Am J Transl Res 2021;13(8):9722-9728
www.ajtr.org /ISSN:1943-8141/AJTR0131126

Original Article

Effect of high-quality nursing on negative emotions and hope levels of patients undergoing oral and maxillofacial surgery

Linfeng Sun[1], Fan Yang[2], Lan Zhang[1]

[1]*Department of Head and Neck Surgery, Cancer Hospital of China Medical University, Liaoning Cancer Hospital & Institute, Shenyang, Liaoning Province, China;* [2]*Department of Pediatric, Shengjing Hospital of China Medical University, Shenyang, Liaoning Province, China*

Received January 30, 2021; Accepted March 27, 2021; Epub August 15, 2021; Published August 30, 2021

Abstract: Objective: To investigate the effect of high-quality nursing on negative emotions and hope levels after oral and maxillofacial surgery (OMS). Methods: A prospective study involving 120 patients who underwent OMS from December 2018 to January 2020 was conducted. The study subjects were classified into a study group and control group with 60 in each, using a random number table. Routine nursing was applied in the control group, while the study group was given high-quality nursing. Psychological status, hope levels, quality of life (QOL), complications and satisfaction rate were compared between patients in the two groups before and after intervention. Results: After intervention, the scores of HAMA (Hamilton Anxiety Rating Scale) and HAMD (Hamilton Depression Rating Scale) of the two groups were both significantly reduced, and the decrease was significantly greater in the study group (all P<0.05). After intervention, the scores of Herth Hope Index (HHI) and Generic quality of life Inventory-74 (GQOLI-74) in the two groups were both elevated, and the increase was significantly greater in the study group (all P<0.01). As compared with the control group, the total incidence of complications in study group was significantly lower (P=0.04), while the satisfaction rate with nursing was higher (P=0.032). Conclusion: High-quality nursing, with low incidence of complications and high overall satisfaction rate, can significantly relieve adverse emotions and promote QOL after OMS.

Keywords: Negative emotions, high-quality nursing, hope level, oral and maxillofacial surgery

Introduction

Oral and maxillofacial surgery (OMS) is, a common operation that can not only improve the facial condition of patients and play a therapeutic effect, but also improve facial aesthetics. Yet, some patients may have difficulty in swallowing food and drinking water to various degrees after operation, and even a few patients may have postoperative communication disorders and facial deformities, which not only affects daily life, but also increases the risk of adverse psychological emotions. This in turn affects the therapeutic result and reduces the patient's satisfaction with the treatment [1-3]. Therefore, postoperative scientific nursing service is extremely important. Routine nursing is mostly general inpatient nursing measures, and the attention to the objective indicators such as patients' psychology is not enough.

High-quality nursing is a patient-centered nursing model that takes various interventions from the perspective of patients to achieve the purpose of high-quality nursing services. At present, this nursing model is widely used in many clinical departments such as obstetrics and gynecology, general surgery, and cardiology, and shows a better therapeutic effect. For example, high-quality nursing could significantly improve postoperative quality of life (QOL) of patients undergoing cervical cancer surgery and gastric cancer resection [4, 5]. Mendes et al. believe that high-quality nursing helps patients with coronary heart disease to improve their treatment compliance, and further improve their cardiac function [6]. In contrast, in our study, a four-handed operation, chair position nursing, and the relationship between medical staff and patient position were integrated into the nursing work, so that the medi-

Table 1. Comparison of general data between the two groups (n, ($\bar{x}$ ± sd))

Indicator	Study group (n=60)	Control group (n=60)	χ^2/t	P
Gender (n)			0.845	0.358
Male	24	29		
Female	36	31		
Age (years old)	40.4±5.3	41.6±6.1	1.150	0.252
BMI (kg/m^2)	23.20±2.54	23.02±2.30	0.407	0.685
Operation time (min)	43.3±6.4	45.1±7.2	1.447	0.150
Smoking history			0.430	0.512
Yes	12	15		
No	48	45		
Alcohol history			0.223	0.637
Yes	12	10		
No	48	50		
Underlying disease (n)			0.720	0.698
Diabetes	2	3		
Hypertension	4	6		
Hyperlipidemia	2	1		

cal staff could maintain a comfortable position and posture in a natural situation in line with physiology, tolerate a long-lasting surgical operation, and improve the treatment efficiency [7]. Based on this, a prospective study involving 120 patients, who received OMS in our hospital, was conducted to compare the effect of high-quality nursing with conventional nursing on the negative emotions and hope levels of patients who underwent OMS.

