [26] indicated that patients in good psychological states usually comply with treatment. It also showed that these patients respond actively to surgical treatment and postoperative nursing care and recovery. This not only improves the efficacy of treatment but also benefits quality of life levels.

In conclusion, for perioperative patients in the General Surgery Department, personalized nursing care can minimize adverse reactions, pain, and negative emotions of patients. These factors will facilitate recovery and improve quality of life, awareness of the disease, and nursing satisfaction. Personalized nursing care can also shorten hospitalization times and decrease expenses, mitigating economic pressure on patients and families. Thus, it is worthy of promotion in clinical practice. However, due to the long period and large number of evaluation indicators in the experiment, no more targeted indicators were assessed concerning the mental health and life quality of patients. Although results suggest that patient mental health assessment and life quality levels have a direct impact on degree of recovery, no correlation analysis was conducted. Therefore, present results should be further studied and verified.

**Disclosure of conflict of interest**

None.

**Table 4.** Comparison of length of stay and hospitalization expenses between the two groups of patients

	Intervention group n=59	Control group n=59	t	P
Time of hospitalization (d)	7.31 ± 1.57	14.27 ± 2.05	20.70	< 0.001
Hospitalization expenses (Thousand yuan)	4.01 ± 1.74	5.39 ± 2.11	3.876	< 0.001

**Table 5.** Comparison of quality of life between the two groups of patients after one month of nursing

	Intervention group n=59	Control group n=59	t	P
Role function	81.41 ± 2.47	61.55 ± 2.45	44.58	< 0.001
Emotional function	80.87 ± 2.56	62.09 ± 2.17	42.98	< 0.001
Physical function	80.92 ± 2.63	61.89 ± 3.06	36.23	< 0.001
Cognitive function	79.98 ± 3.12	62.17 ± 2.87	32.27	< 0.001
Social function	80.17 ± 2.28	61.93 ± 2.58	40.69	< 0.001

**Table 6.** Comparison of nursing satisfaction between the two groups of patients

Satisfaction level	Intervention group n=59	Control group n=59	χ <sup>2</sup>	P
Very satisfied	50 (84.75)	19 (32.20)	-	-
Satisfied	8 (13.56)	23 (38.98)	-	-
Not satisfied	1 (1.69)	17 (28.81)	-	-
Nursing satisfaction rate	58 (98.31)	42 (71.19)	16.78	< 0.001

**Address correspondence to:** Xia Bao, Department of Vascular Surgery, The Affiliated Hospital of Qingdao University, No. 16, Jiangsu Road, Qingdao 266000, Shandong, China. Tel: +86-15666799507; E-mail: xiabao000@163.com

**References**

[1] Hewitt J, Moug SJ, Middleton M, Chakrabarti M, Stechman MJ, McCarthy K, Older Persons Surgical Outcomes Collaboration. Prevalence of frailty and its association with mortality in general surgery. *Am J Surg* 2015; 209: 254-259.

[2] Becher RD, Peitzman AB, Sperry JL, Gallaher JR, Neff LP, Sun Y, Miller PR and Chang MC. Damage control operations in non-trauma patients: defining criteria for the staged rapid source control laparotomy in emergency general surgery. *World J Emerg Surg* 2016; 11: 10.

[3] Cairo SB, Chiu PP, Dasgupta R, Diefenbach KA, Goldstein AM, Hamilton NA, Lo A, Rollins MD, Rothstein DH, American Academy of Pediatrics Section on Surgery's Delivery of Surgical Care Committee. Transitions in care from pediatric to adult general surgery: evaluating an unmet need for patients with anorectal malformation

and hirschsprung disease. *J Pediatr Surg* 2018; 53: 1566-1572.

[4] Bolliger M, Kroehnert JA, Molineus F, Kandioler D, Schindl M and Riss P. Experiences with the standardized classification of surgical complications (Clavien-Dindo) in general surgery patients. *Eur Surg* 2018; 50: 256-261.

[5] Charalampakis V, Seretis C, Daskalakis M, Fokoloros C, Karim A and Melissas J. The effect of laparoscopic sleeve gastrectomy on quality of life: a prospective cohort study with 5-years follow-up. *Surg Obes Relat Dis* 2018; 14: 1652-1628.

[6] Hernández Terrazas LE, Díaz Oviedo A, Martínez

Licona JF and Gaytan Hernandez D. Nursing education in humanized care. *Escola Anna Nery* 2018; 22.

[7] de Oliveira Villa LL, da Silva JC, Costa FR and Camargo CL. The perception of the companion of the humanized care in a pediatric intensive care unit. *Revista de Pesquisa Cuidado é Fundamental Online* 2017; 9: 187-192.

[8] Acosta-Romo MF, Cabrera-Bravo N, Basante-Castro Y and Jurado D. Feelings experienced by parents when their premature children are hospitalized. A contribution to the humanized care. *Universidad y Salud* 2017; 19: 17-25.

[9] Araújo CRGd, Rosas AMMTF, Menezes HFd, Pinto ACS and Rodrigues BMRD. The phenomenon lived by women in nursing consultation in the gynecological brachytherapy. *Texto & Contexto-Enfermagem* 2017; 26.

[10] Milani P, Lanferdini IZ and Alves VB. Caregivers' Perception When Facing the Care Humanization in The Immediate Postoperative Period From a Cardiac Surgery Procedure/Percepção dos Cuidadores Frente à Humanização da Assistência no Pós-Operatório Imediato de Cirurgia Cardíaca. *Revista de Pesquisa: Cuidado é Fundamental Online* 2018; 10: 810-816.

## Personalized nursing care improves mental health and postoperative recovery

- [11] Wang Y. Discussion on application of humanized nursing care in the respiratory department. *Journal of Nursing* 2018; 5: 17-19.
- [12] Junior O, Rivers N, Stachelski J and Fachi M. Management of pain in the immediate post-operative patient with patients submitted to general anesthesia. *J Anesth Crit Care Open Access* 2017; 9: 00337.
- [13] Zhiping L and Meihong L. A survey of demands of surgical department patients for humanizing nursing care during hospitalization [J]. *Chinese Nursing Research* 2007; 23: 016.
- [14] McCormack JP, Warriner CB, Levine M and Forster-Coull J. Regularly scheduled oral morphine for post surgical orthopedic pain. *The Canadian Journal of Hospital Pharmacy* 2018; 45:
- [15] Shi J and Huayan X. Observation on the clinical effect of parecoxib sodium for injection combined with psychological intervention on post-operative analgesia in the patients with thyroid cancer. *Chinese Journal of Biochemical Pharmacology* 2017; 37: 360-361.
- [16] Blazeby JM, Currie E, Zee BC, Chie WC, Poon RT, Garden OJ; EORTC Quality of Life Group. Development of a questionnaire module to supplement the EORTC QLQ-C30 to assess quality of life in patients with hepatocellular carcinoma, the EORTC QLQ-HCC18. *Eur J Cancer* 2004; 40: 2439-44.
- [17] Jiang L and Deng Y. Effect of evidence-based health education on daily life ability and nursing satisfaction of schizophrenic patients. *Chinese Journal of Medical Education Research* 2017; 16: 527-531.
- [18] Arakelian E, Swenne CL, Lindberg S, Rudolfs-son G and von Vogelsang AC. The meaning of person-centred care in the perioperative nursing context from the patient's perspective-an integrative review. *Journal of Clinical Nursing* 2017; 26: 2527-2544.
- [19] Wistrand C, Falk-Brynhildsen K and Nilsson U. National survey of operating room nurses' aseptic techniques and interventions for patient preparation to reduce surgical site infections. *Surg Infect (Larchmt)* 2018; 19: 438-445.
- [20] Lima MFG, Pequeno AMC, Rodrigues DP, Carneiro C, Morais APP, Negreiros FDDS. Developing skills learning in obstetric nursing: approaches between theory and practice. *Rev Bras Enferm* 2017; 70: 1054-1060.
- [21] Lima LM, de Santana Gonçalves S, Rodrigues DP, Araújo AdSC, de Medeiros Correia A and da Silva Viana AP. Humanized care for women in abortion: a reflective analysis. *Journal of Nursing UFPE on line-ISSN: 1981-8963* 2017; 11: 5074-5078.
- [22] Rocha JA, Crispim DH, Dei Santis D, Franck EM, da Costa FF, Brandão AB, Jales S and de Carvalho RT. Palliative care in critical areas (intensive care unit/emergency room): actuation directed to a humanized multidisciplinary care and adequate allocation of resources. *Journal of Critical Care* 2017; 42: 407.
- [23] Salazar OAB. Responsibility for the assumed work. 70 a requirement for nurses in humanized care. *Revista de Enfermería Neurológica* 2014; 13: 70-80.
- [24] Yarbrow CH, Wujcik D and Gobel BH. *Cancer nursing*. Jones & Bartlett Publishers 2016.
- [25] Wen X, Jieqiong L, Huo X, Liu J, Guo Y and Ting L. The application and effectiveness evaluation of continuing care based on humanistic care for out patients with facial plastic surgery. *Chinese Medical Ethics* 2015; 808-811.
- [26] Alikari V, Matziou V, Tsironi M, Theofilou P and Zyga S. The effect of nursing counseling on improving knowledge, adherence to treatment and quality of life of patients undergoing hemodialysis. *International Journal of Caring Science, Grécia* 2015; 8: 514-518.