Materials and methods

General data

A prospective study was done on 120 patients who underwent selective OMS from December 2018 to January 2020 in the Department of Head and Neck Surgery of our hospital. The subjects were divided into two groups, 60 in each, namely a study group and a control group using a random number table. The general data of patients are shown in **Table 1**.

Inclusion criteria: patients with an age of 18-40 years old; patients received OMS; patients signed an Informed Consent.

Exclusion criteria: patients with malignant tumor, mental illness, cognitive dysfunction, or couldn't complete the questionnaire alone; pregnant or lactating women; patients who participated in other research projects at the same time. This study was approved by the Ethics Committee of our hospital.

Method

Conventional routine nursing was applied in the control group, such as routine preoperative preparation, ward care, medication guidance, and diet care [8].

The study group was given high-quality nursing: (1) Preoperative psychological counseling: The patients were received warmly, and the nursing staff briefly introduced the department environment to the patients to eliminate their inadaptation; the patients were actively introduced to the general information of oral health and surgery, and were instructed to self-regulate moods and emotions; the mental health of the patients was assessed during the communication process, and patients with obvious psychological disorders were given targeted psychological counseling, so that they could face surgery in the best psychological state [9]. (2) Intraoperative nursing: The patient was in a supine' position, and the oral cavity was divided into four sectiors (7-12 o'clock area, 12-2 o'clock area, 2-4 o'clock area, and 4-7 o'clock area) according to the clock instruction method. Four-handed operating skills were used to complete device transmission such as forceps transmission, anesthesia syringe transmission, reamer needle transmission, and device exchange transmission. Surgeon-nurse-patient position: the doctor was seated, the nurse was on the opposite side of the doctor in sitting position, generally at 3 o'clock position. The patient lied supine on the comprehensive treatment table, which was elevated by about 25 cm [10]. (3) Postoperative care: After surgery, the patients were instructed to deviate to one side to avoid accidental aspiration. For the doubts raised by the patients, the nursing staff explained with easy-to-understand language, and the patients were asked to adjust their mood and establish confidence to overcome the disease. For the patients who couldn't swallow or eat normally after surgery, special mouthwash was used daily to reduce bacterial breeding. The patients were asked not to eat spicy, cold, and stimulating food [11].

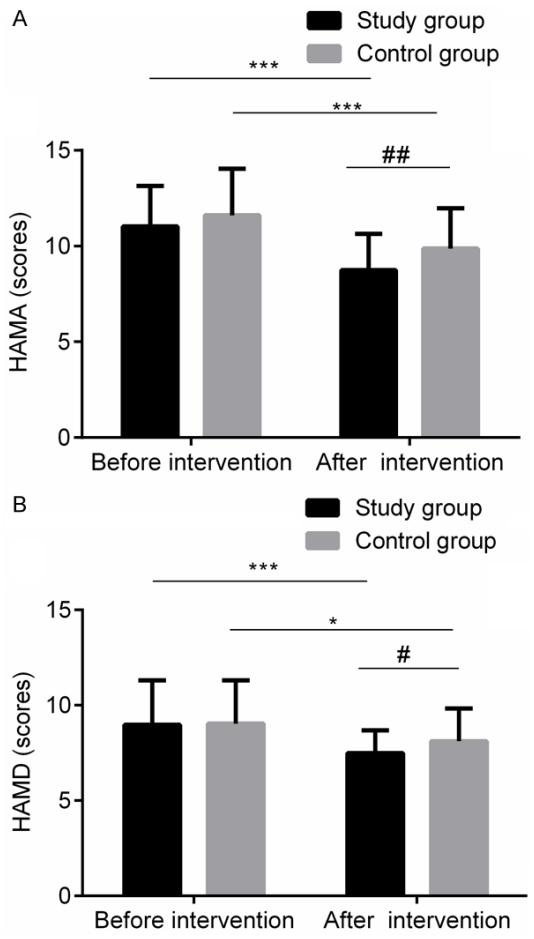

Figure 1. Comparison of HAMA and HAMD scores before and after intervention between the two groups. A: Comparison of HAMA scores; B: Comparison of HAMD scores. Compared with before intervention, *P<0.05, ***P<0.001. After intervention, compared with the control group, #P<0.05, ##P<0.01. HAMA: Hamilton anxiety rating scale; HAMD: Hamilton depression rating scale.

Outcome measures

Primary outcome measures: (1) HAMA (Hamilton Anxiety Rating Scale) and HAMD (Hamilton Depression Rating Scale) (17 items) were used to evaluate anxiety and depression in patients before and after intervention. The higher the scores, the severer the degree of anxiety and depression [12, 13].

(2) The Herth Hope Index (HHI) was used to evaluate patient's hope levels before and after the intervention, which included a total of three dimensions: positive attitude towards reality and the future, taking positive actions, and maintaining intimate relationship with others, each containing four items, with 1 to 4 points for each item, and the scale totaled 12 to 48 points. The higher the scores, the better the hope level [14].

Secondary outcome measures: (1) The QOL of patients was assessed before and after the intervention by Generic Quality of Life Inventory (GQOLI-74), including four aspects: physical function, social function, psychological function, and material life status. The first three dimensions scored 20-100 points, the last dimension scored 16-80 points. Higher score indicated better QOL [15].

(2) Complications were compared between the two groups, including nausea and vomiting, traction wound, accidental swallowing or aspiration, and wound dehiscence.

(3) Nursing satisfaction survey was used to compare the nursing satisfaction of the two groups, which was divided into satisfactory, basically satisfactory and unsatisfactory, satisfaction = (satisfactory + basically satisfactory) cases/total cases ×100% [16].

Statistical analysis

SPSS 20.0 was applied for data processing. Counted data was expressed as n (%), and was compared using χ^2 test, corrected χ^2 test or Fisher exact test. A non-parametric test was used for ranked data. Measurement data conforming to a normal distribution were expressed as mean ± SD ($\bar{x}$ ± sd). Intra-group comparison of pre- and post-intervention was conducted using paired *t* test, while the inter-group comparison was conducted using independent *t*-test. Statistical significance was set as P<0.05.

Results

General information

There was no significant difference in baseline data observed, such as gender, age, BMI, operation time, smoking history, alcohol history, and underlying disease, indicating that the two groups were comparable (P>0.05) (**Table 1**).

HAMA and HAMD scores

After the intervention, the scores of HAMA and HAMD in the two groups were both significantly decreased, and the decrease was greater in study group (all P<0.05) (**Figure 1**).

Table 2. Comparison of HHI scores before and after intervention between the two groups ($\bar{x}$ ± sd; points)

Group	Positive attitude towards reality and the future	Take positive action	Maintain intimate relationships with others
Study group (n=60)			
Pre-intervention	8.79±1.84	7.58±1.75	8.21±1.84
Post-intervention	10.89±2.03***,##	10.14±1.84***,##	11.15±2.23***,##
Control group (n=60)			
Pre-intervention	8.45±1.62	7.84±1.40	8.14±1.96
Post-intervention	9.97±1.55***	9.10±1.88***	10.04±2.07***

Note: Compared with that before intervention, ***P<0.001; after intervention, compared with the control group, ##P<0.01. HHI: Herth Hope Index.

HHI scores

After the intervention, the scores of HHI in the two groups were significantly higher than the pre-intervention ones, and the increase was greater in the study group (all P<0.01) (**Table 2**).

GQOLI-74 scores

As compared with pre-intervention, the scores of all dimensions of GQOLI-74 were all elevated after intervention, and the increases were greater in study group (P<0.01) (**Table 3**).

Complications

As compared to the control group, the total incidence of complications was significantly decreased (5% *vs.* 16.67%) in the study group (P<0.05) (**Table 4**).

Satisfaction rate in nursing

As compared to the control group, the satisfaction rate regarding nursing quality was significantly increased (93.33% *vs.* 80%) in the study group (P<0.05) (**Table 5**).

Discussion

Al Atassi et al. found that 58% of patients who underwent OMS had moderate to severe anxiety disorders; thus, it is important to use appropriate and effective nursing measures to improve the adverse emotions of patients to ensure the smooth progress of surgery and promote later rehabilitation [17]. In this study, the post-intervention HAMA and HAMD scores of patients in the control group were all higher than those in the study group, suggesting that high-quality nursing could better improve the negative emotions of patients undergoing OMS. There are many factors influencing postoperative adverse psychology for patients who undergo OMS, of which preoperative fear of surgical risk, postoperative fear of incomplete recovery and postoperative swallowing, drinking difficulties, and other factors can affect the patient's psychology. Long-term negative emotions can not only affect the normal metabolism of the body, but also make the body produce a stress response, which is not conducive to surgery or postoperative rehabilitation [18]. Jehn et al. discovered that in the surgical treatment cycle of oral cancer, psychological counseling can greatly alleviate the adverse psychology of patients such as anxiety and depression, as high-quality nursing not only attaches importance to patient's disease care, but also emphasizes patient's mental health. Preoperative psychological counseling greatly alleviated the patient's concerns about surgical risks. Through psychological counseling, patients mastered certain skills to self-regulate their mood, and actively improve their adverse emotions, so that patients could face surgery with the best mentality [19]. In addition, high-quality nursing is a patient-centered nursing model that integrates the advanced nursing concept. It starts from the patient's point of view, and performs comprehensive nursing intervention from a variety of aspects such as physical, psychological, oral hygiene, and daily life diet, and makes sufficient preparation; thus, it can eliminate or alleviate the patient's negative emotions [20].

Our results showed that the scores of HHI and GQOLI-74 after intervention were all higher in the study group than those in the control group, indicating that high-quality care can significantly improve hope level and QOL of patients undergoing OMS. This is similar to the study results of Li et al., in which the authors pointed out that reasonable nursing intervention can improve patient's hope levels, and Jena et al. discovered that high-quality tertiary

Table 3. Comparison of GQOLI-74 scores before and after intervention between the two groups ($\bar{x}$ ± sd; points)

Group	Social function	Physical function	Mental function	Physical status
Study group (n=60)				
Pre-intervention	72.79±4.39	75.50±5.55	70.94±5.03	67.79±5.40
Post-intervention	83.40±5.42***,##	85.43±6.39***,##	78.85±5.88***,##	74.48±4.67***,##
Control group (n=60)				
Pre-intervention	73.40±5.46	76.07±6.10	71.63 ± 5.47	68.35±5.28
Post-intervention	79.95±6.33***	82.10±6.87***	75.40±6.38***	72.04±4.70***

Note: Compared with that before intervention, ***P<0.001; after intervention, compared with the control group, ##P<0.01. GQOLI-74: Generic Quality of Life Inventory-74.

Table 4. Comparison of incidence rate of complications between the two groups (n, %)

Group	Nausea and vomiting	Traction wound of mouth	Accidental swallowing or aspiration	Wound dehiscence	Total occurrence
Study group (n=60)	1 (1.67)	1 (1.67)	1 (1.67)	0 (0.00)	3 (5.00)
Control group (n=60)	3 (5.00)	2 (3.33)	4 (6.67)	1 (1.67)	10 (16.67)
χ^2	0.259	0.000	0.835		4.227
P	0.611	1.000	0.361	1.000	0.040

Table 5. Comparison of nursing satisfaction between the two groups (n, %)

Group	Satisfactory	Basically satisfactory	Unsatisfactory	Satisfaction
Study group (n=60)	33 (55.00)	23 (38.33)	4 (6.67)	56 (93.33)
Control group (n=60)	23 (38.33)	25 (41.67)	12 (20.00)	48 (80.00)
Z/χ^2		5.869		4.615
P		0.053		0.032

care is of great help in improving the QOL of patients with oral submucosal fibrosis [21, 22]. High-quality nursing is a patient-centered nursing model, which puts the health and comfort of patients first. The nursing staff adjusts the doctor-nurse-patient position and the height of the operating table, masters the transmission of devices and pays attention to the hygiene of patient's oral cavity, etc., fundamentally solving the situation that the patient repeatedly changes the body position. The doctor maintains a difficult posture for a long time and the nursing staff shuttles back and forth during surgery, greatly improving the work efficiency, which is also extremely helpful to improve postoperative QOL of patients after surgery [23].

Nausea and vomiting, traction wound, accidental swallowing or aspiration, and wound dehiscence are the common complications of OMS [24, 25]. In our study, total incidence of complications was significantly lower, while the satisfaction rate in nursing was significantly higher in study group as compared to the control group. This indicates that high-quality nursing can effectively reduce the complications and improve patient's satisfaction in OMS. However, this study still has the limitations of relatively small sample size and single-center investigation. The effect of high-quality nursing on the long-term psychological status and QOL of patients after surgery still needs to be confirmed by a multicenter and larger sample size study in the future.

In summary, high-quality nursing, with a low incidence of complications and a high overall satisfaction, can significantly alleviate the adverse emotions and enhance the QOL of patients undergoing OMS.

Disclosure of conflict of interest

None.

Address correspondence to: Lan Zhang, Department of Head and Neck Surgery, Cancer Hospital of China Medical University, Liaoning Cancer Hos-

pital & Institute, No. 44 Xiaoheyan Road, Dadong District, Shenyang 110044, Liaoning Province, China. Tel: +86-024-31916833; Fax: +86-024-31916833; E-mail: sliohany@163.com

References

[1] Gilheaney Ó, Stassen LF and Walshe M. Prevalence, nature, and management of oral stage dysphagia in adults with temporomandibular joint disorders: findings from an irish cohort. J Oral Maxillofac Surg 2018; 76: 1665-1676.

[2] Namaki S, Tanaka T, Hara Y, Ohki H, Shinohara M and Yonhehara Y. Videofluorographic evaluation of dysphagia before and after modification of the flap and scar in patients with oral cancer. J Plast Surg Hand Surg 2011; 45: 136-142.

[3] Inui A, Takahashi I, Kurauchi S, Soma Y, Oyama T, Tamura Y, Noguchi T, Murashita K, Nakaji S and Kobayashi W. Oral conditions and dysphagia in Japanese, community-dwelling middle- and older-aged adults, independent in daily living. Clin Interv Aging 2017; 12: 515-521.

[4] Schad MD, Moore J, Camacho F, Anderson RT, Cantrell LA and Showalter TN. Predictors of quality of care and survival in a three-state cohort of locally advanced cervical cancer patients and development of a predictive model to identify women at risk of incomplete treatment. Medicine (Baltimore) 2019; 98: e16874.

[5] Burton PR, Ooi GJ, Shaw K, Smith AI, Brown WA and Nottle PD. Assessing quality of care in oesophago-gastric cancer surgery in Australia. ANZ J Surg 2018; 88: 290-295.

[6] Mendes A. Coronary heart disease: self-care, communication and quality of life. Br J Community Nurs 2015; 20: 42.

[7] Chen WY, Huang HC, Lee YT and Liang C. Body ownership and the four-hand illusion. Sci Rep 2018; 8: 2153.

[8] Frosch ZA and Abel GA. Assessing quality of care for the myelodysplastic syndromes. Curr Hematol Malig Rep 2016; 11: 402-407.

[9] Symon A, McFadden A, White M, Fraser K and Cummins A. Using a quality care framework to evaluate user and provider experiences of maternity care: a comparative study. Midwifery 2019; 73: 17-25.

[10] Springborg JB, Lang JM, Fugleholm K and Poulsgaard L. Face-to-face four hand technique in vestibular schwannoma surgery: results from 256 Danish patients with larger tumors. Acta Neurochir (Wien) 2020; 162: 61-69.

[11] Dubey SP and Munjal VR. Endoscopic endonasal transsphenoidal hypophysectomy: two hand versus four hand technique: our experience. Indian J Otolaryngol Head Neck Surg 2014; 66: 287-290.

[12] Zimmerman M, Martin J, Clark H, McGonigal P, Harris L and Holst CG. Measuring anxiety in depressed patients: a comparison of the Hamilton anxiety rating scale and the DSM-5 Anxious Distress Specifier Interview. J Psychiatr Res 2017; 93: 59-63.

[13] Raimo S, Trojano L, Spitaleri D, Petretta V, Grossi D and Santangelo G. Psychometric properties of the hamilton depression rating scale in multiple sclerosis. Qual Life Res 2015; 24: 1973-1980.

[14] Rustøen T, Lerdal A, Gay C and Kottorp A. Rasch analysis of the Herth Hope Index in cancer patients. Health Qual Life Outcomes 2018; 16: 196.

[15] Zhou Y, Zhou R, Li W, Lin Y, Yao J, Chen J and Shen T. Controlled trial of the effectiveness of community rehabilitation for patients with schizophrenia in Shanghai, China. Shanghai Arch Psychiatry 2015; 27: 167-174.

[16] Deferm JT, Burger M, Prudon T, van Bergen M, Vaneker M and Borstlap WA. Patient satisfaction with procedural sedation in oral and -maxillofacial surgery. Ned Tijdschr Tandheelkd 2018; 125: 281-286.

[17] Al Atassi H, Shapiro MC, Rao SR, Dean J and Salama A. Oral and maxillofacial surgery resident perception of personal achievement and anxiety: a cross-sectional analysis. J Oral Maxillofac Surg 2018; 76: 2532-2539.

[18] Aschbacher K, O'Donovan A, Wolkowitz OM, Dhabhar FS, Su Y and Epel E. Good stress, bad stress and oxidative stress: insights from anticipatory cortisol reactivity. Psychoneuroendocrinology 2013; 38: 1698-1708.

[19] Jehn P, Stier R, Tavassol F, Dittmann J, Zimmerer R, Gellrich NC, Krüskemper G and Spalthoff S. Physical and psychological impairments associated with mucositis after oral cancer treatment and their impact on quality of life. Oncol Res Treat 2019; 42: 342-349.

[20] Brucoli M, Baena RRY, Boffano P and Benech A. Psychological profiles in patients undergoing orthognathic surgery or rhinoplasty: a preoperative and preliminary comparison. Oral Maxillofac Surg 2019; 23: 179-186.

[21] Li P, Guo YJ, Tang Q and Yang L. Effectiveness of nursing intervention for increasing hope in patients with cancer: a meta-analysis. Rev Lat Am Enfermagem 2018; 26: e2937.

[22] Jena AK, Rautray S, Mohapatra M and Singh S. Oral health-related quality of life among male subjects with oral submucous fibrosis in a tertiary care hospital. Indian J Public Health 2018; 62: 271-276.

[23] Zomorodi A and Fukushima T. Two surgeons four-hand microneurosurgery with universal

holder system: technical note. Neurosurg Rev 2017; 40: 523-526.

[24] Albuquerque AF, Queiroz SI, Germano AR and da Silva JS. Factors associated to post-operative nausea and vomiting following oral and maxillofacial surgery: a prospective study. Oral Maxillofac Surg 2017; 21: 49-54.

[25] Dobbeleir M, De Coster J, Coucke W and Politis C. Postoperative nausea and vomiting after oral and maxillofacial surgery: a prospective study. Int J Oral Maxillofac Surg 2018; 47: 721-725.